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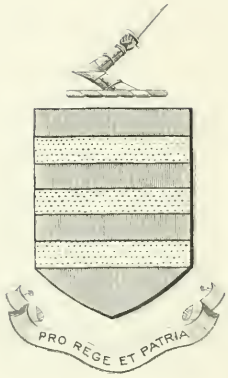

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MEDICAL RECORD

A Weekly Journal of Medicine and Surgery

EDITED BY

THOMAS L. STEDMAN, A.M., M.D.

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Original Articles.

FURTHER OBSERVATIONS ON INJURIES OF THE NECK OF THE FEMUR IN EARLY LIFE;

WITH REFERENCE TO THE DISTINCTION BETWEEN FRACTURE OF THE NECK AND EPIPHYSEAL DISJUNCTION AS INFLUENCING POSITIVE TREATMENT.*

By ROYAL WHITMAN, M.D.,

NEW YORK.

In 1890 I presented at a meeting of this Section a case of fracture of the neck of the femur in a child, and in succeeding years reported other cases as they came under my observation. Later, when the *x*-ray became available for diagnosis, injuries of this character could be easily demonstrated and their comparative frequency began to attract attention.

In 1898, Sprengel, who had had under observation for a year or more two youths, aged respectively seventeen and eighteen, suffering from increasing pain and disability, supposed to be caused by disease of the hip joint, performed on each the operation of excision, the specimens illustrating epiphyseal fracture. (*Archiv f. klin. Chir.*, Band 47, S. 805.) On such evidence, so positive and yet misleading, it was generally assumed that practically all fractures at the hip in early life were of this character. For example, Hoffa in 1903 (*Zeits. f. Ortho. Chir.*) analyzed 84 cases collected from literature. Of these he concluded that 80 were epiphyseal fractures and that but 4, all of which had been reported by myself, were fracture of the neck.

The distinction between a fracture at the epiphyseal junction and another, a fraction of an inch removed from it, is not always clear to one who is inexperienced in the differential diagnosis of this class of injuries; moreover, the impression has long prevailed that the younger the child, in other words, the more pronounced the distinction between the developing and the finished bone, the greater the likelihood of epiphyseal disjunction. It may be questioned, therefore, if the name under which these cases are reported, has, in most instances, any particular significance.

In very early childhood the greater part of the upper extremity of the femur is cartilaginous, the centers of ossification for the head and neck being widely separated, as is well shown in *x*-ray pictures. At this period and during the first ten years of life at least, epiphyseal separation is unusual because the junction is protected by a firm enclosing covering of cartilage, reinforced by periosteal tissue. This comparative strength is illustrated by the resistance offered to forced and persistently repeated abduction in the reduction of congenital dislocation of the hip, the movement that is experimentally the most effective in producing disjunction at this joint. In adolescence, however, the junction becomes relatively weak, for while there is an approximation to the adult shape and structure, there yet remains a thin segment of cartilage with newly forming and therefore vulnerable bone on the diaphyseal side. It is through this partly consolidated tissue that complete or partial separation occurs, also the form of epiphyseal coxa vara in which the head is displaced downward and backward of the neck retains its normal angle; a form which, when unilateral, is in most instances induced by injury, in other words, a fracture rather than a developmental deformity.

As traumatic epiphyseal separation must be classed as fracture of the neck of the femur, an injury once ignored, but now generally recognized, it may be asked why the exact location of the lesion is of particular interest.

If one were content with the accepted methods of treatment of this fracture, in the light of the results attained, or if there were no remote penalties for uncorrected deformity in early life, or if one considers excision of the head of the femur—"Sprengel's operation"—as a remedy and not a mutilation, there would be no practical advantage in correct diagnosis. Fortunately, however, a higher standard must be eventually recognized and I shall again point out the distinction between the two classes of injury with reference to its influence on treatment conducted for the purpose of restoring the function of the injured part.

As regards history, it may be stated that an injury to the hip in a healthy subject resulting in immediate disability and presenting the physical signs of fracture, whether in childhood or adolescence, is far more likely to be a fracture of the neck than at the epiphyseal junction. In the first ten years of life the injury is almost certainly of the neck. In adolescence it is probably at this point. If, on the other hand, the subject is an adolescent, particularly of the weak, rapidly growing or over-weighted type, if the symptoms were induced by comparatively slight injury; if the disability was not complete, but slowly progressive, the probability is that the lesion is an incomplete epiphyseal fracture. For if the separation is immediate and complete the injury is usually more severe, involving leverage of the limb upon the head, and the disability is correspondingly greater

In the cases of fracture of the neck, after the primary pain and weakness have lessened, the patient begins to walk about and later is brought for treatment because of a persistent limp, usually accompanied by slight discomfort. The physical signs, aside from the limp, are an inch or less of shortening, prominence and elevation of the trochanter and

*Read in part before the Orthopedic Section of the New York Academy of Medicine.

slight outward rotation of the limb. Motion is practically free except in abduction, which is restricted in accordance with the degree of depression of the neck.

These symptoms, called characteristic, are, it may be noted, those of the stage of repair, which, persisting after recovery from what was thought to be a contusion, are mistaken for those of hip disease. As repair in these cases has been unaided by treatment, it must be assumed that the fracture is usually incomplete. In other instances it may be complete, and non-union may follow treatment by conventional methods, as in four cases that have come under my observation, in three of which operative intervention permitted direct inspection.

The results after non-treatment, compared with those of the adult class, from the accepted standpoint would be considered extremely good, but as I have on other occasions pointed out, as the lessened angle induces adduction, and as the strain is proportionately increased, the deformity and the consequent disability are, as in other forms of coxa vara, usually progressive. Treatment, therefore, if effective, must restore the normal contour.

If one has an opportunity to treat the patient before consolidation is advanced, the limb should, under traction and by carefully applied force, be placed and fixed in complete abduction for the purpose of reducing the deformity, in the manner that I have so often described. If, however, as in most instances, repair has taken place, a sufficient wedge of bone should be removed from the base of the trochanter to restore the angle of the neck and thus the range of abduction which is dependent upon it.

The characteristic cases of epiphyseal fracture are, in adolescents: The injury is comparatively slight, so slight, it may be, as to pass unnoticed. The disability is not immediate nor complete, but the symptoms become progressively more disabling during the time that in fracture is the period of repair. Motion becomes more limited, until, in many instances, there is practical fixation at the joint. The reason is evident. In fracture of the neck of the femur the joint is not directly involved; in epiphyseal fracture it is, thus movements are restricted by the irregularities of the opposing surfaces and by the muscular spasm that is symptomatic of all joint injuries and diseases. In fracture of the neck the history and the physical signs point directly to injury and consequent deformity, whereas in epiphyseal fracture the superficial indications are often those of disease.

The final results of untreated cases of fracture of the neck are distortion and apparent shortening of the limb, but comparative freedom of motion in directions not opposed by the deformity. In epiphyseal displacement there is, in addition, great limitation of motion or partial anchylosis resulting from disorganization of the joint, with a certain degree of shortening due to loss of growth.

In rare instances the epiphyseal separation may be complete so that a disengagement and replacement of the fragments by manipulation may be possible, but in most cases, at least at the time when the opportunity for intelligent treatment is offered, the fragments are firmly adherent to one another and reposition is impossible without open operation. This operation is indicated therefore in all characteristic cases for the purpose of relieving pain, checking the progression of the deformity and restoring function. As this procedure is almost never required for fracture of the neck, the importance of the distinction between the two forms of injury which I was, I believe, the first to make and the first to act upon, is evident.

Partial displacement to the degree to interfere markedly with the movement of the joint, and in rare instances complete separation, are the cases that one usually has an opportunity to treat.

Undoubtedly there are others in which there is an injury and even slight separation at the epiphyseal junction, in which the character of the lesion cannot be demonstrated. These may recover spontaneously, or they may be treated for disease and pass as remarkable cures, or in the absence of protection the displacement slowly increases and finally the case is classed as epiphyseal coxa vara, the essential distinction being that in this type the slowly increasing deformity is accompanied by a certain degree of repair and functional adaptation to the new conditions.

If the fracture might be detected in these early cases, protective treatment would probably assure repair, but such diagnostic ability can hardly be looked for at the present time when the characteristic cases are overlooked or treated for hip disease.

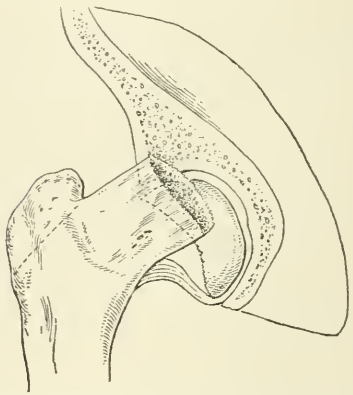

Fig. 1.—The ordinary type of epiphyseal fracture in which the neck presents in front and above the head, illustrating the disorganization of the joint.

Thus far the *x*-ray has not been mentioned. Usually by its means one may demonstrate cases of fracture of the neck or of complete epiphyseal disjunction, but in many cases of the incomplete type, the shadow is ill defined and the blurred outline may be thought to confirm a diagnosis of disease.

I shall now present briefly a number of illustrative cases of fracture of the neck of the femur, particularly of the epiphyseal type, from which the foregoing conclusions have been drawn.

Case I. A girl, 15 years of age, without appreciable cause, began to limp and to complain of stiffness referred to the right thigh. These symptoms increased and eight weeks later, on November 23, 1903, she was admitted to the Hospital for Ruptured and Crippled. She was of the overgrown type, the disability was complete, the limb being fixed in extension and outward rotation by muscular spasm. On opening the joint the head of the femur was found to be displaced slightly downward and backward, exposing the sharp angular anterior border of the neck. As the fragments were firmly adherent this projection was removed and the wound was closed. At the end of three months she

began to use the limb and when last seen, several months later, function appeared to be perfect, with the exception of some limitation of flexion.

Case II. A tall, strong boy, 15 years of age, was thrown down and dragged for half a block by a street car. After the accident he suffered from stiffness and discomfort about the right hip, but continued to work for two months when the symptoms increased to the point of disability and he was admitted to the Hospital for Ruptured and Crippled on December 28, 1903. The limb was fixed in an attitude of extension and outward rotation, a resistant swelling was apparent on the anterior aspect of the joint, there was half an inch of shortening. On opening the joint, the swelling was the extremity of the neck of the femur. From this a thin section of bone was removed to permit a chisel to be passed between it and the head of the bone, then by leverage and by rotation of the limb the fragments were adjusted. A perfect functional cure followed. The patient is now a fireman on a locomotive.

Case III. A well developed girl, 14 years of age, was admitted to the Hospital for Ruptured and Crippled on July 27, 1907, for the treatment of hip disease. About six weeks before, without known cause, she began to limp and to complain of stiffness and discomfort about the left hip. Four weeks later she fell on the stairs, since then she had been unable to walk. There was much pain when the limb was moved, but none when at rest. The left limb was fully extended and rotated outward, motion was painful and was restrained by muscular spasm. The shortening was less than half an inch. The diagnosis of epiphyseal fracture was made and the joint was opened. The head of the bone was completely concealed by the projecting extremity of the neck. A thin section having been removed the limb could be rotated inward and perfect apposition attained. The plaster spica was retained for eight weeks and crutches were used for several weeks longer. There is at present perfect functional cure.

Case IV. A very fat girl, 12 years of age, was brought to the Hospital for Ruptured and Crippled on March 25, 1907. About four weeks before she had slipped on a carpet and had fallen on the left hip. She then limped and complained of stiffness and discomfort. On March 18 another fall caused complete disability. In this case the outward rotation of the limb was so extreme that the outer border of the foot was parallel to the table. The limb was slightly adducted and flexed to an angle of 150°. There was practically no motion. The operation was somewhat difficult in that the joint was about three inches from the surface and in that a wide fragment of cartilage was adherent to the exposed neck, giving the impression of a shattered head. A somewhat large and wedge-shaped section of the bone was removed before satisfactory apposition could be assured. At the last examination, several months ago, a slight limp persisted and the range of abduction was limited to about one-half of the normal.

Case V. A rather slender girl, 12 years of age, was admitted to the Hospital for Ruptured and Crippled on December 25, 1907, for the treatment of hip disease. Nine weeks before, without known cause, she began to complain of pain and stiffness about the left hip. These symptoms increased, and one week later she was obliged to remain for a time in bed, after which the pain subsided, to reappear on walking. The physical examination of this patient differed somewhat from that of the others in that the limb was flexed, abducted and rotated outward. Motion was painful and almost entirely restrained by muscular spasm, a typical picture of hip disease. There was, however, three-quarters of an inch of shortening. The *x*-ray negative showed what might have been interpreted as destructive disease, but which was in reality displacement of the head of the bone. The usual operation was performed. In this case a fragment of cartilage was adherent to the neck. Reduction was easily accomplished in the manner described. At the present time there is no limp or disability, and a perfect functional cure may be predicted.

Case VI. A large girl, 13 years of age, was admitted to the Hospital for Ruptured and Crippled

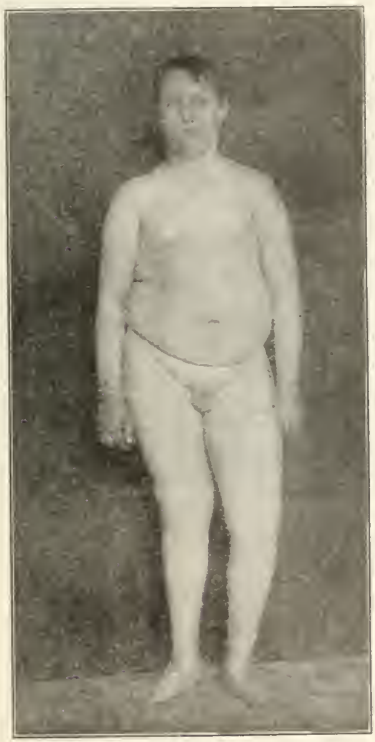

Fig. 2.—Case VII. The overgrown type, illustrating the predisposition to deformity.

on December 6, 1906. One month before she had fallen down a flight of stairs injuring the left hip. She was unable to walk and was taken to a hospital where she was treated for contusion, but as she continued to limp she was transferred to the Hospital for Ruptured and Crippled. In this case epiphyseal injury was thought to be probable, although there was no shortening. Repeated attempts failed to produce a satisfactory *x*-ray picture. My term of service coming to an end, I did not again see the patient for a year, when she was again admitted because of the persistent pain, limp and a restriction of motion to a range of about 20°. At this time shortening of half an inch was evident. The operation was performed on December 3, 1907, and a typical epiphyseal fracture was found. In this

case it seemed necessary to remove a wedge-shaped segment from the extremity of the neck in order to permit reposition by inward rotation. This patient has returned to the institution from which she came. When last examined the attitude was normal. There was no pain, and the range of motion under massage and voluntary exercises was increasing.

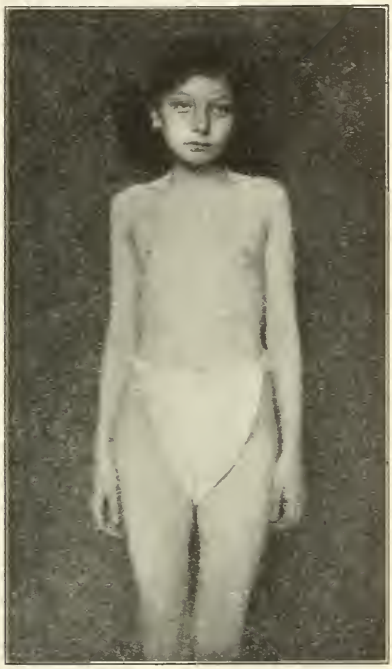

FIG. 3.—Case IX. Complete epiphyseal separation as shown in Fig. 4. The only distortion shown in this photograph, taken before operation, is the outward rotation of the left limb.

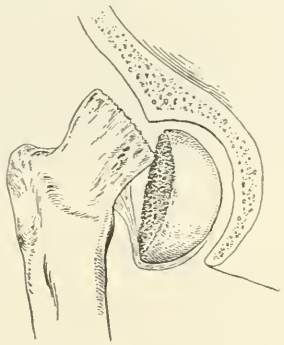

FIG. 4.—Drawing from the *x*-ray picture of Case IX, showing complete separation of the fragments which permitted reposition by means of traction and abduction.

CASE VII. This patient, a very fat adolescent boy of 14 years, was admitted to the Hospital for Ruptured and Crippled on April 1, 1908. On December 17, 1907, he had fallen three or four steps injuring the right hip. Since then he had suffered from increasing stiffness, weakness and pain in the limb so that eventually he was obliged to use crutches. The limb was flexed about 20°, adducted, rotated outward and practically fixed by muscular spasm. On April 6 the joint was opened. In this case the entire anterior surface of the neck presented a shining white appearance as if covered with cartilage. On removal of a wedge of bone at the epiphyseal junction the head of the bone came into view and the parts were apposed by rotating the limb inward. The wound was closed and a plaster spica applied to hold the limb in abduction and inward rotation. The patient was discharged in June, and function has steadily improved. The peculiar smooth cartilaginous appearance of the neck differing so entirely from all other cases in which the impression was of a rough red surface from which the periosteum had been torn away, suggested that in this case there had been a gradual displacement induced or exaggerated by injury, a type of epiphyseal coxa vara. The accompanying photograph illustrates the type of case in which predisposition to deformity, whether induced by injury or by occupation, evidently exists.

CASE VIII. A large boy, 15 years of age, was admitted to the Hospital for Ruptured and Crippled in April, 1908. Fourteen months before he had slipped and fallen on the ice, injuring the left hip. Since then he had limped but had continued to work as a grocer's boy until February, when he again strained the limb and became practically disabled. He was then, because of pain and inability to walk, admitted to a hospital where an examination was made under an anesthetic. Four weeks later he was discharged. He presented the usual signs of epiphyseal fracture, namely, extreme outward rotation of the limb, which was practically fixed in the extended attitude by muscular spasm, with but a fraction of an inch of shortening. The operation was performed on April 11, 1908. On opening the joint the extremity of the neck presented, apparently completely separated from the head. A section of bone about a quarter of an inch in width was removed which permitted the insertion of a chisel by which the fragments were pried apart sufficiently to permit apposition by inward rotation of the limb. The wound was closed and a plaster spica applied which was removed eight weeks later. The patient was then discharged on crutches.

CASE IX. This case illustrates the less common type of complete separation. A girl, 14 years of age, was admitted to the Hospital for Ruptured and Crippled on January 11, 1906. Three weeks before she had been thrown down on the sidewalk, striking the left hip. The injury caused immediate disability and much pain on movement, symptoms supposed to be the effect of the disease. In this case the limb was practically extended and fixed in outward rotation and adducted. There was crepitus on motion. An *x*-ray picture showed complete epiphyseal separation. Under anesthesia the deformity was reduced and the limb was fixed in complete abduction. The child was soon after removed from the Hospital and I have not seen her since. She was, however, examined recently by Dr. Preston, House Surgeon at the Hospital, who reports a satisfactory result. There is but very slight limp, no discomfort, three-quarters of an inch of shortening. Motion from complete extension to 135° of flexion, abduction limited to about one-half.

CASE X. A well-developed girl, 13 years of age, was brought to the Hospital on May 28, 1908, for pain and stiffness referred to the left hip. These symptoms were first noticed in November, 1907, and

on further questioning it appeared that they had followed a fall on the ice. There was a very noticeable limp, the limb was slightly flexed, adducted,

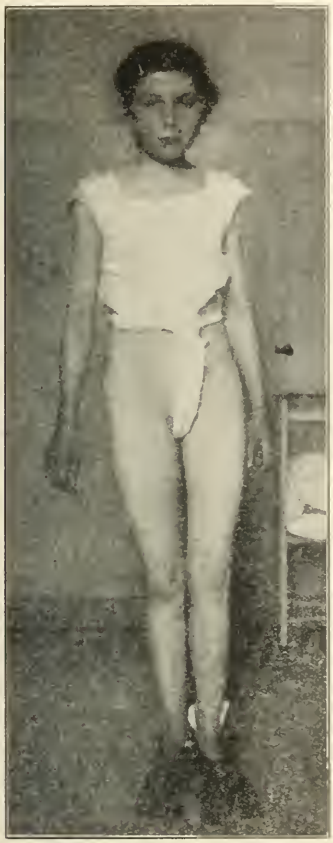

Fig. 5.—Case X. Incomplete epiphyseal fracture. See Fig. 6

Fig. 6.—Direct downward displacement as in Case X, illustrating the limitation of abduction by contact of the neck and the upper border of the acetabulum.

and rotated outward. The trochanter was somewhat prominent and elevated. The limb was one-half an inch shorter than its fellow. The joint was sensitive to pressure, motion was much restricted by muscular spasm and was accompanied by discomfort. The patient was admitted to the hospital and the operation was performed on June 17. The fracture differed somewhat from the ordinary type, in that the neck was displaced upward and but slightly forward, its lower third being united to the head which was exposed by the incision. The fragments, having been separated by a chisel, were brought into proper relation by abduction and flexion of the limb. In this instance the efficacy of the method of reducing the deformity following fracture of the neck of the femur, whether impacted or not, which I have advocated, was clearly demonstrated. By traction the upward displacement was sufficiently reduced so that as the limb was abducted, the extremity of the neck slipped beneath the rim of the acetabulum. Further abduction against this fulcrum, the head being fixed by the tense capsule beneath, forced its extremity directly downward into contact with the fractured surface of the head, and when fixed in this attitude by the plaster spica there could be no possibility of redisplacement. In this case the original spica bandage is still in place.

Case XI. This case, which was treated before the importance of immediate correction of deformity was appreciated, is introduced to illustrate what may be termed a final result of injuries of this class. The patient, a boy 16 years of age, came to the Hospital on October 10, 1899, walking with the aid of a crutch. Three weeks before, his left hip had been injured by a violent abduction of the thigh in a game of football. This was a typical case of partial epiphyseal separation, as demonstrated by an x-ray picture. There was one inch of shortening. A light plaster bandage was applied together with a traction hip splint to remove weight. This treatment relieved the symptom, and the patient, having been observed from time to time, served to illustrate the futility of so-called conservative treatment. Three years later there was an actual shortening of two inches, an apparent shortening of three inches, and at the end of seven years, an examination showed no change except an increase in the actual shortening.

The eleven cases described present fairly the characteristics of the epiphyseal type of fracture of the neck of the femur. Seven of the patients were females, and four were males, all were adolescents. In two cases the violence was relatively severe, in the others slight, so slight in several cases as not to be mentioned in the history. The contrast in this regard with those of fracture of the neck of the femur is of interest. Of 31 cases of the latter type, 16 were males and 15 were females; 19 were under 10 years, the remainder between 10 and 16 years of age. Nine of the patients fell from windows, one to six stories from the ground; ten fell from fire escapes, down flights of stairs and the like; four were thrown from carriages or run over. In the remaining cases the history is indefinite. It may be noted that a large proportion of the patients have been treated within a year. This is explained in part by the more accurate diagnosis. Formerly, cases of this type were usually classed as epiphyseal coxa vara, and fracture, if present, was thought to be a consequence of preceding weakness and deformity. It is now evident that the fracture is the primary, and not the secondary, cause of the disability. So also, it may be assumed that unilateral coxa vara of the ordinary type in which the deformity involves the entire neck, in non rhachitic subjects, is usually

induced by injury. Coxa vara, as thus restricted, will lose in great degree its exceptional character and will correspond more closely to the similar distortions of bones of the lower extremity, which, induced by rhachitis or other weakness in early life, develop under favoring conditions to greater deformity during growth, particularly in adolescence.

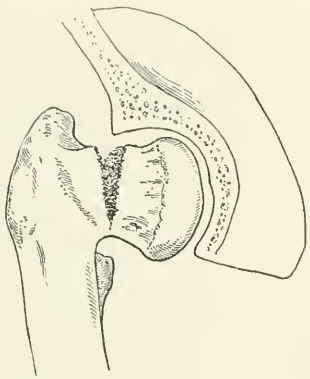

FIG. 7.—Fracture of the neck of the femur, illustrating as contrasted with epiphyseal fracture the integrity of the joint, the effect of deformity in limiting the range of abduction and the necessity for restoring the normal angle if function is to be regained.

The operative treatment has already been described. Its details vary slightly in different cases. An incision about five inches in length is made downward from just outside the anterior superior spine in the line between the tensor vaginæ femoris and the gluteus medius muscles. When these are separated the anterior surface of the joint is exposed and is opened by a straight incision in the line of the neck. The extremity of the neck is at once brought into view, but the head is almost completely concealed, lying below and behind it. Thus the removal of a thin section of bone is often necessary to permit the insertion of a chisel with which the fragments must be pried apart to permit replacement by abduction and inward rotation of the shaft. In most instances they are adherent, as if the fracture were incomplete, or as if there were partial repair. The periosteum on the posterior surface appears to be uninjured, and when the parts are brought into normal relation with one another, the tension is sufficient to hold them firmly, the head following the movements of the neck in a normal manner. The wound is closed in layers, and drainage is not essential. A plaster spica bandage is applied to hold the limb in moderate abduction and in the attitude that most perfectly apposes the fragments, usually extension and inward rotation. The patient often begins to walk about at the end of two or three weeks. The plaster support is usually retained for about two months. Crutches are used for several weeks longer, but as the structure and angle of the neck are normal, weight may be supported much earlier than if the small part of the neck were weakened. Massage of the atrophied muscles, active and passive movements, are valuable aids in restoring function.

Forcible manipulation under anesthesia may in some instances be required if the range of motion is limited by adhesions, within or without the capsule. If, however, the operative adjustment of the fractured surfaces has been perfect, eventful restoration of function may be anticipated even if the after treatment is far from satisfactory.

In order to complete the presentation of fracture of the neck of the femur in early life, and lest it may appear that foregoing cases represent the subject, several other cases will be selected from a large number in which the injury was outside the epiphyseal cartilage.

CASE XII. A boy eight years of age was brought to the Polyclinic by his physician on October 30, 1901. Three weeks before he had fallen from a fire escape, a distance of about fifteen feet, injuring the left hip. After a short period of disability he began to walk about, but as the limp and discomfort persisted, further treatment was sought. On examination, a half inch of shortening of the limb could be demonstrated, explained by a prominent and elevated trochanter. All movements were restrained by muscular spasm, but the range of abduction was completely lost. Under anesthesia, the restriction due to muscular spasm disappeared, leaving only the limitation of abduction, caused evidently by the contact of the depressed femoral neck with the rim of the acetabulum. This resistance was gently and slowly overcome by forcible abduction under traction, and when the normal limit was reached a plaster spica was applied. The child, who was treated as an out-patient, soon began to walk about. The support was removed two months later and a perfect functional cure resulted. This case is introduced because it was the first in which the opportunity was offered for testing the method of correcting the deformity of incomplete fracture of the neck of the femur, which I had suggested in 1897 (*Annals of Surgery*, June, 1897).

CASE XIII. A slender, well-formed boy 17 years of age, an amateur acrobat, was admitted to the Hospital for Ruptured and Crippled in March, 1908. In the previous October he had fallen from a tight wire a distance of about thirty feet, injuring the right hip. He was taken immediately to a hospital and after an interval of ten days a plaster spica was applied. Three weeks later this was removed, and the patient was discharged with a diagnosis of impacted fracture of the neck of the femur. He was soon able to limp about without support, but as there had been no increase of strength, further advice was sought. The patient presented the shortening and peculiar helplessness, combined with free mobility, characteristic of ununited fracture. On opening the joint it was apparent that, as in similar cases in older subjects, the neck had in great part been absorbed. The fragments were freshened and were fixed in apposition by a drill passed through the trochanter. A plaster spica was applied which was removed eight weeks later. On June 20th the patient was discharged on crutches. At the present time, union is firm. The patient bears weight upon the limb without discomfort, there is no deformity and a fair range of motion. It is proposed shortly to remove the drill and at the same time the restriction to movement will be overcome by forcible manipulation. This case is of interest from several points of view. It illustrates the logical result of ineffective treatment. Non union and absorption of tissue so often observed in older subjects and explained by a deficiency in circulation, are, in all probability, accounted for by separation of the fragments and by friction upon the exposed neck which has been softened in the futile effort at repair.

CASE XIV. A boy, 15 years of age, came to the Hospital for Ruptured and Crippled on July 24, 1908. In January he had jumped from a roof, a distance of fifteen or twenty feet, injuring the right

hip. He was taken immediately to a hospital where a diagnosis of fracture of the neck of the femur was made. A plaster spica was applied with the limb in the line of the body, supplemented by traction. Treatment was continued for eight weeks, and in June he was discharged from the hospital. On examination it was evident that the fracture had not united, there were two inches of shortening. Operative treatment was refused. This case is of interest in connection with the preceding, as demonstrating the fact that at the hip joint, as elsewhere, apposition of the fractured surfaces is the first essential for repair. The treatment that should have been followed, in my opinion, may be outlined again as follows. The patient should have been anesthetized and placed upon the support used for the application of a plaster bandage. The limb should then have been flexed and rotated inward in order to disengage the possible interposition of the anterior wall of the capsule and psoas muscle. Then by direct traction on the limb and pressure on the trochanter, the shortening, as demonstrated by actual measurement, should have been overcome. The limb should then have been abducted to the full limit, and while traction was exerted, upward pressure on the thigh should have been made to align the fragments against the resistant anterior border of the capsule made tense by the abduction and traction. In this attitude a firm, well-fitting plaster spica, accurately moulded about the pelvis and trochanter and supported beneath by a bar of steel, applied after the manner of a Thomas hip splint, should have been applied. The same treatment should have been employed in Case XII, even if the fracture were thought to be impacted; for shortening always implies a lessened angle of the neck, which is, in itself, the cause of subsequent disability. Furthermore, this method should be employed in adult cases if it is not contraindicated by the age or other disabilities of the individual. (MEDICAL RECORD, March 19, 1904.)

CASE XV. A well-formed, healthy boy, 12 years of age, without a trace of rhachitis, entered the hospital on August 12, 1908. About two years before he had fallen from a wagon, injuring the left hip. He says that he suffered some discomfort, but did not inform his mother for two months, because a brother was under treatment for hip disease. He was then taken to a hospital where, after a long interval, a hip brace was applied. This brace was removed at another institution after it had been worn for several months. At the present time there is only occasional pain and a slight limp. The examination showed an elevated and prominent trochanter with three-quarters of an inch of shortening. Motion was free and painless, except in abduction, which was almost completely restricted. This case was evidently one of simple depression of the neck of the femur, which might be classed as coxa vara but for the fact that the deformity was unilateral in a healthy subject following immediately on a fall and persisting since that time. The case is one of the type to which I have called attention, in which incomplete fracture in a child, like a green stick fracture elsewhere, does not cause immediate or complete disability. An *x*-ray picture was taken, showing right angular depression. A reproduction was made in stiff paper, and a cuneiform section was cut, the apex at the trochanter minor, of the exact size necessary to restore the normal angle, in this, as in most cases the base being about three-quarters of an inch. On August 18, the wedge of corresponding size having been removed, the limb was gently abducted. When the trochanter came into contact with the rim of the acetabulum further abduction of the shaft closed the opening and restored the normal contour of the bone and the range of abduction. The wound was sutured and a plaster spica was applied. This operation assures the anatomical contour and thus permanently restores function, as has been proven in many instances since it was first devised.

It may be noted that in cases of fracture of the neck, outside the epiphyseal junction, the joint has not been opened except for non union. The reason is, that in cases of this type the head of the femur being intact, the joint surfaces are not directly involved. It is possible, therefore, in recent cases, to overcome the deformity by manipulation or by the operation on the shaft, if consolidation has already taken place. In epiphyseal fracture, on the other hand, the joint is so disorganized by the fracture that function must be much impaired or lost unless the proper relation is restored.

It has been stated that in the cases of epiphyseal fracture treated by open operation, it was impossible even with the advantage of direct inspection to disengage the adherent fragments. It does not follow, however, that flexion, abduction and inward rotation of the limb under anesthesia, in the manner described, might not be fairly effective soon after the injury, as in the one case reported. This is a consideration of importance since the open operation is not likely to be undertaken by those who may have the opportunity for immediate treatment of these cases. Nor should it be resorted to until it is apparent that this treatment is ineffective. It has been demonstrated, however, that manipulative reduction requires early diagnosis. In not one of the cases of epiphyseal fracture had a diagnosis been made before the patients came under observation and, with a few exceptions, the statement is true of the much larger number of cases of the other type. This primary diagnosis will be more generally made when it is officially recognized that the neck of the femur is a weak point in the skeleton, and that it may be broken by slight force advantageously applied, in early and middle life, as well as in old age. Furthermore, that a fracture of the neck of the femur by no means implies immediate or complete disability, and that persistent limp and discomfort following an injury to the joint are more readily explained by fracture, than by contusion or disease.

The cases outlined in this paper have been selected to illustrate four types of fracture of the neck of the femur in early life as they are likely to be presented for treatment.

1. The unusual cases, in which a correct diagnosis permits immediate correction of deformity by manipulation.

2. Cases in which the fracture has consolidated, the deformity being of the coxa vara type which may be corrected by cuneiform osteotomy of the shaft without disturbing the joint.

3. Ununited fractures which require direct operation for the purpose of fixing the fragments.

4. Epiphyseal fractures, in which as a rule the capsule must be opened.

The aim in the treatment of all the cases has been functional cure, to which the removal of deformity, by means adapted to its character and duration, must be the essential preliminary.

The results attained, as contrasted with disability, distortion and non union even, in cases of the same

favored class, in which the treatment or non treatment had followed accepted methods, encourages the belief that the application of the same principles to all cases in which the condition of the patient permits local treatment, would lead to a corresponding improvement in the final results.

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TWO IMPORTANT ANGIONEUROSES.*

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THE two angioneuroses which I wish to discuss are acroparesthesia and angioneurotic edema.

The former is, I suggest, important because it is frequent and incapacitating, the latter because it may be the cause of sudden death, and that possibly it may be transmitted to the children's children.

In this group of diseases, using the term disease for the present as synonymous with symptom-complex, we assume on account of the obvious disturbance of the motility of the blood-vessels that the vasomotor or sympathetic nervous system is primarily implicated, and because no anatomical substratum of this disordered activity has hitherto been recognized we have been accustomed to consider them as neuroses of the vessels. It may safely be said that such an anatomical basis will probably ere long be demonstrated, but it may also be safely said that at the present day disorders of the sympathetic and trophic system are a vast and almost unexplored sea.

It may be well at the outset to attempt to classify the angioneuroses. On one basis they may be divided into the objective and subjective, the objective on the one hand including such types as the well-known condition "dead fingers," the red and painful swelling of the feet known as erythromelalgia or paralytic vasomotor neurosis of the extremities, the even better-known Raynaud's disease with its local syncope and local asphyxia, otherwise called symmetrical gangrene and angioneurotic edema with its circumscribed edematous swellings of the skin and mucous membranes; and the subjective on the other hand represented by the type acroparesthesia, sometimes called spastic vasomotor neurosis of the extremities with its pain and uncomfortable sensations referred to the hands.

It will be clear even from this classification that the defect of vasomotor nerve influence may be manifested either by contraction or dilatation of the vessels, angiospasm or angioparesis, and on this basis too a classification of a sort may be built up. Thus among the angiospasms we must rank "dead fingers," the early stage of Raynaud's disease, and probably acroparesthesia; and among the angioparesis, erythromelalgia, late Raynaud's disease, and angioneurotic edema.

Acroparesthesia.—The name acroparesthesia was given to the symptom-complex we are now considering less than twenty years ago by Schultze and it describes the conditions fairly well except that the sensations referred to the extremities, the hand particularly, are less frequently or at any rate less insistently paresthesiæ of tingling, creepin, burning or distention than actual pain, and according to my own experience, at any rate, the abnormal sensation of subjective numbness is more frequent than the other sensations more properly described as paresthesiæ.

I do not intend to offer many details of individual cases, but will give the notes of one (there is a remarkable family likeness in the cases) and give merely the salient points of the cases of other patients.

Mrs. P., aged 31, the wife of a laborer, came to hospital at the beginning of one April complaining of numbness and pain in the hands, which came on at night after getting warm in bed, especially after having done washing during the previous day. She had suffered in some degree from such sensations for four years, but they had latterly become more distressing. There was also, she said, some swelling of the hands at the time. She had to work hard, and was much hampered in her work because she was unable to grip anything till midday. Her sleep was much disturbed. She improved under treatment and less work, and particularly when she gave up doing washing for other people. She discontinued attending hospital about the end of June.

On November 22 she returned with the story that during the cold and wet weather of the few days previous she had had tingling and "numby" sensations of the hands, but they "did not swell yet."

On February 7 (next) she reported that her hands had been worse during the frosty weather. The pains now went up to the shoulders, and in the morning she often failed to hold things in her hands, although she could feel them. She was frequently breaking crockery and had more than once cut herself with the fragments. She had not been doing more washing than usual. Sensations of numbness and gnawing in the hands began directly she got into bed, so that during the night after her weekly washing day she could hardly sleep at all, and the sensations remained insistent for two or three days after. The hands swelled and went a little shiny at the same time. She was unable to finish dressing in the early morning and had to come downstairs, have breakfast, and then return to the room to complete her toilet. Hearing in the out-patient room the complaints of another patient, she said when her turn came "that lady must be like I am."

Another patient, a woman of 45, said that during the night after having done her own washing she got no sleep at all. She got some relief by letting her hand (one was especially affected) hang down out of bed. When the pain was bad she was unable to pick up anything or even carry anything with it. During a month of very cold weather the sensations affected her feet, and for nearly a week she had hardly any undisturbed sleep. The pain in one hand particularly would wake her up a dozen times in the night. During the whole of this month her fingers felt numb and she could not use them properly for anything.

Another, a woman of 38, said that after a day's washing she would get hardly any sleep the whole night, she could cry with pain in the hands and would not know where to put them. She also complained of a "dead" and a burning feeling. The sensation went up to the elbow on one side, but not beyond the wrist on the other.

Another patient, a woman of 32, began to suffer in the same way two or three months after having undergone hysterectomy at the hands of my colleague, Dr. Arthur Giles. She complained of pins

*A lecture delivered at the Medical Graduates' College and Polyclinic, London, October 28, 1908.

and needles and numbness in the hands, also of a hot bursting feeling, but especially of pain coming on in the middle of the night. She often had to get up for two or three hours at a time, when she obtained a little peace and was able to sleep again for an hour or two. She was able to dress herself in the morning, but would often drop things. The sensations usually disappeared about fifteen minutes after getting up, but might return during the day, though never so severely.

The patients so far have all been middle-aged women, and the rule is for women to be affected about ten times more frequently than men. Of 162 cases collected by Cassirer only twelve were in men, and of 184 cases 150 were between 30 and 60, but one was a child of 7 and another a woman of over 70.

I have recently met with the condition in a hewer of marble which seemed to depend on the handling of the cold stone, and in a busy medical practitioner after motoring, occurring in his left hand, used in holding the wheel. The pain and sensation of pins and needles would wake him up in the night and were not due to his lying on his arm, because they would occur if he rested his arm on a pillow.

About three-quarters of the total number of cases have occurred in washerwomen or charwomen, or other middle-aged women engaged in arduous work with their hands and exposed to the varying temperature of hot and cold water, or it may be of cold air, as in the case of seamstresses. Indeed, of 43 cases collected by Collins, several could bring the sensations on by placing their hands in cold water. Other apparent etiological factors have been anemia, alcoholism, influenza, and disorders connected with the sexual life—the climacteric, parturition, and pregnancy. An illustration of the latter group I have just given you, and Cassirer has met with five that followed panhysterectomy among say 200 cases.

The attacks usually occur in the early morning, between 4 and 6, but the sensations may persist throughout the day, or sometimes they commence after the patient has awakened from an afternoon siesta. The rule is for them to be much worse during cold weather and to disappear in hot weather.

They may be referred to the tip of the tongue and the lips, but the characteristic distribution is in the fingers, more rarely the feet, usually in one hand more than the other and occasionally spreading to the elbow or even the shoulder.

It is, as I have said, a subjective malady with creeping, tingling, burning, itching sensations, or a feeling as if the extremity were swollen and would burst with generally, at any rate in patients that come to hospital, more or less severe pain. In some cases, however, there may be such objective signs as anesthesia or blunting of sensibility (hyperesthesia) and signs of vasomotor disturbance as whiteness and coldness of the fingers. The cases may then be grouped into paresthesia cases proper, pain cases, hyperesthesia cases, and vasomotor cases.

There is nothing definitely hereditary in this symptom-complex, there is no morbid anatomy, and no quite definite pathology. The condition seems to me to be comparable with occupation neuroses, the stress falling on the vasomotor system in people who use their hands in media of greatly varying temperature. There seems to be usually a vasomotor spasm and a coincident or consecutive stimulation of sensory nerve endings as the schoolboy's hand tingles after snowballing. There is evidence too of a toxemic predisposing factor as in urticaria. The toxic factor, the temperature factor, and the fine movement factor seem to be the chief.

There is really very little difficulty in the diagnosis—a peripheral neuritis is, I suppose, most often suspected, but the coming and going of the symptoms and the absence of all muscular atrophy are alone sufficient to differentiate the two. The great difficulty in classifying the cases is probably occupation neuroses, as in our marble worker, but, as I have said, the two really seem to run into each other.

Improvement under suitable treatment is the rule, but the cases may last for many years though they rarely progress.

That suitable treatment is really to change the mode of life; let the patient reduce or discontinue her washing occupation, as a clerk with writers' cramp might be advised to use a typewriter, or a house painter with lead palsy to take to clerking. It has seemed beneficial to remedy dyspeptic difficulties and counteract as far as possible intestinal autointoxication. General tonics and perhaps bromide for the nervous instability; general exercises, friction with liniments, electricity, the interrupted or constant current or static, even warm hand baths, may all be tried, but they are measures of secondary importance. So much for this important because disabling angioneurosis.

Angioneurotic Edema.—Now let us consider the second, angioneurotic edema—important because in many instances it has ended life in a fashion nothing short of tragic, and also because it may be directly transmitted from one generation to another, with fatal cases even in the fourth and fifth and more.

It is one of the objective angioneuroses inasmuch as it is characterized by the occurrence of localized edematous swellings.

Case I.—A girl, aged 19, a domestic servant, was admitted into hospital on account of recurring swellings of the face and limbs. Seven years before her right arm had swelled so rapidly that it was necessary to slit up the sleeve at once. On the next morning her left eye was swollen. From that date she had been subject to similar attacks every third or fourth week, affecting the limbs, including the hands and feet, the lips (as shown in the photograph I send round), the ears, nose, eyelids, vulva, throat, or the tongue. The swellings were on an average about 1 inch across but varied considerably in size, and they did not pit on pressure but were somewhat painful and tender. She was sometimes warned of their coming by a burning and tingling sensation in the part to be affected. Sometimes she suffered from colic but never from nausea or vomiting. There was no history obtainable of anything of the kind in her family. There were slight enlargement of the spleen, slight leucocytosis and marked dermatographia, but nothing else abnormal. During her stay in hospital she had an attack of edema nearly every day, affecting the parts named. She was treated with calcium chloride in 10-grain doses, three times a day, but without any evident improvement.

This is a fairly representative case. The pain and tenderness are unusual, and the perspiration of the swollen hand which was observed is unusual though not unique, and I may say that corresponding secretory changes affecting the salivary glands have been noticed in some cases in which the mouth has been affected.

Case II.—Another case I will merely refer to was that of a man who suffered every few weeks in the early mornings, about 4 A.M., with a hard swelling in the side of the tip of the tongue, spreading in a few hours to the whole of that half of the tongue, and, after the sudden death of his daughter by lightning, more frequently (every few days) and more widely involving the lip and cheek. He, too, had an aura two or three hours before an attack, taking the form of dryness of that side of the mouth and a metallic taste as far as I know a unique occurrence. There was no family history of such attacks. He greatly improved under thyroid extract and when I last heard from him he had not had even a slight attack for over two months.

Case III.—On September 23 last I was asked by Dr. Bazett of Hendon to witness the necropsy of a man who had died suddenly early that morning from sudden obstruction to the air-way in the throat. He had been called up to see the man who was said to be choking. When he arrived (as recorded in a clinical note in the *Lancet* of October 12, 1907) he found the man dead, to all appearances, from suffocation. With his finger Dr. Bazett felt that the parts around the glottis were much swollen and when he attempted artificial respiration the resistance was so great that it gave him the impression as if a wind-bag to which there was no outlet was being pressed. The eyelids were much swollen, as also were the cheeks and lips, especially the lower, and the neck appeared to be twice its natural size. There was no swelling of the rest of the body, the urine was free from albumin. The man, who was 33 and a gardener by occupation, had been liable to sudden swellings in various parts of the body since he was a boy of six, following on an attack of scarlet fever. Also since then (I quote the account given by the relatives and printed in the *Lancet*) he had been subject to regularly recurring fortnightly attacks of most violent abdominal colic. The widow described his appearance in these attacks as "like a woman in labor." They did not last over 24 hours. Never, apparently, accompanying them, but often preceding them by one or two days, and sometimes unassociated with them, occurred sudden swellings of various parts of the body, subsiding in the 24 hours, usually in the hands, or the thighs, or the scrotum. The thighs would then meet in the middle line. These swellings were apparently induced by any slight injury or by chill. They were so tense that they "felt as if the skin must burst." In childhood they had sometimes attacked the face and throat, but never since. . . . On the evening of September 21 a bicuspid tooth which had been aching was extracted by a skilful local practitioner, leaving a healthy looking gum. On the morning of the 22d the mouth naturally felt sore and there was a little external swelling on the cheek of that side, but the patient felt quite well and took a long cycle ride. Later in the day the swelling had extended over that side of the face, including the eyelid of that side. Toward night the neck began to swell and then the throat. The patient was not alarmed as he said "it would go down as it had before." He went to bed and fell asleep, but breathed heavily. About 2 A.M. on the 23d he suddenly woke choking, sprang out of bed, and called excitedly to his wife to put a spoon, her finger, or something down his throat, then tried to put his own finger down, then lay on the bed, and while she rushed for help passed away. There was no family history obtainable pointing to any hereditary influences. At the necropsy, made 42 hours after death, the swelling of the external parts had largely subsided, but it was still marked in the lower lip. There was great swelling of the epiglottis and arytenoepiglottidean folds; the appearance was that of two elongated and one rounded bladder filled with a yellowish fluid and closely pressed together. All the body organs were healthy; the appearances were those of a normal subject who had died from suffocation. The specimen of the fauces and larynx is now in the museum of St. Mary's Hospital, but the appearances are much changed owing to shrinkage.

These, then, are fairly illustrative cases of the condition first described probably by Graves of Dublin in 1848, but first thoroughly studied by Quincke, who published his results in 1882, under the name of acute circumscribed edema, which since has been known on the Continent as "Quincke's edema."

I need not, I think, further elaborate the clinical picture. The attacks show a certain periodicity, the average interval among a large number of cases being about three weeks. Males are rather less frequently attacked than females in America, but in the old country and on the Continent the reverse obtains. The age is usually early adult life. The attacks most often begin between 3 and 4 A.M. The recognized exciting causes include heat and cold and slight injuries, hence the seat of election is generally on exposed surfaces. Periodical attacks of severe colic are a frequent concomitant or antecedent, as in the case I have quoted, and under the latter condition they may seem very mysterious. Lavage has been practised to relieve the abdominal pain, and in one case recorded by Morris (*American Journal of the Medical Sciences*, 1908, Vol. 130, p. 382) a highly edematous portion of gastric mucous membrane was accidentally removed by the stomach tube. In another typical case with gastrointestinal involvement recorded by Harrington (*Boston Medical and Surgical Journal*, 1905, Vol. 152, p. 363) the abdomen was opened during a crisis on account of the possibility of disease of the gall-bladder when a thickening of the whole circumference of the lower wall for 2½ inches was found in the ileum increasing its diameter twofold.

Some of the cases of the disease as those I have quoted are solitary but probably more than half occur in families. Professor Osler records 22 cases occurring in five generations of one family including only 36 members, and Dr. Ensor 33 among 80 members of the five generations of another family.

Sudden death in certain solitary cases of angioneurotic edema is a not very rare termination, as in Case III, but it is even less unlikely in the family cases. Of 110 family cases collected by Dr. McDowell of Auckland, New Zealand, for the purpose of a graduation thesis and while a member of the North-East London Post-Graduate College, to whom I am indebted for many of the historical facts in this lecture, no less than 30 died from suffocation following sudden edema of the larynx.

It would be possible to give you a harrowing account of these cases, but I will mention only one or two, and merely say, to give you an idea of frequency, that among the 33 cases collected by Ensor there were 12 suddenly fatal.

Of a family of 12 members spread over four generations recorded by Mendel (*Berliner klinische Wochenschrift*, No. 48, p. 1126) nine persons were affected, and six of these died from edema of the glottis, the patient's great grandfather, his son and

daughter (the patient's grandmother), her son and daughter (the patient's father and aunt), and a son of his grandmother's brother. The brother of the grandmother died when 40, after the extraction of a tooth (as in Case III). Of his four children one son died at 22 from edema of the glottis, while two other sons, aged 51 and 48, were then alive but suffering from attacks nearly every week and in dread of death in the family manner whenever the edema was in the neighborhood of the throat or face. The other group is a father and his only child, a daughter, who, as recorded by Griffith (*British Medical Journal*, p. 1470), both died from edema of the glottic region. In the case of the daughter a laryngoscopic examination was made during an attack in which the epiglottis and aryepiglottidean folds were so much swollen as to obscure the vocal cords. This was in 1886. Other attacks occurred in 1890 and in 1891, when all that could be seen on laryngoscopic examination were three rounded lumps, pale, tense, and jelly like (as in Case III); on the next day the swelling of the face was subsiding and on the following day the larynx was of normal appearance. On February 20, 1902, at 10:30 A.M., she complained of slight swelling of the throat; at noon her husband found her sitting on the floor preparing to spin a top for her child and breathing easily; suddenly she dropped the top, tried to speak, but was unable to do so, clutched her husband's throat as if to show the seat of her own distress, became blue in the face, and died almost at once. Her mother who came into the room just as she was expiring said that it was just in the way that her father had died. The necropsy showed great edema of the whole larynx, its sides being in contact, and the submucous layers and muscles were markedly affected as well as the mucous membrane.

In regard to the pathology of the condition but little can be said, and I must be content with saying even less. A pure vasomotor instability seems certain though neither pallor nor redness are conspicuous; an interference (call it trophic if you like) with the lining of the vessels accounting for the edema seems also probable; a toxic factor as Quincke has always strongly maintained seems also clear, especially so in some cases, and there seem to be affinities with asthma and even the acute suffocative catarrh of Laennec, for in some cases there has been implication of the bronchial mucous membrane.

As to diagnosis in well-defined cases no difficulty could well arise. Some of the slight cases might be confused with severe cases of urticaria, but the clinical phenomena of the two are really quite different but must not further detain us.

As to prognosis it is good as regards life if the skin only is affected; it is unfavorable if the respiratory mucous membrane be implicated, and distinctly more so in the family cases.

But little must be expected at the present time from treatment. Much the same general treatment as that suggested for acroparesthesia should be tried. On a theory of excessive venous permeability I have tried calcium chloride but without definite result. Mendel especially recommends aspirin to counteract autointoxication from intestinal putrefaction; Cassirer menthol and camphor. Ichthyol in pill has been recommended as in urticaria, and arsenic has apparently done good. Thyroid extract, as I have said, seemed of service in one of my cases. Various local measures in the way of gargles and lubricants have been advised for the throat attacks, but the main precautionary measure would be the wearing of a tracheotomy tube permanently, which is a serious matter to undertake in emergency; failing intubation apparatus, a tracheotomy, however extemporized, followed by artificial respiration, are clearly indicated.

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HEADACHES OF OCULAR AND NASAL ORIGIN.*

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In any consideration of headaches a combination of those of ocular and nasal origin is, to my mind, peculiarly appropriate, because it is a fact, only lately beginning to receive proper recognition, that these organs have frequently a marked association in the production of such symptoms. It is safe to say that of headaches of all kinds, much the largest percentage have their origin in the eyes, or nose, or both.

So much has been written and said on the subject that the lay as well as the medical mind is now fairly keenly alive to the importance of a thorough examination of the eyes in cases of troublesome headaches, but it is not at all generally recognized that in many cases the nose plays an important part in causing these reflex pains. The point is well worthy of emphasis. The close anatomical relations readily explain why pain due to nasal disease may be attributed to the eyes. The orbits are largely formed by the nasal walls and are closely surrounded therefore by the accessory sinuses, while both the blood and nerve supplies of these organs are largely derived from common sources.

As with headaches of purely ocular origin, the practitioner now recognizes that the patient need not necessarily have had his attention drawn to the eyes by abnormalities of vision, so in nasal cases, the absence of symptoms obviously due to the nose must not be held to exclude this as an etiological factor.

In the eye the chief causes of headaches are congenital in origin, yet the patient may not suffer from this reflex until maturity is reached, or even until later in life, perhaps after an attack of general illness. Anything which lessens vitality is likely to betray the existence of previously hidden faults in these organs. A young mother, for instance, who has heretofore been able to overcome, by sheer effort of her ciliary muscle, a hyperopia of several degrees, finds to her alarm that her new duties have made demands on her strength which lessen this power to the point where she can no longer focus light on the retina, and she is frightened to observe that her sight is apparently failing. A similar experience often occurs in the case of a child who suffers paresis of these, with other muscles perhaps, from the toxins of diphtheria.

I do not wish to take up time with any prolix attempt to explain how headaches are caused by ocular faults, but it is necessary to recall to your minds the fact that nature has given man a special ability to see clearly with two eyes at once—binocular single vision. No other animal possesses this ability to like extent, and comparatively few types begin to approach it. It is interesting to note that

*Read at a meeting of the Bronx Medical Association.

among the vertebrates, the higher the order, the more closely the plan of semidecussation of the optic nerve fibers resembles that found in man, and it is on this arrangement that binocular single vision depends. To obtain this visual ability by having the two eyes acting comfortably in concert certain conditions are absolutely essential: the two eyes should have similar focal power for light, for instance; this requires that they be of like form, and evenly matched as regards clearness of media, curvature of cornea, lens, etc., of equal visual acuity from a retinal and optic nerve standpoint, and that their movements be closely coordinated in direction and extent.

The power of focusing images seen by two normal eyes into a composite whole, is analogous with the clear view one gets when looking through the prisms of a stereoscope at two similar pictures mounted on a suitable card. It makes the view clearer and sharper by adding a third dimension and giving us depth instead of a flat picture. Nature, by giving us the equipment which makes possible such vision, implants in us the wish to secure it. We are not born with it. The eyes of babies for some time after birth are inclined to wander vaguely about without coordination of movement, but later on when, in the language of the nurse, the child "begins to take notice," this fusion power is being acquired. Some children, indeed, never acquire it, and this is one of the causes of cross-eyes; others again, because of faults in one or both eyes (and I have suggested some of the numerous points where such faults may lie), either acquire little of this power of fusion, or because of difficulty in maintaining clear binocular vision, soon lose it and consequently develop crossed-eyes or other symptoms. You will appreciate then that any deviation from the normal in the eyes interferes seriously with a power which is so much a part of our well-being, that we, for the most part unconsciously, make strenuous efforts to overcome such interference. In a word, if the fault in the ocular apparatus is so marked in kind or degree that the patient cannot overcome it, he yields to necessity and gives up the effort, suffering then, as a rule, only a corresponding loss of vision. If, on the other hand, he is able by muscular and nervous effort to secure better sight, he is likely to keep up that effort, and realizing that this exhausting task is being carried on through every waking minute, we can understand that such an individual is almost certain to suffer from reflex symptoms, of which headache is one of the commonest.

With these facts before us we can give due weight to the influence of heredity in these sufferers. There is no other part of the body in which peculiarities of form are so constantly transmitted from parent to offspring as in the head. Abnormalities in the orbit and its contents, incorrect attachment of muscles to the eyeball, one eye on a slightly higher plane than its fellow, etc., are correspondingly likely to be handed down.

In analyzing cases of "asthenopia" it will be noted that there is no constant relation between eyestrain and the degree of fault discovered. The symptoms complained of vary in nature and severity with the individual, depending somewhat on his occupation, his surroundings, the amount of use and abuse he gives his eyes, and very often largely on the personal equation to be reckoned with in every patient. The phlegmatic individual will get on comfortably with ocular faults of a degree which drive his more sensitive and nervous neighbor wild with pain. Often enough, a patient who suffers only from mildly inflamed eyes, lowered vision, and some blurring of print when reading, will prove to have faults of refraction requiring practically the same glasses as are needed by another whose eyestrain has caused him the profoundest misery through frequent attacks of frontal or occipital pain, or in other cases the severer forms of so-called sick or nervous headache.

Even in patients of similar temperament these striking differences are noticeable, and study of the cases will often reveal some such added force as a uric acid diathesis. Many of our patients in city life trace the immediate cause of their symptoms to overuse of the eyes in poor light or under the trying glare of excessive illumination by electricity.

Again, the nervous patient who has to contend with an ocular fault will have his sufferings much increased, if to the ocular reflexes are added the distressing effects of imperfect nasal conditions. In some of these the general health becomes greatly impaired and it is quite common for such individuals to confuse cause and effect. They believe such eye symptoms and nasal defects as they have noticed are the result of their bad head or general ill-health, instead of the reverse.

In considering the likelihood of any given case of headache being due to ocular or nasal faults, the nature and location of the pain are of comparatively little help. Simple eyestrain from errors of refraction commonly causes aching over the brows, but pain in the occiput, in one or both temples, deep in the head at the back of the eyes, or a general sick headache, may arise from the same source. Pains in the vertex are commonly attributed to the pelvic organs, but study of the sphenoid sinus goes to prove that in a number of these cases this is the real source of difficulty.

Other patients in considerable numbers suffer from headaches where no ordinary cause of eyestrain can be made out, and in them pathological conditions of the deeper parts of the eye are often found. Among these is disease of the macula or other parts of the retina, accompanied at times by hemorrhages or signs of optic neuritis. Of very great interest and value in this field are the studies of the ocular signs in cases of headache due to general arteriosclerosis. Persistent high arterial tension in these cases is very likely to cause changes of a characteristic type in the ocular fundus. So well marked are these in many cases that they prove of much diagnostic help.

De Schweinitz divides these appearances into: (a) suggestive signs; (b) pathognomonic signs.

In the first class are the cases showing uneven caliber and undue tortuosity of the retinal arteries, increased distinctness of the breadth of the artery, an unusual light color of the breadth of the artery, and alterations in the course and caliber of the veins.

Pathognomonic signs are: Changes in the size and breadth of the retinal arteries, giving them a beaded appearance; distinct loss of translucency; decided lesions in the arterial walls, consisting of white stripes in the form of perivasculitis; alternate contraction and dilatation of the veins and especially indentation of the veins by the stiffened arteries, just as a rubber tube would be indented by a solid rod laid across it. Sometimes the vein is flattened at the point of crossing, or merely pushed aside, or its caliber is contracted so that there is an am-

pulliform dilatation beyond the point of crossing. The veins, too, may show borders of white stripes and be exceedingly tortuous. Edema of the retina in the form of gray opacity about the disc, and hemorrhages following the course of the vessels are seen in extreme cases.

Probably in no class of patients can the ophthalmologist be of more help to the practitioner than in this. If to the clinician's study of the pulse, the character of the first sound at the apex and the second sound at the aortic area, and perhaps sphygmographic tracings and instrumental measurements of the arterial tension, can be added the sure evidences seen by the ophthalmoscope, an early diagnosis of these important conditions is made certain. Although disease in the retinal vessels cannot in every case be held to prove a similar state in the cerebral or other vessels, its existence is very suggestive. In at least one of the cases in which I have personally ventured to make such a diagnosis from the ocular findings, a cerebral hemorrhage about a year later made a striking verification of the value of these signs.

With the nose and its accessory sinuses as factors in causing headaches time does not permit me to deal at any length here, but these few points I will venture to add:

Irregularities of the nasal septum and turbinals, resulting in points of pressure between the middle and lateral walls of the nose, were long since recognized as causes of reflex pains, but the accessory sinuses are now admittedly even more often responsible for such symptoms. These cavities are lined with a delicate mucosa, a modified form of that seen in the nasal chambers. Irritation of these membranes causes swelling and exudation very like that present in acute conjunctivitis, and the cavities are poorly equipped with natural drainage; indeed, the small openings by which they communicate with the nose are probably no more intended for drainage purposes than is the Eustachian tube meant to drain the middle ear. Their real purpose is to permit interchange of air between nose and sinus.

With the aid of cocaine and adrenalin we are now able to probe these various sinuses and determine with fair accuracy what conditions are present. Again, we should bear in mind the close vascular connection between the upper nasal passages and the meninges. Congestion of the upper part of the nose not only blocks the air passages and so produces points of painful pressure, but it interferes with the circulatory flow from the meninges. All of us have felt the effects of such engorgement in attacks of coryza. The venous distention is sometimes quite marked in these cases, and in many of them the congested vessels of the conjunctiva give a fair picture of what is going on deeper in the head. The passing along these channels of thrombosis and infection, with fatal result at times, especially after the use of the cautery in the nose, is also an impressive lesson as to the importance of this connection.

Disease in the ethmoid cells and sphenoid sinus is undoubtedly responsible for some cases of optic atrophy in which headache from the same cause may be the only indication of ill-health. Many of these cases are so obscure as to be termed "idiopathic."

The use of atropine in examining the eyes in some cases where catarrhal disease in the accessory sinuses is present, by drying up the secretion and thereby bringing temporary relief, is likely to give the glasses prescribed a measure of credit that is really undeserved. So marked are some of these nasal factors in many cases that the writer makes it practically a routine practice to examine both, when either of these organs is believed to be the source of headaches.

A word as to treatment. From what has been said it is very evident that little or no real benefit can be had in these cases from drug treatment. Mechanical and surgical measures judiciously selected for each case are much more to the purpose. Carefully chosen glasses, properly set in comfortable frames, are absolutely the only permanent relief from headaches due to errors of refraction, of which the commonest type is hyperopia with astigmatism. Muscular weakness, or imbalance, is also a prolific source of such symptoms and demands much care and judgment for its proper correction; not infrequently operative interference must be added to such glasses as are necessary. The physician should use his authority with his patients to break down the widespread error that sufferers, especially children, are likely to outgrow the conditions responsible for ocular and nasal reflexes. Many of the nasal cases can be cured by operation. In a still larger number, a combined study and correction of faults in both eyes and nose will be found necessary.

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A TABLE OF STANDARD WEIGHTS FOR WOMEN.*

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This table is based on the study of the heights and weights of 59,525 insured women, clothed and shod ranging in height between 4 ft. 1 in. and 6 ft. 1 in., and in age between 15 and 69 years inclusive. The height and weight in every case were taken from the Medical Examiner's report. The records of 24,626 of these women were obtained from the Mutual Life Insurance Co., and the balance, 34,899, were furnished by Dr. O. H Rogers of the New York Life Insurance Co.

In the height groups those under 4 ft. 11 in. and over 5 ft. 10 in. contain so few individuals—only 578 in all—that I have eliminated them from my calculations. In the same way the last age-group or quinquennium—65 to 69—has been eliminated as it was made up of but 92 individuals. The following table shows the distribution in the various height- and age-groups of the remaining 58,855 women—the totals for all heights and for all ages being shown on the margins of the table.

The next table shows the average weight for each inch at each quinquennium, from 4 ft. 11 in. to 5 ft. 10 in. inclusive, based on Table I.—the averages for all heights and for all ages being set forth on the margin of the table.

The mean height of all the individuals was 5 ft. 4 in.—19% were of this height—while the average height was 5 ft. $4\frac{1}{4}$ in., and the average weight 133 pounds. The quinquennium 25 to 29 showed the greatest number of individuals—23%.

*Read at a meeting of the Association of Life Insurance Medical Directors, October 21, 1908.

TABLE I.—RECORD OF 58,855 INSURED WOMEN

Ages	15–19		20–24		25–29		30–34		35–39	
Heights	No. of Entrants	Total Weight	No. of Entrants	Total Weight	No. of Entrants	Total Weight	No. of Entrants	Total Weight	No. of Entrants	Total Weight
4′–11″	14	1,438	72	7,829	123	14,115	96	10,969	84	10,454
5′– 0″	75	8,123	315	35,920	521	61,086	456	54,506	379	45,874
– 1″	114	12,954	517	59,933	731	85,297	662	79,928	550	68,832
– 2″	189	21,781	944	112,136	1,493	179,612	1,331	166,149	1,024	130,175
– 3″	275	32,694	1,250	152,284	1,869	230,835	1,782	226,637	1,322	172,727
– 4″	328	40,280	1,731	216,126	2,482	313,411	2,414	314,590	1,833	244,718
– 5″	255	31,824	1,482	191,630	2,294	300,291	2,089	281,021	1,703	236,164
– 6″	207	26,535	1,180	156,638	1,951	264,253	1,684	234,772	1,282	181,849
– 7″	123	16,482	764	103,175	1,172	163,085	1,020	146,248	828	122,569
– 8″	77	10,655	417	58,556	696	99,786	612	90,199	460	69,658
– 9″	25	3,581	174	25,215	259	38,190	219	33,087	197	30,538
–10″	8	1,114	67	9,835	109	16,894	83	12,854	73	11,270
Totals for all Heights	1,690	207,461	8,913	1,129,277	13,700	1,766,855	12,448	1,650,960	9,735	1,324,828

In preparing the adjusted table, which follows, it is interesting to note that the weights of over 80% of all these women needed practically no adjustment. The age groups above 45 to 49 required adjusting practically throughout, as did the extreme height groups. The changes in the averages for combined heights and combined ages are nowhere more than one pound, except age-group 55 to 59, where there is a difference of 1.4 pounds. The average weight of all the 58,855 individuals, after all adjusting, involved a difference of less than a tenth, .056, of a pound. These various adjustments were made by close inspection and minute calculation following the course of the general curve for those heights and ages.

TABLE II.—AVERAGE WEIGHTS OF 58,855 INSURED WOMEN

Ages / Heights	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	Combined Ages
4′–11″	103	109	115	114	124	122	125	128	133	126	118
5′– 0″	108	114	117	120	121	121	129	130	132	125	120
– 1″	114	116	117	121	125	129	132	137	134	133	122
– 2″	115	119	120	125	127	132	134	139	137	143	125
– 3″	119	122	124	127	131	135	140	141	144	141	128
– 4″	123	125	126	130	134	137	142	141	149	147	131
– 5″	125	129	131	135	139	143	143	147	151	148	135
– 6″	128	133	135	139	142	146	153	152	156	152	139
– 7″	134	135	139	143	148	150	158	158	155	161	143
– 8″	138	140	143	147	151	155	157	165	155	161	147
– 9″	143	145	147	151	155	164	167	166	174	160	152
5′–10″	139	147	155	155	154	168	159	173	147	140	155
Combined Heights	123	127	129	133	136	139	143	144	146	143	133

TABLE III.—ADJUSTED TABLE OF WEIGHTS FOR INSURED WOMEN BASED ON 58,855 INDIVIDUALS

Ages / Heights	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	Combined Ages
4′–11″	111	113	115	117	119	122	125	128	128	126	118
5′– 0″	113	114	117	119	122	125	128	130	131	129	120
– 1″	115	116	118	121	124	128	131	133	134	132	122
– 2″	117	118	120	123	127	132	134	137	137	136	125
– 3″	120	122	124	127	131	135	138	141	141	140	128
– 4″	123	125	127	130	134	138	142	145	145	144	131
– 5″	125	128	131	135	139	143	147	149	149	148	135
– 6″	128	132	135	139	143	146	151	153	153	152	139
– 7″	132	135	139	143	147	150	154	157	156	155	143
– 8″	136	140	143	147	151	155	158	161	161	160	147
– 9″	140	144	147	151	155	159	163	166	166	165	151
–10″	144	147	151	155	159	163	167	170	170	169	155
Combined Heights	123	126	129	132	136	139	142	145	144	142	133

To make a comparison between the male and fe-

ARRANGED ACCORDING TO HEIGHT AND WEIGHT

40–44		45–49		50–54		55–59		60–64		Totals for All Ages	
No. of Entrants	Total Weight	No. of Entrants	Total Weight	No. of Entrants	Total Weight	No. of Entrants	Total Weight	No. of Entrants	Total Weight	Entrants	Weights
64	7,827	43	5,367	32	4,093	7	931	6	755	541	63,778
269	32,649	152	19,572	107	13,983	62	8,207	22	2,750	2,358	282,670
372	47,958	230	30,291	151	20,613	65	8,705	24	3,186	3,416	417,697
700	92,070	410	54,887	249	34,635	127	17,423	35	5,000	6,502	813,868
862	115,963	539	75,689	243	34,174	140	20,194	43	6,062	8,325	1,067,259
1,179	162,061	640	90,966	336	47,425	129	19,183	51	7,501	11,123	1,456,261
1,027	146,356	534	76,211	295	43,309	137	20,627	37	5,486	9,853	1,332,919
786	115,066	368	56,319	210	31,877	83	12,927	19	2,893	7,770	1,083,129
452	67,651	252	39,750	125	19,800	42	6,491	7	1,130	4,785	686,381
240	37,242	118	18,553	49	8,071	27	4,194	9	1,453	2,705	398,367
106	17,342	40	6,693	32	5,322	12	2,092	3	480	1,067	162,540
32	5,371	21	3,330	10	1,726	6	879	1	140	410	63,413
6,089	847,556	3,347	477,628	1,839	265,028	837	121,853	257	36,836	58,855	7,828,282

male tables, I took from the Report of the Special Committee of the Association in 1897 the data on insured males between 5 ft. and 5 ft. 10 in., ages 15 to 64 inclusive, put these together in a table similar to Table I., and so found that I had a group of 58,257 men with a mean height of 5 ft. 8 in., an

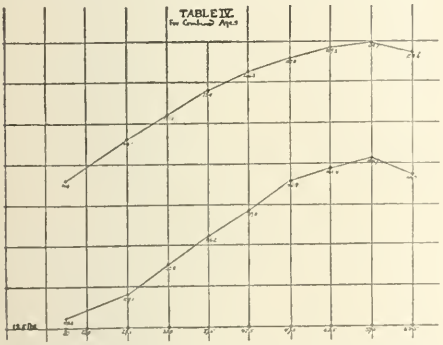

TABLE 4.—The upper line is the weight curve of 58,257 insured men, 5′-0″ to 5′-10″ high; average weight, 151.5 pounds; average height, 5′-7.3″. The lower line is the weight curve of 58,314 insured women, 5′-0″ to 5′-10″ high; average weight, 133.1 pounds; average height, 5′-43″.

average height of 5 ft. 7.3 in., and an average weight of 151½ pounds. To make the female group similar in all respects, I eliminated the first height-group, 4 ft. 11 in., and combined the age groups, 15 to 19 and 20 to 24, as in the male table. This gave me a group of 58,314 women with a mean height of 5 ft. 4 in., an average height of 5 ft. 4.3 in., and an average weight of 133.1 pounds.

It is of interest at this point to present the unadjusted weight curves of both men and women for the combined heights 5 ft. to 5 ft. 10 in.—remembering that no comparison—except one as to regularity of curve—can be made, as the average male height is 3 in. greater than the female.

The following table compares the adjusted weights of men and women of the same age and the same height—giving the number of pounds by which the women differ from the men at each age period.

You will see that as the age increases the sexes approach nearer at 5 ft., 5 ft. 1 in., and 5 ft. 2 in. At 5 ft. 3 in. and 5 ft. 4 in. they meet at age 50 to 54 and continue practically the same. At 5 ft. 5 in., and 5 ft. 6 in. they meet at 45 to 49 and continue practically the same. At 5 ft. 7 in., 8 in., 9 in., and 10 in. they do not meet, but diverge after 50 to 54, at which period they come closest together. This difference in weight in the higher inches may be explained by the fact that while these heights represent the largest classes of males they also represent the smallest classes of females. The tendency in all these heights is for the female to increase more rapidly in weight from 20 to 50 than do the male. This trend is shown also by the unadjusted weight curves in Table IV.—the actual increase of the female weight for the combined heights being 1.9 pounds more than that of the male.

This period of more rapid increase in weight corresponds to the reproductive period of a woman's

TABLE V

Ages..... Heights	15–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64
5′– 0″.....	–6	–8	–9	–9	–8	–6	–4	–3	–2
– 1″.....	–6	–8	–8	–7	–6	–5	–3	–2	–2
– 2″.....	–6	–8	–8	–6	–4	–4	–1	–1	–1
– 3″.....	–7	–7	–7	–5	–4	–3			
– 4″.....	–7	–8	–8	–6	–5	–2			
– 5″.....	–7	–7	–6	–4	–3				
– 6″.....	–7	–7	–6	–4	–4				–1
– 7″.....	–8	–8	–7	–5	–5	–2	–1	–2	–3
– 8″.....	–7	–8	–7	–6	–5	–3	–2	–2	–3
– 9″.....	–6	–8	–8	–7	–6	–3	–1	–2	–3
–10″.....	–7	–8	–9	–8	–7	–4	–2	–3	–5

life, which, taken in conjunction with a woman's more sedentary habit, would appear to be a reasonable explanation of the difference shown in the weight curves of the two sexes.

17 West Tenth Street.

IS FOOD CONTAINING BENZOATES INJURIOUS TO HEALTH?

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The Federal Food and Drugs Act of June 30, 1906, provides in section 7, "That for the purpose of this Act an article shall be deemed to be adulterated . . . In the case of food; . . . If it contain any added ingredient which may render such article injurious to health."

Section 3 of the Act provides that the Secretary of the Treasury, the Secretary of Agriculture, and the Secretary of Commerce and Labor shall make rules and regulations for carrying out the provisions of the Act, and acting under this provision the secretaries have, by Regulation 15, delegated to the Secretary of Agriculture the duty of determining the wholesomeness of colors, preservatives, etc. With this end in view, certain investigations have been conducted by the Bureau of Chemistry and are published, in part, in Bulletin No. 84, "Influence of Food Preservatives and Artificial Colors on Digestion and Health."

In discussion at a meeting of the Medical Association of the Greater City of New York (see proceedings, 1907), the writer's attention was called by Dr. H. W. Wiley to the results since published in Part III, "Sulphurous Acid and Sulphites." A reply was made October 16, 1908, at the meeting of the New York Section of the Society of Chemical Industry. A consideration of the data in the Bulletin led the writer to differ so markedly with Dr. Wiley's conclusions that it seems of importance to consider the data in Part IV, "Benzoic Acid and the Benzoates."

The method of investigation was the employment of a class of supposedly healthy men on a constant diet of known composition, the composition of the urine and feces being likewise known from analysis. The time extended over a period of forty days, consisting of two fore subperiods of five days each, four preservation subperiods of five days each, and two after subperiods of five days each. During the four preservative subperiods, benzoic acid was administered to six of the men and sodium benzoate to six. The total amounts (expressed as benzoic acid) varied from 13.5 to 35 grams.

From the "daily medical and clinical notes" of the men and from the metabolic processes as determined by the chemical data above referred to, certain general conclusions were reached. The essential statements of these conclusions are as follows:

"The administration of benzoic acid, either as such or in the form of benzoate of soda, is highly objectionable and produces a very serious disturbance of the metabolic functions, attended with injury to digestion and health."

"This injury manifests itself in a number of different ways, both in the production of unfavorable symptoms and in the disturbance of metabolism. These injurious effects are evident in the medical and clinical data which show grave disturbances of digestion, attended by phenomena which are clearly indicative of irritation, nausea, headache, and in a few cases vomiting. These symptoms were not only well-marked, but were produced upon healthy individuals receiving good and nourishing food and living under proper sanitary conditions."

"It was also noticed that the administration of benzoic acid and benzoate of soda was attended with a distinct loss of weight, indicative of either a disturbance of assimilation or an increased activity of those processes of the body which result in destruction of tissues. The production of a loss of weight in cases of this kind must be regarded as indicative of injurious effects."

"While often the metabolic changes were not strongly marked, such changes as were well established were of an injurious nature. It is evident that the administration of these bodies, therefore, in the food tends to derange metabolism in an injurious way."

"The occurrence of microscopic bodies in the urine is undoubtedly increased under the administration of benzoic acid in both forms, thus showing conclusively the tendency to stimulate the destructive activities of the body."

The conclusion that benzoic acid and benzoates are injurious is, then, based upon the following findings:

(1) Loss of weight. (2) Disturbance of the metabolic functions, as indicated by (*a*) an increased elimination of urinary solids (p. 1289); (*b*) an increased elimination of sulphur (p. 1208); (*c*) an increased elimination of nitrogen (p. 1166). (3) An increase of the microscopic bodies of the urine. (4) Disturbances of digestion, indicated by gastric distress, nausea, and in three cases (p. 1084) vomiting, often attended with headache.

1. Loss of weight. This averaged 1 kilo each with the benzoic acid group and 0.6 kilo each with the sodium benzoate subjects. Before concluding that the loss is due to the action of the preservative administered other possible causes must be excluded. Ordinarily two such causes present themselves for consideration. Increased body work produces this result, as is well known, but the data of the Bulletin afford no reason for believing that this factor was not reasonably well controlled. We may at least assume that it was, since a sufficient increase in physical exercise to reduce body weight would be readily appreciated.

The ingestion of insufficient food is a second cause of reduction of weight, one frequently employed to produce this result. The quantity of food is accurately known from the data of the investigation and, fortunately, we are able to consider this factor with reasonable exactness.

Subject 1, weighing 71.02 kilos, average during the first fore subperiod, weighed 69.41 kilos during the last after subperiod. During the period he ingested a total of 23,523 grams of food solids. Was this sufficient to maintain the body weight? To answer this question we fortunately have for comparison the diet of the same subject during a similar period of forty days which ended a month before the present period began (this Bulletin, Part III, p. 792). Here we find the weight in the first fore subperiod 68.44 kilos, in the last subperiod 68.76, that is, nearly constant, while the subject ingested a total of 26,586 grams of food solids. That is, 13 per cent. more food was ingested to maintain body weight during a former period of

forty days than was ingested during the period under consideration. More than this, we see that the subject had increased in weight to 71.02 kilos during the intervening month. It is clear, then, that what happened is this: The subject was in practical equilibrium during a former forty-day period, he increased in weight during an interval of thirty days when there was no diet restriction, showing therefore an increased ingestion of food during this interval, and then, during the period of forty days of this experiment, ingested 13 per cent. less food than during the former forty-day period, his weight diminishing, though not to the weight in the former period. This diminution is fully explained by the diminished quantity of food ingested and cannot in fairness be connected with the administration of benzoic acid during the period. It was dependent on the restricted diet and would have occurred if benzoic acid had not been administered.

Subject 2, considered on the same lines, shows the same relation of weight to the amount of food ingested. In the former period there was a loss of 1.18 kilos in body weight on 26,428 grams food solids; in the present period a loss of 1.20 kilos on 25,943 grams. The weight is clearly explained by the quantity of food and cannot be attributed to the benzoic acid.

Subject 3 ingested 26,670 grams food and gained 0.88 kilo in the former period; he ingested 25,406 grams, being 5 per cent. less food, and lost 0.55 kilo in the present period, the loss being clearly related to the diminished diet and not attributable to the benzoic acid administered.

Subject 4, did not lose weight during the administration of benzoic acid.

Subject 5 ingested 18,879 grams food and lost 1.99 kilos weight in the former period; he ingested 19,594 grams, being 3.6 per cent. more food, and lost only 1.0 kilos in the present period, the loss corresponding to the quantity of food.

Subject 6 ingested 24,678 grams food and lost 0.44 kilo weight in the former period; he ingested 22,494 grams, being 9.7 per cent. less food, and lost 1.16 kilos weight in the present period, the loss corresponding to the diminished quantity of food.

Subject 7 ingested 13,581 grams food and lost 0.89 kilos weight in the former period; he ingested 12,875 grams, being 5 per cent. less food, and yet lost only 0.67 kilos in the corresponding present period, thus losing less than might be expected from the diminished quantity of food.

Subject 8 ingested 25,900 grams food and gained 0.28 kilo weight in the former period; he ingested 22,942 grams, being 12.9 per cent. less food, and lost 1.99 kilos in the present period, the loss corresponding to the diminished quantity of food.

Subject 9 ingested 19,212 grams food and gained 0.08 kilo in the corresponding former period; he ingested 17,864 grams, being 7.5 per cent. less food, and lost 0.33 kilo in the present period, the loss corresponding to the diminished food ingestion.

Subject 10 did not lose weight during the administration of sodium benzoate.

Subject 11 ingested 29,895 grams of food and gained 0.06 kilo weight in the former period; he ingested 25,649 grams, being 10.5 per cent. less food, and lost 1.78 kilos in the present period, the loss corresponding to the diminished quantity of food ingested.

Subject 12 gained in weight.

There is no exception among these cases. Each clearly shows that any loss of weight is dependent on the quantity of food. There is no reason and no justification for concluding that the benzoic acid and sodium benzoate were in any way factors in the production of loss of body weight. Hence it is equally true that the loss of the body weight may not be "regarded as indicative of injurious effects" as a result of administration of these preservatives.

2. Metabolic Functions. (*a*) Increase of Urinary Solids. The figures show an irregularity in the quantity of urinary solids and in various ways invite comment as to the conclusion reached in the Bulletin. A little calculation shows that the slight increase during the benzoic acid preservative subperiods (see summary, p. 1113) is largely explained by the increase due to the elimination in the urine of the drug itself, as benzoic and hippuric acids (p. 1054-5) and their salts. If due weight is given to this factor, the increased elimination of solids, during the benzoic acid preservative period, is practically accounted for.

With the sodium benzoate subjects, three showed little or no change, one showed a decreased and two an increased elimination of urinary solids, the average of the whole being a small increase. This increase, then, was not general. Further, it is diminished by deducting the benzoate eliminated. If finally the conclusion is justified that on the whole there is a very small increase of urinary solids, it clearly is not attributable to the benzoic element, since, as we have seen, such an increase is not produced by benzoic acid and hence it is to be attributed to the sodium, an entirely innocuous food constituent.

(*b*) Increased Elimination of Sulphur. Since the body was losing weight, it might be assumed that it would lose products of metabolism. As a matter of fact, it was gaining in products of protein metabolism, indicating that the loss in weight was in the metabolism of non-protein body constituents. The gain in sulphur was less during the preservative subperiods and still less during and after subperiods. Interestingly enough, the diminution in the body gain of sulphur began not with the administration of the preservative, but with the second fore subperiod. Why, then, do we attribute the diminished gain to the preservative when it began five days before the preservative was given? Clearly, the figures of the first fore subperiod represent a condition before adjustment of the sulphur balance to the dietary conditions while the subsequent balance, which is nearly constant, was not disturbed, even when the preservative was administered.

(*c*) Increased Elimination of Nitrogen. The nitrogen balance (p. 1181) presents a condition similar to the sulphur figures. The second fore subperiod shows an increase in retention of nitrogen; the other subperiods, including those when preservative was administered, are nearly constant. If there was a disturbed metabolism, by what right do we conclude that it occurred in the three preservative subperiods which agree closely with the other three control subperiods and that the fault was not in the second fore subperiod? All the facts force us to conclude that the evidence does not establish any action of the preservative on the nitrogenous metabolism.

3. An Increase of the Microscopic Bodies of the Urine. Under this head are grouped all bodies appearing in the sediment. Their origin and significance are quite different in the case of the individual bodies, yet they are considered as a

whole. So far as the data furnish any clew to the meaning of their increase, they suggest that the crystalline elements have separated from solution because of the increased urinary acidity, which is a well-known result of the administration of benzoic acid and its compounds, and that the acid urine has acted on the urinary tract so as to increase the elimination of the morphological elements. There is no evidence in the increase of microscopic bodies of any general "tendency to stimulate the destructive activities of the body."

4. Disturbances of Digestion. A study of the "clinical data" reveals a most astounding condition. Two of the subjects developed elevation of temperature in the fore subperiods (regarded as an irrelevant circumstance) and six during the preservation after subperiods. Moreover, five subjects complained of colds (one without elevated temperature), four of whom had sore throats. Thus nine of the twelve men admittedly suffered from affections presumably all of the upper respiratory passages. There is no record in the clinical data of a single throat examination, and no mention of the fact of these illnesses in the conclusions, yet the conclusions do state regarding the effects of the benzoic acid and benzoates: "These injurious effects are evident in the medical and clinical data which show grave disturbances of digestion, attended by phenomena which are clearly indicative of irritation, nausea, headache, and in a few cases vomiting. These symptoms were not only well-marked, but were produced upon healthy individuals receiving good and nourishing food and living under proper sanitary conditions." In the conclusion (p. 1084) mention is made of the fact that three men vomited, yet attention is not called to the fact that two other men vomited, one four days and the other ten days after the discontinuance of the preservative. Moreover, with the occurrence of digestive disturbance no mention is made of the appearance of the tongue, the first point of inquiry by the practical clinician; nor was the vomit examined for what light it might throw on the gastric condition.

Of the three men not mentioned in the above, No. 12 was ill with measles just before the beginning of the experiment. To what extent pain in the stomach and headache during the preservative subperiods are dependent on that fact is uncertain, but the relation of the symptoms to the preservative is at least doubtful, since nausea and weakness are recorded as again coming on the twelfth day after the discontinuance of the preservative. No. 7 also developed nausea, but the pulse of 90 suggests that he may have been participating in the endemic of coryza which affected the class.

No. 1 alone seems to have been free from evidence of any illness, and it so happens that he also failed to record any symptoms attributable to the preservative administered, notwithstanding the fact that he received the maximum amount. The deficit is very ably supplied by the writer of the Bulletin in the following sentence (p. 1063): "There were no symptoms during the preservative period which the subject thought worthy to be recorded at the time; but he mentioned on several different occasions that, although he did not suffer from acute pains, he noticed a gradual decline in strength and a general physical weakness, so at times he was scarcely able to attend to his work." It repays one to dwell upon this statement. Although he suffered from a general physical weakness, so that at times he was scarcely able to attend to his work, it was not a symptom which he thought worthy to be recorded at a time when symptoms were at a premium. Such a statement is best submitted to the jury for their verdict without comment.

To summarize:

1. The loss of weight was not evidence of an injurious action of the preservative administered since it was because of a diet insufficient to maintain body weight.

2. The disturbances of metabolic functions, as evidenced by a supposed increased elimination of metabolic products, did not show any injurious action of the preservative administered, since no real increase was produced, excepting only the increase of urinary solids which was largely due to the elimination of the benzoic acid and its products.

3. The increase of microscopic bodies of the urine did not show any general tendency to stimulate the destructive activities of the body, and hence is not indicative of an injurious action of the preservative.

4. The disturbances in digestion cannot be attributed to the action of the preservative, since the subjects were not in a healthy condition, but were suffering from acute coryza and sore throats with the accompanying fever, which conditions are themselves, as is well known, a cause of gastric disturbances.

In conclusion, then, the evidence presented in Bulletin 84, Part IV, does not establish any injurious effect of benzoic acid and benzoates, even in the quantities and manner administered.

26 East Twenty-ninth Street.

A MODIFIED BOWLES STETHOSCOPE.

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The accompanying illustration shows a slight modification of the Bowles stethoscope. It is an ordinary binaural stethoscope with a Bloomfield plug

and a Bowles chestpiece. Only in the latter the metal rim is replaced by one of hard rubber, thereby avoiding the sensation of cold at first contact felt by the patient, especially in cold weather.

60 East Fifty-eighth Street.

Bier's Method in Dermatology.—Taylor and McKenna have recently devised several forms of Bier's vacuum apparatus for use in dermatology and have employed them with most advantage in cases of lupus, acne, furunculosis, various forms of odematous eczema, and leg ulcers. They had found a negative pressure of 2½ lbs. per square inch, sufficient to produce a copious discharge of serum from callous ulcers, being the treatment followed by the rapid formation of healthy granulations. Edematous eczemas drained in the same way rapidly healed up, and the vacuum process applied in cases of lupus, while of great value in itself, was of special efficacy when used in conjunction with the Finsen lamp. The method flushed the tissues from within, and by bringing serum laden with opsonins to the seat of the disease aided phagocytosis.—*The Lancet.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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INSANITY IN THE SIXTH AND SEVENTH DECADES.

OLD AGE has for long shared with malaria, and recently with autointoxication, the distinction of being a sort of etiological catch-all, any morbid condition occurring in one over sixty, the cause of which is not patent to the laziest diagnostician, being blithely referred to arteriosclerosis or other assumed senile changes. Arteriosclerosis, however, is now known to be a disease of those who live fast, as well as, or rather than, of those who live long, and gradually one disease after another, formerly regarded as of old age is being discovered to be simply in old age. In psychiatry especially, perhaps, the senility theory has been found most convenient and satisfactory, any form of insanity occurring in persons past the meridian of life being often looked upon as due purely to the age of the subject, and therefore, the cause being irremediable, being regarded as itself incurable.

Recently Drs. E. E. Southard and H. W. Mitchell have studied twenty-three cases of mental disease developing in the sixth and seventh decades in order to determine their relation to senile phenomena. All those cases came to autopsy and consequently the clinical analysis was supplemented by a study of the anatomical changes. The report of their findings was presented to the American Medico-Psychological Association at its annual meeting in Cincinnati in May, 1908 (*American Journal of Insanity*, October, 1908). Of those twenty-three cases, three were alcoholic in origin, five were paranoiac, four were cases of delirium, three were maniacal, and nine were cases of depression. In none of these cases was the insanity characteristically due to the premature onset of senile atrophy of the brain. Atrophy was found in several of the brains examined, and in all the cases in which it occurred the duration of life beyond the onset of mental disease was much longer than in the case of those subjects whose brains were of normal or over weight. The insanity could not therefore be rightfully referred to the atrophy as a cause. The pigmentation also was not characteristic of old age. Perivascular cell pigmentation was a constant feature, but this is a not infrequent feature in normal brains of persons in the fifth decade. The neuroglia cell pigmentation was also constant, but it varied in degree in the different cases, and the significance of the variations was not at all apparent. More striking variations were shown in the nerve cell pigmentation. In four cases there was hardly any pigmentation, in eight only was the senile yellow pigmentation present in the Betz cells. In one case the satellite cells were highly pigmented, while the adjacent nerve-cells were without pigment. On the whole there was little characteristic in the pigmentation, the variations being interesting but without apparent significance in relation to the age of the subjects.

As a result of their studies, clinical and anatomical, of these cases the authors conclude that "neither old age changes nor arterial disease have any necessary connection with the development of insanity in the later years of life, at least in the sixth and seventh decades. It seems probable that arteriosclerosis, senility, and various forms of insanity are entities which frequently interpenetrate, but are logically and genetically quite separate. Even the degree to which old age and arterial disease serve as complicating factors in insanity has been much overestimated."

If Drs. Southard and Mitchell are right in their conclusions, and so far as the findings in those cases go there seems to be no reason to doubt them, one more of the opprobria of old age has been removed. The more disease in the aged is studied, the more "normal," if such a term can be applied to disease, is it found to be; that is to say, the more is it found to be subject to the same etiological laws as disease at other periods of life, and the less is it seen to be due to age *per se*. Doubtless there are degenerative changes coincident with or dependent upon senility, but disease in the aged is by no means always referable to those changes, and the modern investigation of the physiology and pathology of old age is demonstrating every day the fatuity of Cicero's assertion that old age is itself a disease. There is a normal old age in which life is as endurable and as enjoyable as it is in the young or the mature, and the reward of patient and rational treatment of disease at this time is as great as at any other period.

EMASCULATED STIMULANTS.

THAT familiar feature of social life in Anglo-Saxon countries, namely, the crusade for abstinence from alcoholic beverages, has but recently reached Germany, the land where beer is the national drink and the use of tobacco an implied attribute of manhood. The proverbial "thoroughness" of the Germans is, however, once more exemplified in some of the features of the crusade; not only "alcohol-free" drinks have been introduced, but "nicotine-free" cigars and "caffeine-free" coffee are extolled in the medical and general press. It is this last feature of the subject that has called a vigorous expression of opinion from Professor Erich Harnack, who is perhaps best qualified to claim authority in the matter (*Deutsche medizinische Wochenschift*, Nov. 5, 1908). He very pertinently points out the contradiction in terms and ideas in the introduction of "alcohol-free" wines and beers, when the only reason for the use of the latter beverages by the great majority of mankind is their content of alcohol.

Moreover, all inquiries into the use of stimulants must be held with the fact ever in mind that their general popularity among all nations and races is probably founded upon a real requirement of the stimulation derived from them, and self-deception in the shape of substituting similarly sounding names for beverages that do not contain the elements for which real wines and beers are prized will not lead to the general adoption of such drinks as substitutes.

"Caffeine-free" coffee, the latest product of such crusades, especially sins against these considerations; if it contains none of the stimulating properties of coffee, there is very little reason for paying high prices for the "emasculated drink," as Harnack terms it. If it is only poor in caffeine, then it is quite probable that the "slaves of the cup" will use more of it to obtain the same amount of stimulation that they were wont to get from the original drink. If they have enough strength of mind to be satisfied with a smaller amount of the stimulating principle of coffee, then the usual dilution of the drink with milk or water will answer their purpose very well. Such dilution will certainly save their money as well as do away with the very real risk of being gradually injured by the foreign constituents of the "caffeine-free" coffee that may have been introduced during the process of extracting the alkaloid.

That there is room for the use of stimulants, whether alcoholic beverages, coffee, or tobacco, that have been reduced in strength is probably true; gradual omission of such substances must often be carried out with sick persons, and the artificially weakened products may then answer a real need. That it is wrong to carry on any crusades against excessive use of stimulants, or any use of them whatever by young people, by means of unwarranted declarations of the amount of harm caused by them, is equally true. The medical profession, especially, must be careful in lending its support to any such crusade; it may find itself either responsible for statements for which there is no foundation in facts of medical science, or quoted in support of this or that commercial product of the kind that Harnack classifies among the "emasculated" stimulants. The whole question of the crusade for the substitution of these products for wine, coffee, and tobacco forcibly reminds us of a passage in an essay of Professor William James of Harvard. He had for the first time visited the model community of Chautauqua and was deeply impressed with the approach to the ideal of civilized life that he found there, and for a few days it seemed to him as if the great world outside was but a scene of meaningless strife and danger, the return to which after the ideal life of Chautauqua would be a real hardship. But the moment his train left that town he felt the immense relief of having once more entered life that carried with it risks and dangers and temptations, the daily battle with which constituted the real significance of living. The artificial community where ice cream soda was the most intoxicating drink and a debate about music the only safety valve for anger lacked the very elements that made life worth living.

EXAMINATIONS.

A WIDE divergence of opinion exists as to the value of examinations. On one point, however, all are agreed that so far as the entrance to the medical profession is concerned, no system of examination is perfect and that many systems are remarkably faulty and ineffective. Yet, on the whole, it must be conceded that the examination test is necessary, and until some better mode is devised probing the knowledge of the would-be medical practitioner must be continued. This being so, it behooves those responsible for the conduct of medical examinations to see that these tests really fulfill, as far as is possible, the object for which they have been founded. In this country, for example, no one would assert that the system of examination in the various States is best calculated to provide men fully competent to act as medical practitioners even from the standpoint of theory. Examinations in medicine and surgery in different parts of America are not of an equal standard. Great progress in the direction of uniformity has been made during recent years, but still the examination standards for entrance to the medical profession are very unequal.

Examinations in themselves differ widely. Some papers appear to be composed with the sole object of leading the candidate into difficulties. The questions are frequently ambiguous and unaccustomed terms and expressions are used. It need scarcely be said that questions cannot be too straightforward. A paper should not be too long; the questions should be set down in plain, clear language, and the candidate, especially if a practitioner of long standing, should not be expected to have an intimate acquaintance with the most recent methods of laboratory research.

But while the written examination is a sufficiently trying ordeal, the *viva voce* is generally a far more painful experience, and it is in the spoken examination that the qualities of the examiner are most plainly shown. There are some men who are born examiners and others who are exactly the reverse. With the nervous man, and nervousness when being examined by no means implies lack of knowledge, the bad examiner is seen at his worst. He does not try to allay the nervous feeling but almost invariably continues to reduce the unfortunate individual to such a condition that in some instances he scarcely knows his own name. On the other hand, the good examiner will do his best to soothe the candidate's disturbed mental sensations, and by judicious questioning lead him back into a sane state of mind. It must be remembered that an examiner's duty is to find out what a man knows rather than what he does not know and to exercise discrimination. In short, examiners are in need of training for their posts nearly as much as are candidates. Because a man is a skilled surgeon or a distinguished physician it does not follow that he will be a good examiner. For this position a certain aptitude is required, as well as practical experience and some training. Fortunately for the candidate, however, the State Board examinations are written and he is spared the ordeal of thinking

on his feet, with a tired and possibly impatient examiner doing everything possible, even if unwittingly, to confuse him.

Resuscitation.

Two years ago Crile and Dolley excited the interest of the medical profession by publishing the results of their resuscitation experiments. They killed animals by means of anesthesia or asphyxia and having allowed the heart to remain still for periods of time varying from a few seconds to thirty-five minutes, brought them back to life by centripetal injections of salt solution to which adrenalin chloride was added. The cessation of heart function resulted, of course, in anemia of the body organs and it could be supposed that although the heart could be made to beat once more irreparable injury may have been done in the meantime to more delicate structures, such as the components of the nervous system. Recently the same authors have investigated this phase of experimental resuscitation and have published the results in the *Journal of Experimental Medicine*, Volume 10, No. 6. A series of thirty dogs were killed by chloroform and then resuscitated according to the above method. If the resuscitation occurred within five minutes of the death of the animal the recovery of function was very rapid and quite complete, showing that the injury done to the nerve cells by the complete anemia during that period was not very intense. Death for a period of over seven minutes seemed to have led to very grave changes so far as function is concerned, for only one dog of the twelve in this series recovered. Histological examination corroborated the functional results; the nerve cells of the fatal cases presented changes indicative of chromatolysis and even of cell death, while special methods of staining proved the existence of fiber-degeneration as well. The authors conclude that six or seven minutes is the average limit of total cerebral anemia which admits of recovery under conditions similar to the circumstances surrounding their experiments. As sudden death from asphyxia or from the effects of anesthesia is the most frequent accident which in human beings may call for the employment of such methods of resuscitation, the determination of the experimental limit of possible recovery is of course of great importance in connection with attempts in this direction.

News of the Week.

Various Occurrences at the Tuberculosis Exhibition.—Physicians and others from many parts of the State came to New York on December 21, to attend the Tuberculosis Exhibition at the American Museum of Natural History. Addresses were made by Mr. Joseph H. Choate, who presided at the evening meeting, the Right Rev. Richard H. Nelson, Health Commissioner Porter, and Dr. Hermann M. Biggs. Dr. Biggs outlined a plan for the State control of the disease, providing for the erection of sanatoria for the care of tuberculous patients, the cost of each patient to be charged to the county from which he comes, and for State aid for small towns and communities wishing to erect sanatoria of their own. He suggested that the State might agree to subsidize such local sanatoria to the amount of $500 a bed, since the care of the tuberculous was certainly as much to the State as the care of the insane. He thought the carrying out of the suggestions would lower the death rate in the State almost fifty per cent. It was estimated that about eight thousand persons attended the day's meetings.

A thousand Italians of all sorts and degrees attended the special Italian night at the Tuberculosis Exhibition on December 26. Dr. Antonio Stella, Consul General Massiglia, and Mr. Ernesto Fabbri addressed the meeting.

Sunday, December 27, was the Hebrew day, and the occasion brought a total of 63,112 visitors, the largest crowd that ever gathered in one day in the Natural History Museum. The exhibition has been widely advertised for weeks in the lower east side, and Jewish day was particularly well advertised. When the doors were opened at 1 o'clock the lines of waiting people ran back for a block or so from the Seventy-seventh street entrance and for three or four blocks from the Seventy-ninth street entrance. The usual afternoon program was given in Yiddish, and when one audience had been talked to it was moved out and another one marched in. In spite of the unprecedented numbers, there was no disturbance or disorder.

Cost of Mosquito Extermination.—Dr. John B. Smith, the New Jersey State Entomologist, in his annual report to the Governor says that municipalities are now cooperating with the State in the extinction of the mosquito, and that the time is drawing near when there will not be a mosquito left in New Jersey. The total appropriation for the work for the year was $20,000, of which only $15,458 was used, leaving a balance of $4,542. There were 17,620 acres of marsh land drained, and 2,394,174 feet of ditches were built to keep stagnant water from collecting in breeding places. It is said that the draining of the marshes about Jersey City have caused the complete disappearance of the mosquitos from that region.

Union of Medical Schools.—By the absorption of Hamline College, the last of the private medical schools in Minnesota, by the State University, Minnesota becomes one of the two States in the Union where the teaching of medicine is entirely in the hands of the State universities and is controlled altogether by the State authorities. The same condition of affairs prevails in Vermont. When the Department of Medicine was established in the University of Minnesota some years ago, four private schools for teaching medicine were in existence; the State Medical College at St. Paul, the Minnesota Hospital College, the Minnesota College of Homeopathic Medicine, and the College of Physicians and Surgeons, at Minneapolis. The last was later affiliated with Hamline University, but the first three surrendered their charters and united with the State University. A meeting to celebrate this unification of medical teaching was held on December 8, in the University chapel, and was attended by the students, the alumni, and members of the medical profession.

A School of Preventive Medicine.—Columbia University, New York, has for some time had under consideration the possibility and practicability of establishing a thoroughly organized school or department of Hygiene, Sanitary Science, and Preventive Medicine, and recently a committee consisting of officers of the University has been appointed to study the subject and to report thereon. The committee is composed of Dr. N. E. Ditman, Chair-

man, Dean Samuel W. Lambert, Profs. M. Allen Starr, F. S. Lee, Edward T. Devine, Livingston Farrand, E. R. A. Seligman, G. N. Calkins, W. H. Burr, Dean F. A. Goetze, and Dr. Rudolf Tombo, Jr.

New York's Death Rate.—During the week ending December 19, there were in New York City 1,359 deaths, representing a rate of 16.03. While these figures show an increase over the figures for the previous week, they are lower than those for the same week of 1907, when the total number of deaths was 1,711 and the rate was estimated at 20.83. One hundred and eighty-five deaths from tuberculosis occurred during the week.

Cholera in St. Petersburg.—A fresh outbreak of cholera in St. Petersburg accompanied a cold wave there toward the end of December. Thirty-one new cases were reported on December 25, and thirteen deaths, making a total of 225 persons in the hospitals suffering from the disease.

Smallpox in Philadelphia.—A case of smallpox has been discovered in a colored woman in Philadelphia who had come from Carolina County, Va. The patient was sent to the Municipal Hospital and the neighborhood was quarantined while all of those in the infected zone were vaccinated.

Scarlet Fever Epidemic.—Because of an epidemic of scarlet fever in Warsaw, Ind., the municipal authorities have closed the schools, and have refused to allow any public Christmas entertainments.

Expensive Leper Dead.—Mock Sem, a leper who has been the charge of the City of Harrisburg, Penn., since July, 1907, died on December 25, at the Municipal Hospital. He came from China, and while working in a restaurant as a cook was found to be suffering from the disease and was isolated. American cooking did not please him, and it was found necessary to supply him with a stove and the raw materials with which to prepare his own meals. The cost of his maintenance was about $175 a month, which caused many debates in the City Council.

Isolation Ward Closed.—The Managers of the Mountainside Hospital at Montclair, New Jersey, announce that hereafter the isolation ward of that institution will be closed, because of the opening of the new isolation hospital at Soho, which permits of better care of contagious patients.

The Red Cross Hospital, New York, has acquired the lot on the southwest corner of Central Park West and One Hundredth street adjoining its present building. It is understood that the hospital facilities will soon be considerably increased.

Marine Hospital at Pittsburg.—The cornerstone of the new Marine Hospital at Pittsburg, Pa., was laid on December 23, the ceremonies being conducted by Harbor No. 25, Master and Pilots, American Association. The building is situated in a portion of the former Arsenal grounds which was reserved when the United States made a lease to the city of Pittsburg of the present Arsenal Park. The former Marine Hospital was discontinued twenty-five years ago, and the sick and injured members of the Association have since that time been cared for at Mercy Hospital under the contract system. There are thirty-eight firms and steamboat owners operating out of Pittsburg, and when the rivers are at a boating stage they employ 2,600 officers and men. Twenty-five thousand dollars has been appropriated for the structure.

Charitable Bequests.—By the will of the late Dr. William J. Earheart of Philadelphia the sum of $5,000 is bequeathed to each of the following institutions for the endowment of a free bed: Women's Homeopathic Hospital, Children's Homeopathic Hospital, Hahnemann Hospital, Women's Southern Homeopathic Hospital, and St. Luke's Homeopathic Hospital. By the will of the late Mrs. Sarah E. Kolb, the sum of $5,000 each is bequeathed to the German Hospital and the Home for Incurables, for the endowment of a free bed, and $1,000 is left to the German Protestant Home.

The Chicago Milk Commission, through its Secretary, Dr. A. Belcham Keyes, has issued a physician's order blank on the back of which is a list of stock formulæ of milk for infants, and a list of the milk stations where the milk may be obtained. The Commission has also issued leaflets on "buttermilk food for infant feeding," and how to take care of the baby.

Newspaper Publicity Unethical.—The Madison County Medical Society (Ill.) recently adopted resolutions deploring the practice of newspaper publicity on the part of members of the medical profession, on the ground that it is foreign to the principles and ethics of the medical profession, and requesting the publishers of newspapers to omit the names of physicians and of their deeds from the columns. The publishers and editors of newspapers will probably continue to publish the news.

The New York Herter Lectures.—Professor J. B. Leathes, of the Lister Institute of Preventive Medicine of London, England, will deliver six lectures on "The Metabolism of the Non-nitrogenous Substances in the Animal Body" in the Carnegie Laboratory of the University and Bellevue Hospital Medical College, beginning on Monday, January 4, and continuing daily throughout the week, at four o'clock in the afternoon. All those interested are cordially invited to attend the course of lectures.

The Washington County (Me.) Medical Society held its annual meeting at Calais on December 10, when the following officers were elected for the ensuing year: Dr. E. H. Bennet of Lubec, *President;* Dr. F. N. Shaw of Machias, *Vice-President;* Dr. F. W. Russell of Robbinston, *Treasurer;* *Board of Censors,* Drs. Deacon of Milltown, N. B., Waller of Milbridge, Webber of Calais.

The Minneapolis Homeopathic Society, at its regular meeting on December 15, elected the following officers: *President,* R. D. Matchan; *Vice-President,* A. G. Hammond; *Secretary-Treasurer,* J. D. Wallen.

The San Bernardino County (Cal.) Medical Society held its annual meeting on December 10 and elected the following officers: *President,* W. P. Burke of Highland; *First Vice-President,* Hoell Tyler, Redlands; *Second Vice-President,* T. M. Blythe, Redlands; *Secretary,* G. G. Moseley, Redlands; *Treasurer,* William A. Taltavall, Redlands. D. C. Strong of San Bernardino was elected delegate to the State meeting at San José in April.

The Northwestern Ohio Medical Association closed a two-days session in Findlay on December 12, by the election of the following officers for the ensuing year: *President,* Dr. Thomas Hubbard of Toledo; *Vice-Presidents,* Dr. Charles Mertz of Toledo, and Dr. O. L. Norris of Deshler; *Secretary,* Dr. E. A. Murbach of Archbold; and *Treasurer,* Dr. S. T. Elmore.

The Schoharie County (N. Y.) Medical Society held its annual meeting on December 8, at Cobleskill. The following officers were elected: *President,* C. S. Best, Middleburg; *Vice-President,* E. E. Braman, Livingstonville; *Secretary,* C. L. Olendorf; *Treasurer,* L. R. Becker; *Censor,* W. T. Rivenburg. Joseph R. Brown of Seward was chosen delegate to the meeting of the State society which convenes in Albany the latter part of January.

The Delaware County (Ia.) Medical Society, at its regular quarterly meeting in Manchester on December 9, elected the following officers: *President,* Dr. Hugh Livingston, Hopkinton; *Vice-President,* Dr. H. A. Dittmer, Manchester; *Secretary and Treasurer,* L. J. Bowman, Manchester; *Delegate to State Meeting,* Dr. C. B. Rogers of Earlville.

The Greene County (Mo.) Medical Society held its annual business meeting in Springfield on December 11. The following officers were elected to serve for the ensuing year: *President,* Dr. F. B. Fuson; *Vice-President,* Dr. C. E. Woody; *Secretary,* Dr. J. E. Dewey; *Treasurer,* Dr. D. B. Farnsworth; *Censor,* Dr. N. F. Terry; *Delegate to State Medical Association* at Jefferson City in May, Dr. W. M. Smith; *Alternate Delegate,* Dr. J. R. Boyd.

Rabies on the Isthmus.—There have been a number of cases of hydrophobia in the Canal Zone recently, and several persons bitten by supposedly mad dogs have come to Washington to receive preventive inoculations. The latest of these arrivals was Dr. Tomasselli of the sanitary department.

The American Roentgen-Ray Society.—The ninth annual convention of this society was held in New York on December 28, 29, and 30, at the Academy of Medicine. In addition, an interesting exhibit of *x*-ray apparatus was on view in the Engineers' Society building.

Obituary Notes.—Dr. Edward M. Tucker of Derry, N. H., died at his home on December 8, aged 68 years. Dr. Tucker began his medical studies under Dr. L. G. Hill of Dover, but at the outbreak of the Civil War he enlisted in the Massachusetts Light Artillery. After being wounded he was discharged for disability in 1862, but was able to reenlist in 1864, and served until the close of the war, when he was appointed a hospital steward in the regular army. He graduated from the medical department of Bowdoin College in 1872, and had practised his profession in Canaan, N. H., until a year ago.

Dr. Charles Allen of Washington, D. C., died suddenly on December 25, after a stroke of apoplexy, aged 73 years. Dr. Allen was a graduate of the Georgetown Medical School, and since his graduation had practised continuously in the District of Columbia until the day of his death.

Dr. James Samuel Clark of Westfield, Mass., died at his home on December 21, after a long illness. Dr. Clark was born in Bellows Falls, Vermont, in 1854, and after a few years of business life entered the College of Physicians and Surgeons, New York, from which he was graduated in 1881. He was a member of the Springfield Academy of Medicine.

Dr. Frederick E. Maxcy of Washington, D. C., died suddenly at his home on December 25. Dr. Maxcy was born in Maine in 1873, and was a graduate of Bowdoin College.

Dr. Richard A. F. Penrose of Philadelphia, father of United States Senator Penrose, died at his home on December 26 of pneumonia, aged 82 years. Dr. Penrose was graduated from Dickinson College in 1846, and three years later received the degree of M.D. from the University of Pennsylvania. He served for three years as resident physician in the Pennsylvania Hospital and later became physician to the Southern Home for Destitute Children. He was Lecturer on Obstetrics and Diseases of Women and Children in the Philadelphia Hospital from 1854 to 1857 and from 1858 to 1859, and Obstetrician from 1859 to 1867. In 1893 he was appointed to the Chair of Obstetrics and Diseases of Women and Children in the University of Pennsylvania, holding this position until 1889. During the Civil War he was one of the surgeons to the Satterlee Hospital, one of the largest army hospitals in Philadelphia. He was one of the founders of the Children's Hospital, of the University Hospital, and of the Cynecean Hospital. He was largely instrumental in opening the wards of the Pennsylvania Hospital to medical instruction. In 1872 Dickinson College conferred on him the degree of LL.D.

Correspondence.

MISLEADING ANTIVIVISECTION LITERATURE.

To the Editor of the Medical Record:

Sir:—Last winter two decided efforts were made before the Legislature of this State by two separate organizations to secure the enactment of laws seriously restricting animal experimentation as a means of established scientific medical progress. It appears that these efforts will be repeated during the coming session of the Legislature. On November 11, 1908, a concert was given in this city by the New York Antivivisection Society for the purpose of advancing their aims in this respect. A pamphlet is now being circulated among physicians and others in various parts of the State by the Society for the Prevention of Abuse in Animal Experimentation, calling attention to the assumed horrors of vivisection, and urging support in the effort which the society will make at the coming session of the Legislature to secure restrictive legislation. This pamphlet is a typical piece of antivivisection literature, and is evidently the work of one whose eyes are shut to the real state of facts, for the recitals made therein are unjustified assumptions and allegations unsupported by proof. They are based largely upon obsolete European exhibitions, and also upon what those who are familiar with progressive science declare to be as ancient history—that is, a history of a period in the development of medical research, the methods of of which are no longer employed by anyone. The misstatements, and fallacious arguments put forth last year are again being restated, notwithstanding the faithless aspect which they then presented. Why do people who claim to present "a fairminded and unbiased view" rehearse misleading things over and over again when they can easily inform themselves of existing conditions? Those who are familiar with modern scientific attainment and practices have no knowledge, nor do they believe, that needless suffering is inflicted in animal experimentation in laboratories or elsewhere; nor has reliable evidence thereof been brought to light by the opponents of vivisection. Eminent legal authorities assure us that the law as it exists to-day in the State of New York is sufficient to punish all, if there be such, who are guilty of cruelties in animal experimentation.

If restrictive laws pertaining to this subject are introduced into the Legislature this winter, the Medical Society of the State of New York will oppose them. In the meantime we would urge the public to refrain from accepting as true such a misleading picture as is presented in the pamphlet above referred to. The Medical Society of the State of New York is prepared to furnish literature expressing the truth regarding animal experimentation and also to furnish speakers for clubs and societies that are interested in this subject.

Frank Van Fleet, M.D.,
Chairman, Committee on Legislation, Medical Society of the State of New York.

APPENDICITIS AND RHEUMATISM.

To the Editor of the Medical Record:

Sir:—Apropos of Dr. Beverley Robinson's communication in the Medical Record for December 19, 1908, commenting upon Dr. Eustace Smith's "Remarks on the Rheumatic Origin of Certain Serous Inflammations," please allow me to say that we need have little discussion over the subject. Rheumatism precipitates attacks of appendicitis, and appendicitis precipitates attacks of rheumatism. According to a theory which was presented in the year 1895, appendicitis follows any cause which makes the soft inner coats of the appendix swell to the point of compression anemia within the narrow and tight outer sheath. Bacteria of the bowel then pounce upon the anemic area which is down. Rheumatic swelling of the lymphoid layer of the appendix often gives the bacteria this chance. The presence of a concretion, extension of ordinary colitis swelling, psoas traumatism—all of these do the same thing. The question of the hole by which the mouse got into the cheese is a quibble. The mouse is at the cheese. That is enough. On the other hand, functional derangement of the bowel, due to the influence of a percussion cap on the nipple of the cecum, can shake down an impending attack of rheumatism. The whole question centers upon the point of presence or absence of infection of the appendix. I have refused to operate in cases of rheumatic inflammation of the appendix, without infection, sometimes to the amazement and dismay of the patient, who promptly called another doctor. No case of infection of the appendix has gone abroad for relief, however.

Robert T. Morris, M.D.

616 Madison Avenue, New York.

HYPOCHLORIDIZATION IN THE TREATMENT OF EXOPHTHALMIC GOITER.

To the Editor of the Medical Record:

Sir:—The administration of bromide in cases of epilepsy with a refusal of sodium chloride having given good results, similar treatment of cases of Graves' disease by bromide of strontium and hypochloridization came to mind. The treatment in full consisted of infusion of digitalis, strontium bromide, potassium nitrite, and a saltless diet. After two weeks of this, the tremor and feeling of nervousness and thrill entirely disappeared, so that a glass of water was quite steady in the outstretched hand, and the patient became tranquil in mind and body. Some digestive symptoms occurred, anorexia and nausea, but these yielded to ordinary therapeutics. The pulse rate fell from 128 to 96. Reports of cases of similar treatment would be appreciated. T. H. Evans, M.D.

Freeport, Long Island.

OUR LONDON LETTER.

(From Our Special Correspondent.)

HEALTH OF THE KING—BRADSHAW SURGICAL LECTURE—USE AND ABUSE OF THE CURETTE—ROYAL SOCIETY OF MEDICINE—CHILDREN'S DISEASES—THE TSETSE AND THE BUFFALO—OBITUARY.

London, December 11, 1908.

The King is practically convalescent—that is, in brief, the news of to-day. His Majesty had a severe cold—slight enough at first, it is said—and he left Windsor and went to Sandringham with it. There it declared itself as influenza and with that neuralgia, keeping him in his room three or four days. On Tuesday he was well enough to go to the seaside for a change and has steadily improved. The deep interest expressed on every side in the King's health shows how entirely he has secured the loyal regard of all his subjects.

The Bradshaw Lecture at the Royal College of Surgeons this year was delivered on Thursday afternoon by Sir W. Watson Cheyne of King's College Hospital. Having served as house surgeon under Lord Lister and consistently followed his practice, he naturally chose as his subject "The Treatment of Wounds" and made a good defense of antiseptics used with judgment as against the more elaborate precautions of those who endeavor to insure absolute asepticism. The president, Mr. Henry Morris, occupied the chair and for the first time the members of Council appeared in their academic gowns. I hope they enjoyed wearing their newly assumed assertion of university rank and felt as self-conscious as they looked, but I cannot see how a self-constituted claim to a new cut of clothes can increase the dignity of surgical science. The lecturer said that in such a science as theirs, where knowledge is still very imperfect, there is considerable oscillation in the current views which prevail from time to time—a constant swinging of the pendulum, so to say, between the opposite points of medical opinion. At the present time, he thought, this oscillation was nowhere more marked than in the views founded on experimental and chemical pathology and perhaps most especially in connection with bacteriology and the relation of bacteria to the living body. The treatment of wounds was just now a subject on which professional opinion was in one of those extreme oscillations. It was not, therefore, his intention to produce new facts, but rather to go over the elementary points of the subject and to indicate to what extent our original conceptions have been modified and how far it is desirable to go according to the present state of our knowledge. Sir Watson Cheyne proceeded to deal in considerable detail with the action of antiseptics, the manner of invasion of bacteria, sterilization, and allied questions. After reviewing these in their various aspects, he summed up his criticisms on the most recent ideas of treating wounds by expressing the opinion that the pendulum had swung too far in the direction of asepticism and the disregard or even avoidance of antiseptics. He held that the reasonable use of all means at our disposal to prevent septic infection of wounds would furnish the most constant results; the attempt to treat them without any antiseptics at all was to exclude a most valuable aid and lead to a number of unnecessary complications. Comparing his own results and those of surgeons who followed the same practice, he held that they were in every way as good as those which had been obtained with the most elaborate devices for securing perfect asepticism; in fact, he ventured to declare they were better because they were more constant, more dependable.

"The Use and Abuse of the Curette" formed the subject of a lecture at the Polyclinic by Dr. Herman, and many will be disposed to say of it "a word in season, how good it is." There is no doubt that it is time to call a halt in the pace of some gynecologists, and Dr. Herman, with his enormous experience at the London Hospital, is well qualified to call it, and I congratulate him on the firmness, courage, and courtesy with which he has spoken. He first pointed out that to curette, or, to use the English word, to "scrape," the uterus when it gave no sign of disease was unjustifiable, although the patient was anesthetised for another purpose. To admit such a practice would lead to operations on healthy people. Disinfecting prior to removing suppurated tubes is unnecessary and also injurious, for it prolongs the anesthesia. For years gynecologists have been talking about endometritis (hyperplastic and polypous). These morbid conditions are adenomatous growths, with no evidence of inflammation, and in them Dr. Herman admitted scraping away the overgrowth in the first instance was good practice. Scraping the uterus in virgins who have no excessive hemorrhage, as had been advised by some, was, in the lecturer's opinion, an abuse, and the same judgment was pronounced on scraping and packing for pelvic pain. Turning to chronic metritis and endometritis, referring to recent papers and discussions, the lecturer held that scraping a uterus which has been infected with pathogenic microbes with the idea of scraping away the whole of the infected tissue was not justifiable, for it was impossible to effect complete removal, and if we could do it we could not know that we had. Again, scraping neurasthenics for pain without excessive hemorrhage could not be defended, even if the pain were supposed to be due to endometritis brought on by variations in the size or shape of the uterus. Such variations have never been shown to be pathological any more than differences in the size of the lobule of the ear.

When a scraper is really required the lecturer preferred a blunt, rigid instrument, which would not cause excessive bleeding and enabled the operator to judge its whereabouts and the force he was applying. The proper use of the instrument was to remove overgrowths. When hemorrhage is so profuse as to weaken the patient and bimanual examination sheds no light on the case, dilatation of the cervix and exploration with the finger would be proper. If nothing is felt, scraping and microscopic examination of the scrapings should follow. Further indications of the

proper use of the scraper were considered by the lecturer, but it is not my intention to follow up this part of his subject, as I regard the question of the abuse of the instrument as far more important at the present time and as demanding the attention of all gynecologists.

The Royal Society of Medicine held its first anniversary dinner on Friday, a number of distinguished guests being present. The toast of the society was given by Mr. Birrell, who, notwithstanding the odium he has earned as Chief Secretary for Ireland, talks as pleasantly as ever on any or every topic. On this occasion he said there was no profession for which he had a profounder admiration and none of which he knew less. Then he told a story of how once he fancied he was smitten with a mortal disease and determined to die *secundum artem*, as he was the last man to be irregular in his departure from the world. So, walking to a specialist's for that disease, he fell into a profound perspiration and while waiting took up a book in which he read "the patient suffering from this disease never perspires," whereupon he picked up his hat and gloves, walked out, and had never seen that eminent specialist from that day to this. The appreciative laugh of the guests having subsided, the president, Sir William Church, responded, of course, in a more serious vein. He told how the society, though still in the infancy of the amalgamation, was doing well, and he thought its success was certain. During the past year they had had a large accession of Fellows and now numbered 2,215. Their object was the advancement and dissemination of knowledge, the means being sectional meetings for the departments of medical science, their proceedings, and their fine library of 100,000 volumes. Some special branches of medicine were at present unrepresented in their body, but he hoped they would ere long be embraced. They were not the Royal Society of Medicine of London, but of the United Kingdom, and indeed of the British Empire. About 1,780 Fellows resided in London, 1,170 in the province, and 220 were scattered over the globe.

The Society for Studying Children's Diseases is now a section of the Royal, and a number of interesting cases were brought forward at the November meeting. Dr. C. E. Finny described one of duodenal ulcer ending in perforation, and showed the specimen. On this Dr. Cantley remarked that though such ulcers gave rise to spasm of the pylorus, which was constricted after death, it does not seem to cause hypertrophy. There is, too, a striking absence of evidence of pain.

Mr. H. M. Rigby showed a case of ectopic vesical in which the ureters had been implanted into the rectum and the child could control the passage of urine. He was congratulated by Mr. Leet, who referred to a number of unsuccessful cases and mentioned one in which the ureters had been implanted into the sigmoid, which became kinked and the issue was fatal. Dr. Sutherland showed a boy with enlarged liver and spleen, for which mercury had been given. Dr. Cantley suggested that the rapid improvement under the drug suggested syphilis, or possibly the child had had peritonitis or tuberculosis. He hoped the exhibitor would keep the case under observation and report, as true atrophic cirrhosis was rare in children. Dr. Spriggs commented on the importance of a nodular state of the liver and thought the spleen not larger than it may be seen sometimes in tuberculous peritonitis.

Dr. Sutherland replied and held to the diagnosis of atrophic cirrhosis. The onset was sudden, with pain and distention, no pyrexia, and he had felt nodules when there was less fluid in the abdomen than now. He did not think there was evidence of syphilis.

The African Society entertained Mr. F. C. Selous on Wednesday. The eminent explorer and big game hunter gave a thrilling account of some of his experiences and incidentally indicated his conviction of an intimate connection between the tsetse fly and buffaloes. He had noticed in his long periods in Africa that wherever the buffalo ceased to roam there the tsetse became extinct, although other big game might remain. The fact that the buffalo is slow of movement and congregates in great herds near the rivers might have led the fly to depend on it almost entirely. Be that as it may, wherever the herds were decimated by rinderpest the fly was brought to the verge of extinction in a few months. Where the tsetse could feed only on the blood of other mammalians, it was found to be innocuous to domestic animals.

Dr. Charles Edward Beevor, the distinguished neurologist, who was at the Royal College of Medicine's dinner on the 4th inst., died quite suddenly on the 5th inst., aged 54. He was the elder son of the late Charles Beevor, F.R.C.S. He took his M.D. Lond. in 1881 and became F.R.C.P. in 1888. He was for a time assistant physician at his own hospital (University College), but became physician to the Hospital for Paralysis and Epilepsy and to the Royal National Orthopedic Hospital. He wrote the articles on diseases of the nervous system in Fowler's "Dictionary of Medicine" and in Allbutt's "System" and contributed to the Royal and other societies, as well as to *Brain* and other medical journals, on various questions connected with neurology. He delivered the Croonian Lectures at the Royal College of Physicians in 1903 and only last year was president of the Neurological Society and gave the Lettsonian Lectures of the Medical Society of London.

Dr. F. Pritchard Davies, for many years physician to the Kent Asylum and formerly connected with Broadmoor, has died at the age of 64. He had been president of the Edinburgh Medical Society and served in other offices. He took M.R.C.S. in 1869 and M.D. Edin. 1879. He contributed articles on his specialty to the *Journal of Mental Science* and the *American Journal of Insanity*, 1877 to 1887.

Dr. Samuel Griffith, M.D., died on the 1st inst., aged 74, at Portmadoc, where he spent his professional life. He took a part for many years in educational and other questions connected with social advance and the prosperity of his town and district.

OUR BERLIN LETTER.

(From Our Special Correspondent.)

EHRLICH'S ADDRESS—EXPERIMENTAL THERAPEUTICS—ACTION OF ARSENIC COMPOUNDS UPON TRYPANOSOMES—DEATH OF ALTHOFF.

BERLIN, December 1, 1908.

THE physicians of Berlin were obliged to pay a visit to quite an unusual place for them in order to hear Paul Ehrlich lecture on "Experimental Therapy." He spoke on this subject before the German Chemical Society, and not only the medical profession was well represented, but all other scientific professions had their best-known members among the audience that greeted the lecturer.

He spoke in the beginning of his lecture of the times when Germany had pharmacological institutes only in which theoretical questions constituted the main part of the work. Even though the development of some practically important drugs was due to the work in these institutes, as, for example, the anesthetics, yet the greatest number of remedies used in medicine was originated by chemists. These remedies were then turned over to physicians for clinical study and the result was mere empiricism in bringing out new drugs. This was the condition of affairs until very recent times when the new institutes for experimental therapeutics appeared and exactly fitted in the place and work that were left unoccupied and undone in the old order of things. Pharmacology stands in the same relation to experimental therapy as anatomy and physiology to the pathological anatomy. It is not enough simply to inject every new remedy into the bodies of animals; in order to obtain more valuable data of the action of the remedy the animal must be sick or be made sick before the drug is tested upon it.

Ehrlich's own studies in the field of experimental therapeutics began with the question of staining *intra vitam*. It was noted that stains such as methylene blue, neutral red, and pyrrhol blue were attracted by certain tissues or tissue constituents, as, for example, fat and nerve tissues. These stains therefore could be considered to be specific in a sense, being now neurotropic, now neutrotropic, or lipotropic. The most perfect examples of such specific action are found in the behavior of the immune bodies that are attracted to the parasites, and not at all to the tissues of the organism, being purely parasitotropic in their action. The great difficulty with the therapeutic use of immune bodies has been the fact that they seemed not to be attracted by protozoa. Chemical remedies, on the other hand, have the disadvantage of possessing affinities, both for parasites and for tissues of the organism, and the whole task of experimental therapy in this connection is to find or make such chemical stuffs as would have the least possible injurious effect upon the body tissues while exercising powerful inhibitory effects upon the parasites. The substance least adapted for this purpose has proved to be corrosive sublimate,

which kills tissue cells in a concentration in which it does not seem to affect the bodies of parasites to any appreciable extent.

Some of the latest experiments of Ehrlich were devoted to the study of arsenic acid and its compounds. A number of compounds have been prepared which differ very much from the action of the original substance so far as poisonous qualities are concerned. The use of acetic acid as one of the components proved to be of most value, one combination, acetyl arsenilic acid, having shown to be almost nontoxic and at the same time capable of withstanding heating at high temperatures. Experiments with animals have shown that very dilute solutions of this substance were deadly to trypanosomes, while *in vitro* even very concentrated solutions proved to have no effect upon these organisms. The task was, of course, to explain this seeming contradition in the action of the new substance. Ehrlich prepared a number of compounds of arsenic acid and found that in test tubes the oxids possessed no inhibitory action as far as trypanosomes were concerned, while reduced substances were very active poisons to these protozoa. These experiments established the fact that the non-reduced substances were active poisons to the trypanosomes in the organisms of animals because the tissues of the animal were capable of reducing these substances; in the test-tube, on the other hand, the reduced substances alone were capable of such action. The analogy of the phenomena observed in the animal body and in the test-tubes was complete if the different facts in each case were allowed for.

Another fundamental difference depends upon the different valencies of arsenic; thus trypanosomes combine with the trivalent substance, but not with the pentavalent substance. By means of immunization strains of trypanosomes may be raised that are quite immune to poisons; if in any series of experiments the results seem to be unusual, not the animal may be at fault, but this newly-acquired property of the parasites. It has been found further that this immunity to poisons may reach a very high degree and may be transmitted from generation to generation of parasites. Moreover, not only the same preparation is impotent against such parasites, but all substances of the same class are equally unable to affect them. This fact allows us to measure the effectiveness of any preparation in comparison to others; if a preparation succeeds in destroying parasites that are immune to a certain class of remedies, then the new chemical is more powerful in this respect than the members of the former class of drugs.

In order to explain the series of phenomena that take place in the animal body in this connection, Ehrlich uses the conception of receptors that was originated by him. Arsenophenylglycin is a substance which has an absolute curative power, that is, it is effective even against trypanosomes that are immune to other arsenic compounds. We must consider it probable that a loss of receptors takes place in the first occasion, and this results in the diminution of sensitiveness toward some arsenic preparations. The receptors that still remain are sensitive toward antimony and toward arsenophenylglycin. The next stage is marked by the loss of receptors with which the sensitiveness toward antimony is likewise lost; the third step in the immunization would be the loss of all sensitiveness toward the arsenophenylglycin.

The aim of all such experimental work is to find substances that act in the body of the human being in a manner similar to the action of the arsenophenylglycin in the bodies of mice. Such a substance can be produced only with the help of chemistry, and one must hope that in the future too the relation between medical science and the chemical factories will be of the best, so that experimental therapy should find no hindrance to its work.

A few weeks ago there occurred the death of Friedrich Althoff. He was an official in the Ministry of Education of Prussia, and succeeded in making his power felt in all questions regarding the universities. He possessed a wonderful amount of energy, and his natural gifts helped him to maintain himself in the high station which he had reached. The result has been that the whole university system of Prussia has followed the ideas and ideals of Althoff; as the various faculties used to exercise a great deal of independence in all that concerns university life, conflicts between them and Althoff were quite frequent. As the scientist is usually a poor fighter by nature and by education, the victory in these conflicts usually remained on the side of the official. It is difficult to say how much of the recent changes in the universities was due to the activity of Althoff. It is a fact, however, that many of the modern clinics have been erected under his auspices and that the post-graduate courses were developed in his administration; the distribution of titles in Althoff's time has been different from older days, when the university titles were given out very rarely in comparison with the custom in the matter introduced by him.

Progress of Medical Science.

Boston Medical and Surgical Journal, December 17, 1908.

Medical Inspection of Schools from the Standpoint of the Medical Inspector.—This paper is by three inspectors of the Boston School System, J. T. Sullivan, T. J. Murphy, and M. J. Cronin. They conclude (1) that the whole system of medical inspection, including physicians and nurses, be placed under the control of the Board of Health; (2) that a chief medical inspector be appointed, with deputies, if necessary, to have full authority over all, his function being to direct and control the work of the district inspectors and to see that each performs the duties required; also, through a supervising nurse, to direct the work of the nurses; (3) that the medical inspectors' powers be definitely determined and specifically set forth and that a proper compensation be given; (4) that the nurses be subordinate to the district medical inspectors and work only under their direction; (5) that a card system of records be devised, to be filled out by both physicians and nurses, one set to be kept at the schools and another set at the office of the chief medical inspector; (6) that the Board of Health and the School Committee cooperate in bringing about such needed reforms.

Chronic Intestinal Catarrh.—In this paper, continued from the previous issue of the Journal, L. C. Miller takes up the question of treatment, the former paper having described the condition, and takes up the matter of diagnosis, complications, and secondary conditions. Under treatment, the question of diet is carefully considered. For catarrh of the small bowel, the diet should be rich in albumen, meats, fish, eggs, as little sugar as possible, stale white bread or swieback, rice, sago, macaroni cooked in water, hot milk, bouillon or barley soup, butter, unsalted, weak tea and red wine. In some cases gas formation is so disagreeable that all carbohydrates must be cut off, vegetables containing cellulose should be avoided and fat taken only in limited amounts. As a rule milk is not well borne, but it may be the best food in certain diffuse catarrhs when the stomach and large bowel are most prominently affected. From one to two quarts of fluid are needed in the course of the 24 hours. In colitis, we may use coffee with milk, white wine, lemonade, apolinaris, and seltzer. Irrigations are commended, and their method of administration described. As to drugs, the author commends the use of tannigen, the bismuth preparations, the various intestinal antiseptics, mineral waters, etc. Bismuth subgallate is especially commended. With all remedies the preferable method of administration is to begin with as large a dose as the case will stand and diminish it gradually as improvement appears.

New York Medical Journal, December 19, 1908.

Treatment of Biliary Disease as Determined at the Operation.—Four case histories are given by H. Lilienthal. Case 1 was one of cholecystitis, in which gallstones were looked for but the operation revealed none, although the lumen of the cystic duct was so fine as to admit only the finest probe. The bladder was removed. Recovery was prompt and seems to be permanent. In Case 2, one of jaundice and glycosuria, the gall-bladder was found contracted and completely buried in hepatic tissue, and was literally dug out of its hepatic bed. In Case 3, a diagnosis of pericholecystitis with cholelithiasis was made. An abscess was found around the gall-bladder, and a single large calculus in the viscus itself. Later a large mass was washed from the wound, showing a hydatid cyst as a complicating lesion. Eventual recovery ensued. The author thinks it would have been dangerous to remove the gall-bladder at this primary operation, owing to the likelihood of serious infection. In Case 4 there was jaundice and great increase of liver dulness. The patient's bad general condition forbade more than a quick cholecystotomy under local anesthesia. The bladder full of pus and stones was drained with eventual cessation of the jaundice. The liver shrank, but at a secondary operation the gall-bladder was removed, a stone taken from the common duct and recovery ensued. The author says that one should never close the abdomen, except in the presence of collapse, without examining the pylorus and the pancreas. If white or yellow plaques of fat necrosis are seen in the omentum or mesentery, it means that the bile passages should be

drained, preferably by cholecystostomy, whether stones are present or not. The fat necrosis indicates the presence of acute pancreatitis, a diagnosis which is very rarely made before operation. In concluding his paper, the author emphasizes the following technical points: First, use but little gauze packing, even of the temporary variety. Many operators are absurdly afraid of soiling the peritoneum with a few drops of bile or pus. Infection, perhaps dangerous, may follow the soiling of the handled and damaged peritoneum, but the mere presence of bile or even pus will not cause general septic peritonitis unless the integrity of the peritoneum has been impaired by rough handling or contact with gauze. Another reason for avoiding packings is that they tend to produce adhesions, which may not only be embarrassing should a secondary operation be necessary, but which may in themselves give rise to complete or incomplete obstruction, particularly in the neighborhood of the pylorus. Second, in case of common duct disease this structure is more easily reached and manipulated when the gall-bladder has been removed and the cystic duct drawn up by traction sutures. The stump of the gall-bladder having been secured, it is not usually difficult to slit the duct with scissors down into the common duct. Hemorrhage may be accurately checked and the work can go on in a quiet and orderly manner under the eye. Third, leave the traction sutures in place. It may be that in spite of every precaution recurrent bleeding occurs. If the traction sutures are in place it is but the work of a few seconds to reopen the wound and draw into view the parts where the trouble is most frequently found.

Hemorrhage into the Vitreous Body in the Adolescent.—J. A. Gehrung records the histories of two cases and presents the following conclusions: (1) Hemorrhage into the vitreous body during adolescence is quite frequent, and owing to the danger of recurrence, and tissue changes in the eye, is a dangerous condition, worthy not only of patient, careful, and exhaustive treatment after the occurrence, but also of prophylactic measures; (2) the too rapid development of children should cause solicitude; (3) rapid changes of temperature and prolonged exposures to heat or cold are etiological factors; (4) menstrual disturbances, undue sexual excitement and abuse, cardiac disease, dyscrasias, malnutrition, errors of refraction, all causes of eye strain, hereditary diseases and tendencies, vascular diseases, anemias, abnormal (premature?) development, or malformations, all mental and physical causes of sudden and rapid fluctuations of the blood stream and tension are causative factors in intraocular hemorrhages; (5) the origin of hemorrhages may be from the retinal vessels or from the vessels in the region of the ciliary body, not from the sheath, etc., of the optic nerve; (6) glaucoma is rather the result than a causative factor of these hemorrhages; (7) the treatment should be medicinal if possible, the knife to be used only as a dernier resort; (8) attacks in women usually follow menstrual disturbances; (9) where there is a tendency to epistaxis and this suddenly ceases we have a danger signal of hemorrhage; (10) males are more liable to intraocular hemorrhage than women; normal menstruation is seemingly a safeguard; (11) the age from puberty through womanhood, or manhood, is a danger period; (12) anemic conditions are predisposing.

Is Not the Tubercle Bacillus the Cause of Cancer?—T. G. McConkey believes that the B. tuberculosis is the fundamental cause of malignant growths. He reviews the statements of various authorities on the relation of the tubercle to the bacillus, stating that it serves the latter's interest by protecting it from phagocytosis and thus permitting it to exist for years in a latent state. He claims that the bacilli can originate lesions which give no microscopic evidence of their causation; that even in the most typical tuberculous lesions it is frequently impossible to demonstrate a single bacillus by the ordinary methods; that not only are inoculation experiments not contradictory, but are even best explained by this theory; that the tuberculous and cancerous processes are frequently found not only in the same patient, but in the same growth; that caseation which is so characteristic of tuberculosis is also found in cancer; that conditions formerly called cancer are now known to be tuberculous. He claims that the fact that tubercle bacilli set up cell proliferation when they find lodgment in connective tissue, and epithelial or endothelial cells, and that this fact is of compelling significance in furnishing the solution of the cancer problem. He claims that this theory of the etiology of cancer is equally satisfactory when examined from the clinical side. Various quotations are made from the writings of various authorities on malignant growths. Special attention is called to the analogies between tubercle and cancer. Thus, both are hereditary in the sense of showing a family predisposition; both show an age incidence; both purely local at first; both may become general; both may result from trauma; both found not only in man, but in other vertebrates; both have location incidence in certain tissues; both show difference in appearance and structure, depending on tissue affected; both may have as predisposing cause depressing influences, as worry, grief, etc.; both have wasting and cachexia; both have race incidence; both have house and district incidence. These striking analogies are plain if we consider the conditions as different manifestations of one infectious agent, and the apparent antagonisms are also thus satisfactorily accounted for.

Journal of the American Medical Association, December 19, 1908.

Cerebral Hemorrhage.—W. G. Spiller does not find, in his experience, the diagnosis of cerebral hemorrhage justified in cases of death occurring within five or ten minutes after the beginning of the attack. He gives the details of thirteen cases, with autopsies, in which life was prolonged for hours after the onset of the apoplectic attack, even when the hemorrhage was extensive, had broken into the ventricles and filled them all, even the fourth. As a rule extensive hemorrhage into the lateral ventricles is followed by a more rapid death than when the ventricles escape, but a moderate hemorrhagic exudate into the ventricles is not necessarily rapidly fatal. Even a large part of one cerebral hemisphere may be destroyed and the patient live for a considerable period, as was shown in one of his cases in which the hemorrhage destroyed the lenticular nucleus, a large part of the posterior limb of the internal capsule, and extended to the island of Reil, and yet the patient lived nearly two months.

The Sphenoidal Sinus.—J. A. Gibson describes the anatomy and variations of the sphenoidal sinus, a cavity of which he thinks the importance has been underestimated and its study neglected. He has investigated 85 sphenoidal sinuses in the human skull, with especial reference to the position, size, and extent of the sinus, the average thickness of its walls, its relationship in size, if any, between it and the frontal and maxillary sinuses, the relationship, if any, between a large posterior naris and a small sphenoidal sinus, or the reverse, the establishment of certain averages between anatomic points, obtainable in the living subject, which might be of assistance to the surgeon, and to the recording of anomalies and their possible influence on surrounding parts. He finds no definite relationship in size between the different bony sinuses of the skull, nor anything definitely characteristic between the sizes of the posterior nares and the sphenoidal sinus. The size of the posterior nares is a very poor guide in estimating the size of the sinus. Any operation approaching the sinus by way of the postnasal space and from below would be unsatisfactory in many cases from the fact that the floor is sometimes quite thick, and that the sinus is often situated far forward. Any rule for the passage of a catheter into the sphenoidal sinus must necessarily be imperfect if for no other reason than that the nasal turbinates vary greatly. Added to this is the liability of variation of the sinus opening. Adding the minimum distance from the anterior superior nasal spine to shortest anteroposterior sinus, Gibson gets as a result 57 mm. (2¼ inches). This will give the least distance from the anterior nasal spine to the posterior wall of the sinus, and furnish a conservative distance to which an instrument may be inserted without fear of entering the cranial cavity.

Alveolitis.—M. H. Fletcher considers alveolitis, commonly called pyorrhea alveolaris, one of the most prevalent and destructive disorders attacking the teeth. Its initial exciting cause is, in his opinion, the formation of tartar about the necks of the teeth. This sets up irritation and invites infection which destroys the membranes covering the alveoli and dental roots. The infection is most likely to be from the pus-producing germs attacking bone, those of syphilis and tuberculosis. Fletcher thinks the last-named infection the most frequent, though its microscopic determination is not easy. Syphilitic infection seems to be much less common in these cases than either the pyogenic or tuberculous, though the mouth is a favorable location of other syphilitic lesions. The necrotic process may extend, invading the maxilla and antrum in extreme cases, and sometimes giving rise to severe neuralgic symptoms in regions apparently free from the disease. This Fletcher is inclined to attribute to a periostitis

starting from the alveolitis. He goes fully into the treatment, the removal of calcareous deposits and necrosed bone, the description of instruments, etc., and claims that by proper handling even the advanced cases can often be conservatively treated without the radical operation of extensive removal of maxillary structures, as is now so often done by the general surgeon. The necessity of thorough curetting or burring about all teeth where the disease is found and of more thorough removal, if the disease is deep-seated, is particularly insisted on. Of course, the general condition and resistance are factors to be considered, and if systemic treatment is required it should be directed toward the restoration of normal health by such means as the elimination from the diet of foods, which do not become fully digested or assimilated, and the copious drinking of pure water. Any complicating disorders, aside from the local disease, should be properly attended to.

Amebic Dysentery.—J. M. Holt argues the necessity of surgical treatment for all cases of chronic amebic dysentery in which, after a fair trial of other treatment, the *Ameba coli* can still be found in the stools. All observers, he says, are agreed as to the tendency of the disease to resist treatment and to run on indefinitely, and we should not permit this when a simple surgical operation will clear up matters at once. There are altogether too many patients in the country going about uncured for years, and he asks: Has appendicostomy ever been proposed to them? While there may be a debatable ground for the adherents of the medical treatment of appendicitis, there is none in this case. A case, he holds, may be considered no longer acute and amenable to radical treatment after it has lasted nine months or a year. In his opinion, however, there is no known drug which given by the mouth, can be tolerated in the upper digestive tract in sufficient strength to destroy the ameba in the colon. In conclusion, he suggests the possibility that the *Ameba coli* may not be equally pathogenic to all, as some do not contract the disease after exposure. The so-called *Entameba coli* may be the form of parasite found in the stools of individuals not thus susceptible. The so-called *Entameba dysenteriæ* may be the same parasite developing greater activity, coincident with morphologic changes in an individual having a susceptibility to the organism. He asks whether it has ever been found in a case presenting no clinical symptoms.

Syphilis Diagnosis.—Wassermann's statement that his syphilitic serum reaction is reliable only with the use of extracts made with physiological salt solution has been experimentally tested as to its correctness by J. W. Marchildon. His experiments were carried out in Professor His's laboratory in Berlin, and the results are given by him as follows: 1. Alcoholic extracts may be safely used in the reaction for the serum diagnosis of syphilis, because they in no way differ from watery extracts. 2. There are some non-syphilitic blood sera which give a positive Wassermann reaction. These sera, however, are so rarely met, and then only in such extensive pathological processes, that they do not vitiate the clinical value of the reaction.

Hydrophobia.—F. W. Dudley has personal knowledge of thirteen persons in the Philippine Islands dying of this disease and has records of ninety-one deaths from board of health reports and of fifty-four deaths from correspondence with physicians, making a total of 106 deaths within a period of three or four years. It is unusual for persons bitten to seek medical treatment. Since he sent out his inquiries he has also received telegrams asking for antirabic virus from physicians who had in their charge cases of the disease. It is as frequent in the winter months as in the summer, and most of the cases occur in males, owing to their greater exposure. Dudley reviews the etiology, pathology, and morbid anatomy and bacteriology so far as known according to the best authorities. The average period of incubation in the Philippines seems to be rather long. The three longest authentic cases reported were eight, nine, and ten months. Cases of pseudohydrophobia have also occurred, but were not fatal. Many curious remedies are used in the Philippines, one of which is to burn the hair and brain of the animal and apply the ashes to the wound, but there has been no record of recovery of an authentic developed case there or elsewhere.

Cholesterin in Pernicious Anemia.—C. E. Simon reports his experience with cholesterin in six cases of the disease. His trial of the substance was made, for the same reasons as that of Reicher, over a year ago, but the material being so limited he delayed publication until incited thereto by the appearance of Reicher's article. All six of his cases were typical cryptogenetic pernicious anemia, one being of the so-called aplastic type. In three advanced cases no effect was observed. A fourth patient was discharged unimproved after a three weeks' trial, and in a fifth death occurred before more than twenty-four grams had been administered. In the sixth patient an apparently beneficial effect was produced, but, as it was the first attack, one naturally hesitates in ascribing it to the drug. It is noteworthy, however, that the same effect followed its use in a relapse which occurred some months later. The patient is still living and in good condition. "When first seen the red cells numbered 1,744,000, while the hemoglobin was 46 per cent.; there was then marked anisocytosis with a distinct tendency to macrocytosis; there was poikilocytosis and extensive granular degeneration (so-called). Normoblasts with pyknotic and caryolitic nuclei were fairly numerous; there were some free nuclei and a few mitotic cells; megaloblasts were scant. After a three weeks' course of cholesterin, the red cells had increased to 4,000,000 and the hemoglobin to 80 per cent. Anisocytosis was still noticeable, but less marked than before; granular degeneration was slight and there were no nucleated red cells. Subsequently the anemia became more marked again, but, as I said before, the patient again improved and at the present time is well." Cholesterin is apparently nontoxic, but it is costly. So far as Simon's results show, it would seem to have little value in advanced cases, but may have some utility in early cases.

The Lancet, December 12, 1908.

Rupture of the Ligamentum Patellæ.—One case is reported by Dr. Paravicini, who describes his own personal experience. While running down a slope covered with snow, he slipped and fell, the left heel touching the left buttock and the leg being completely doubled. He felt a crack and an acute pain and was unable to stretch the leg by its own force. Through the clothing a gap was noticed below the patella, which was drawn up by the quadriceps extensor. After crawling for some two hours, he was picked up and taken to a hospital, where a radiogram revealed a rupture of the patellar ligament. A colleague opened the knee-joint by a vertical incision over the patella and the ligament, removed the accumulated blood clots, and fixed the ligament, which was completely torn through, to the lower border of the patella by strong silk sutures. The leg was immobilized. There were some fever, pain, and an increasing swelling of the joint, symptoms which a puncture proved to be due to a turbid serous exudation, necessitating a second intervention of the surgeon a week after the first operation. After reopening the wound and removing a few stitches, incisions were made on both sides of the joint and the articulation was kept drained for a fortnight. The first incision healed by granulation, leaving a big scar adhering to the patella and the ligament. After several months of massage and exercise the author was able to engage in most sports except climbing. Going down steep slopes is still, six years after the accident, very difficult for him. The leg can be bent to an angle of about 30 degrees.

The Agglutinating Power in Tuberculous Patients; Serum Diagnosis and Serum Prognosis.—Paul Courmont discusses the history and enumerates the proofs of the value of serum diagnosis in tuberculosis. The advantages of serum diagnosis as compared with tuberculin reactions are: (1) Absolute harmlessness, since the taking of a little blood cannot give rise to accidents or inconvenience, which cannot always be said of the tuberculin and ophthalmoreactions. (2) Facility of application, since a few drops of blood suffice and it is not necessary to watch the patients during the course of several days, as in the other two methods. (3) Importance of the variations of the agglutinating power. Given the harmlessness and facility of application one can repeat the reaction as often as one likes, and the variations of the agglutinating power are of great importance not only for the diagnosis but also for the prognosis. (4) Applications of local serum diagnosis. As to prognostic value the author advances the following arguments: (1) General statistics.—In tuberculous subjects in whom the serum is not agglutinative from 10 to 15 per cent. are nearly all very seriously ill. The subjects who have advanced consumption, miliary tuberculosis, caseous pneumonia, and meningitis have nearly all a negative serum reaction. (2) Experiments in animals rendered artificially tuberculous.—The development of the agglutin-

nating power is the more marked when the tuberculosis is less virulent and the animal more resistant and conversely. (3) Variations of intensity in the agglutinating power of the tuberculous.—These variations appear to be dependent on the gravity and progress of the disease. Very marked reactions are found especially in subjects in whom the tuberculosis is slight or becoming quiescent (local tuberculosis of the viscera, fibroid tuberculosis of the lungs, primitive pleural tuberculosis of Landouzy, etc.)—Reciprocally slight agglutinations are found especially in patients more seriously ill. (4) Variations of the agglutinating power in the same subject.—If one watches for a long period of time a particular tuberculous subject one frequently sees the agglutinating power of his serum rise if the patient improves, and on the contrary fall if the illness becomes worse, and at times even disappears comnletely. Here are some examples of these two variations: (5) Mortality of tuberculous pleurisy. Considered in relation to the agglutinating power of the pleuritic fluid of 120 cases kept under observation 75 per cent. of cases were cured, having a positive reaction, while 73 per cent. died, having a negative reaction. We cannot reproduce the author's conclusions *in extenso*, but refer to one or two points. First, limitations of the method. Given that the agglutinating power of normal serum varies according to age and also to the animal species investigated, serum reaction has a diagnostic value only when the degree of agglutination is higher than the ordinary degree of agglutinating power of the serum of normal individuals of the same age and belonging to the same species. Second, serum diagnosis. For practical purposes serum reaction must be applied with great clinical discrimination; its results must be compared with the other symptoms and not interpreted blindly. It would not be wise to regard a patient as clinically tuberculous for the sole reason that his serum agglutinates Koch's bacilli. The reaction can have no diagnostic value unless there are other reasons justifying the suspicion of tuberculosis. In such cases, however, a positive serum reaction has a great value; negative reaction is of less value. Third, nature and prognostic value of serum reaction in tuberculous patients, serum diagnosis. As is the case in many other diseases the agglutinating power of blood serum and other organic liquids in tuberculosis is proportional to the resisting power of the patients; furthermore, it is in an inverse ratio with the virulence of infection. Serum reaction is frequently absent in very serious or very advanced cases of tuberculosis. It reaches its maximum height in cases which are in the process of healing. It can diminish or disappear sometimes before death; it can, on the contrary, increase when there is a tendency towards healing or towards arrest. It seems to be an index of the protective reaction of the system. Fourth, in tuberculous pleurisy with effusion and increasing agglutinating power carries with it a good prognosis but failing any reaction, one must be prepared sooner or later for a fatal result.

A Case of Neurasthenia Complicated with Vasovagal Attacks.—The patient of M. M. Burgess was a woman of 39 years with typhoid neurasthenic symptoms and subject to attacks of extreme fatigue amounting almost to loss of power. The patient usually turned to one side and lay quite motionless and relaxed, the extremities were cold and there was increasing pallor until the face became ashy gray. The skin was dry; there was no cold, clammy perspiration, as in an ordinary fainting attack. The pupils dilated in the worst attack and in all the eyelids were kept separated; the eyes rolled slightly and blinking was almost arrested for the time. The pulse became exceedingly infrequent, of low tension, and at times almose imperceptible to the touch; the breathing was shallow, hurried, and costal in type. The patient did not willingly speak, but answered in monosyllables if spoken to. She was so "bowled over" that she had no energy even to call attention to her condition. Until the nurse was told to be on the watch for the attacks she would have one and recover without its being noticed, and she would merely remark afterwards that she had felt "dished" again. The attacks ended with a deep-drawn breath or sigh, and if any one was sitting by her she would remark, "That's all over now; I am better again." The attacks were very alarming. They in no way resembled an ordinary fainting attack. Their duration was about ten minutes. There was an entire absence of pain, tetanoid spasm, rigor, tingling or anything suggestive of epilepsy. Consciousness was unimpaired, but there was a sense of impending death. Whether in this case there was some affection of the vasomotor center alone which secondarily caused the bradycardia or whether the cardioinhibitory center was also affected is uncertain. The evidence seems to point to a primary affection of the brain centers as there was nothing to show the attacks could have had a reflex origin from nerve irritation. If the attacks were not of vasomotor origin at all another possible explanation seems to be that, after any special exertion the heart, as it were, went on strike and a functional disturbance resulted, showing itself in slow and insufficient muscular action. But were the cause of the attacks primary muscular insufficiency with normal blood pressure dilation would probably have occurred. This evidently did not happen, as neither the symptoms nor the physical signs showed that condition.

British Medical Journal, December 12, 1908.

A Method of Enucleating the Appendix.—L. H. Harris claims for the following method the merit of simplicity: Make a circular incision through the serous coat near the base and then introduce an ordinary blunt pointed hook, the lower end of which has been bent at a right angle, and encircle the stump in a manner similar to that in which an aneurysm needle embraces a vessel, make a gentle movement downward in the direction of the appendix, and usually in a few seconds the enucleation is complete. The stump is then treated in the usual manner, and, as there are no vessels to tie, the whole operation is completed in a comparatively short period.

A Case of Buphthalmia.—A case of this rare condition is reported by J. H. McIlroy in the person of a boy of 5 years. When first seen the following condition was noted: Naming watch, teaspoon, penny at 1 ft. Size of pupil, about 6 or 7 mm. Reactions of pupils and ophthalmoscopic examination not obtained on account of photophobia. L. V. = probably no perception of light. Opacity in pupil, probably lens. R. and L. constant fine lateral nystagmus. T. = + 1 (at least). A. C.'s very deep. Corneæ very nebulous all over. Corneæ extremely large, difficult to measure owing to patient's resisting opening of the lids. Avoids the light by keeping head depressed. Is able, however, to keep eyes wide open. Marked iridodonesis. Eyeballs covered by lids during sleep. Eight years later the condition was practically the same. The treatment consisted in installation of drops of a one-half per cent. solution of eserine to the right eye every six hours. The boy's general condition is normal. The author regards the case as evidently one of congenital buphthalmia, or infantile glaucoma. The etiology of these cases is obscure, the condition probably being established *in utero*. There is nothing in the history of this case to account for the condition. Consanguinity of parents, which seems to be a frequent factor, is absent here. The patient is one of a large family, none of whom seem to suffer from any allied developmental defect, for example, aniridia, etc. The mother had one miscarriage (previous to birth of patient) which seems to have resulted from accident rather than disease. One child died in infancy of convulsions, but all the other members of the family have grown up healthy. The author notes the extremely slow progress of the disease, the condition not having changed to any great extent during the last eight years. In this it differs considerably from the analogous condition of glaucoma in the adult, where degenerative changes take place more quickly. In the infant the tissues of the eyeball are plastic, and distension of the coats of the eye takes place without destruction of the underlying tissues (retina, choroid, etc.). The involvement of the latter, as a rule, takes place only at a much later stage. In the present case, although there is great thinning of the cornea and sclerotic, the fair amount of vision indicates that the visual structures proper are tolerably intact. The dimness of vision would be accounted for by the blurred cornea and cataractous lenses.

Spontaneous Rupture of the Gall-Bladder.—P. F. Braithwaite reports the case of the sudden death of a man of 45 years. Five months previously he had dull abdominal pains in the right iliac region which were regarded as due to a mild appendicitis and which were cleared up in a week. On autopsy a small gallstone was found free in the abdominal cavity and a small perforation was found on the posterior surface of the fundus of the gall-bladder. One stone was found impacted at the junction of the bladder and cystic duct. Around the perforation the bladder was so thinned as to show clearly the muscular stone in its walls, while the rest of the bladder wall was abnormally thick and tough. What had evidently taken place was that the constant irritation of the gallstones had caused marked thickening of the walls all over the gall-bladder, excepting at the place where a constant pressure, probably increased by the blocking of the cystic duct, had caused marked thinning, resulting in the sudden perforation, which did not occur during any special muscular exertion. This sudden perforation apparently caused fatal syncope so abruptly that the man had not time to utter a single word. The attack of pain he had five months previously was possibly

the occasion when the stone, found at the entrance to the cystic duct, became impacted there, or it was possibly due to the passage of a small gallstone, though the character of the pain did not suggest that.

An Epidemic of Influenza Characterized by Edema of the Eyelids.—N. I. Spriggs believes that edema of the eyelids with severe frontal headache, which may or may not be followed by pyrexia and other general symptoms, may be an early expression of an influenza. Some ten cases occurring in the practice of several physicians are recorded by him. The occurrence of these symptoms in influenza is noted by Finkler in the article on "Influenza in the Twentieth Century Dictionary of Medicine." Of the group of cases here reported about half had other influenzal symptoms. Apart from the latter, a differential diagnosis would call for the consideration of a frontal sinusitis and angioneurotic edema. Cultures from the conjunctival sacs in the foregoing cases have shown variously *Bacillus xerosis*, and *Staphylococcus albus*. Some of the cases were entirely afebrile and soon subsided. No albuminuria was found. For local treatment the author found boric acid washes and cold compresses satisfactory.

Münchener medizinische Wochenschrift, November 24 and December 1, 1908.

Asepsis in Obstetrics.—Krönig of Freiburg objects to the complicated aseptic technique in obstetrics and to the modern "era of rubber"; according to him the introduction of rubber gloves has not led to any diminution in mortality or morbidity in normal labors. He thinks that the prescribed disinfection of the hands and of the woman in labor are too lengthy and too bothersome. His principles are: to have if possible no disinfection whatever of the external or the internal genitals; to conduct the labor in such a manner that the doctor likewise need not disinfect his hands; to lay all stress upon the local and general predispositions to infection and to do away with these as far as possible. The principle of freedom from germs is an impossible and an incorrect one, the disinfection of vagina having shown, for instance, that worse results attend such an attempt; the effective disinfection of the vulva is also impossible, unless shaving of the pubic hair is insisted upon in every case. The latter is possible and ought to be done in case of any operative procedures, when effective disinfection is attained during anesthesia. To escape the dangers of internal examinations Krönig teaches palpation per rectum and thinks that the results compare favorably with any other method. Protection of the perineum is limited in his clinic to primipara and thick rubber gloves are used for this purpose. There is no disinfection after labor is over. The puerpera is allowed to leave the bed on the first day, if possible, this procedure diminishing the local predisposition to infection of the uterus. Krönig finally compares the results of above methods with the figures of Hofmeier's clinic in which elaborate aseptic precautions are exercised; he claims that his results are in no way worse than those of Hofmeier in regard either to mortality or the morbidity. Indeed, since the aseptic measures have been curtailed more favorable results have followed.

Parabiosis.—Morpurgo has succeeded in sewing together and keeping alive white rats of opposite sexes and finds that the operation is not followed by any changes in the genital organs of the animals. Death has followed in a few weeks as a result of the operation, the stronger animal apparently living at the expense of the weaker one; one pair, however, has lived for three months. No coordination of movements or any agreement develops in such animals; the individuals act as two independent beings and interfere with each other very much.

Dysmenorrhea.—Veit says that the condition of the endometrium is dependent upon ovulation and many appearances that previously were looked upon as pathological are simply the physiological conditions present in the menstrual or post-menstrual time. This recent view diminishes the number of anatomical lesions which can be held responsible for the symptom dysmenorrhea. Veit defines menstruation as the abortion of an unfertilized ovum; ovulation should naturally be followed by impregnation, but as it does not every time in the human race the various phenomena of ovulation must be conquered, which adaptation is outwardly shown by the function of menstruation. A nervous individual may react abnormally to the impulses of ovulation; in her the phenomena of conquering such impulses may not occur and the result is one of the forms of nervous dysmenorrhea. Another form is due to the faulty development of the uterus with coexistent abundant sexual excitement; the latter leads to changes in the ovaries and in the endometrium and to the symptom of dysmenorrhea, which in this case depends upon both anatomical and functional disturbances. The third form is the purely mechanical one due to some local disease or anomaly of the uterus or of the neighboring organs. The nervous forms of dysmenorrhea are to be treated by measures affecting the general health or by directing the treatment upon some possible source of peripheral irritation, attention to which may have a salutary psychic effect. The latter mode of treatment may include the cocainization of the nasal mucosa, a procedure by which Fliess claimed to cure all cases of dysmenorrhea whatever. In all dysmenorrheas of virgins the patient must be examined for neurasthenia and the latter disease treated, if present, rather than the symptom of it in the genital sphere. In case neurasthenic symptoms are absent a gynecological examination and eventually operative treatment in the form of a curettage may be tried.

Wassermann's Reaction.—Bering says that Wassermann's reaction simplified according to the method of Bauer is just as trustworthy as in its original form. The reaction in question is of great practical importance, the fact that over three hundred cases were sent to him for differential diagnosis by means of the reaction showing the uncertainty that is frequently present in diagnosing syphilitic infection. Patients in the primary stage of the disease but rarely give a positive reaction; of those in the secondary stage, on the other hand, only 2 per cent. failed to give positive evidence of a syphilitic reaction. The value of this new diagnostic method can hardly be overestimated. It enables a positive diagnosis in cases where the infection with syphilis is denied or is forgotten; it furthers prophylaxis by discovering infection in wet-nurses, nurse maids and all other persons that come into close contact with children; it gives a positive answer to the neurasthenics suffering from syphilophobia and going from one physician to another in the fear of having been infected with the disease; it enables the physician to decide which of the parents is to be treated more thoroughly in cases of abortion and stillbirths; finally, it is of utmost use in the differentiation of tertiary lesions of gummatous nature from inflammatory or malignant tumors. To a certain extent, too, it gives a clue to the effect of treatment, for the use of mercury and of iodides often leads to the disappearance of the positive reaction, which may again reappear if treatment is not conscientiously carried out. In the same number of this journal, Fraenkel and Much give their experience with the Wassermann reaction at autopsies. They had very good success with it and see in it a valuable aid to the pathologist in diagnosing questionable lesions found at autopsies. Control experiments showed the specificity of the reaction, with one exception: the blood of scarlet fever patients gave a reaction very similar to that obtained with the blood of luetics.

Retroperitoneal Ganglioneuroma.—Oelsner reviews the few reported cases of this tumor and reports a case of his own. His patient was a woman, 20 years old, who suffered from severe pains in the left lower abdominal quadrant. Examination showed a mass in the left epigastrium that was movable in the lateral direction, but did not move with respiration and could not be displaced in the direction of the vertical axis of the body. The kidneys were normal functionally and to palpation, the gastro-intestinal tract likewise normal. Diagnosis of a retroperitoneal tumor was made. Kocher operated and removed a large tumor, encapsulated, which on cross section appeared poor in blood-vessels, but seemed very succulent because of abundant lymph content. Microscopically the tumor proved to be a ganglioneuroma. During the post-operative course the patient was attacked with acute appendicitis and was again operated upon. Oelsner remarks upon the frequency of collapse phenomena after the removal of such tumors and thinks that the cause of them may possibly be found in the shock to the sympathetic nervous system caused by the operation; the attack of appendicitis may likewise have been due to the diminished resistance of the tissues because of a temporary interference with the functions of the sympathetic.

Rôle of the Pituitary Membrane in the Pathogeny of Lupus Vulgaris of the Face.—Henri Caboche asserts that there is an important relation between lupus vulgaris of the face and lupus of the pituitary membrane. It is in the immense majority of cases propagated from the mucous membrane by way of the lymphatics. The simple treatment of the nasal mucous membrane in some cases causes retrogression of the face lesions, and inversely, a subsisting nasal lesion is a cause of perpetual reinoculation of the integument.—*Lo Presse Médicale.*

Book Reviews.

Clinical Diagnosis. A Text-book of Clinical Microscopy and Clinical Chemistry for Medical Students, Laboratory Workers, and Practitioners of Medicine. By Charles Phillips Emerson, A.B., M.D., Late Resident Physician, the Johns Hopkins Hospital; and Associate in Medicine, the Johns Hopkins University. Second Edition. Philadelphia and London: J. B. Lippincott Company, 1908.

The second edition of Emerson's "Clinical Diagnosis" has involved the rewriting of fully one-half the work, and has given opportunity for the introduction of a considerable amount of new material. The object of the revision, according to the preface, has been to raise the efficiency of the book as a working manual. In looking over the work in its present form we cannot but express our commendation as to the manner in which the subject is presented. The clinical side of all laboratory methods is constantly kept to the fore, and although many of the methods given are far too elaborate for the practitioner, or even for the clinical laboratory doing the routine work of a hospital, the work is of great value as a reference book for physicians in aiding them to apply scientific methods in cases in which time and trouble are not of importance. The simpler clinical methods are not neglected, however, so that the practitioner will find in the book plenty of ways of doing his laboratory work himself. The book is nevertheless essentially for medical students and for laboratory workers. These will find in it all that they require for good and efficient work, and for a thorough understanding of the clinical significance of their findings.

Elementi di Röntgenologia Clinica. (Tecnica, Diagnostica, Terapia). Dott I. Valobra, Medico dell 'Ospedale Mauriziano Umberto I di Torino. Con 95 Figure intercalate nel testo e sei Tavole. Prefazione del Prof. Camillo Bozzolo, Direttore della Clinica Medica Generale della R. Università di Torino. Turin: S. Lattes & Co., 1908.

This manual of Röntgenology opens with a brief consideration of the physics of the *x*-rays, and a concise description of the apparatus and technique employed in this work. The second part of the book is devoted to the diagnostic value of the rays; the third to their therapeutic application. The work is written in a very clear, easily-grasped manner, and all technical subjects are dealt with in such a way that the practitioner who has forgotten his electrophysics can readily follow the text. Much attention is given to perfection in technique, including the various modes of measuring the quality and quantity of the *x*-rays used, the appliances for orthoröntgenography, etc. Complete and precise directions are given for the development of plates, for printing radiographs, for stereoscopy, etc. In the clinical sections each region of the body is considered in detail and its possibilities from the viewpoint of *x*-ray diagnosis are discussed. The illustrations are for the most part very clear and sharp. Much attention is given to the interpretation of plates—one of the most difficult tasks of the röntgenologists. Dr. Valobra's book represents a very complete and very satisfactory monograph on the modern status of the *x*-ray in medicine, and is based on a great deal of careful *x*-ray work on the part of the author.

Erdsalzarmut und Entartung. Von Hofrat Dr. Med. C. Röse. Berlin: Julius Springer, 1908.

This monograph of 156 octavo pages is devoted to the presentation of arguments, statistics and experiments for the purpose of demonstrating that the apparent decadence of the human race, coincident with modern civilization, is due to a lack of earthy mineral matter consumed—principally to a lack of calcium salts. The author is a dentist who has devoted a number of years to the study of this question, and who complains about the indifference with which his earlier publications on this theme have been received by the medical profession. In his experience persons who live in localities supplied by "hard" drinking water are healthier, have better teeth, etc., than people living in places supplied with "soft" or calcium-poor water. The latter class live in the great cities and industrial centers where those enemies of humanity, locomotives, engine boilers, etc., must be supplied at all costs of human life with calcium-free water. Military enthusiasts will find in Dr. Röse's book interesting data showing that lack of calcium salts is a cause of a greater number of rejected recruits from the localities afflicted with calcium-poor water. The physical effects of overcrowding, lack of air, of proper fresh food, of poverty, of overwork and of such diseases as tuberculosis, for example—factors which predominate in great cities, alongside with calcium-poor water, are not of importance in the eyes of the author. The book contains a great deal of valuable material, but the subject is handled in a too one-sided manner to permit the work to be ranked as a scientific contribution of great importance.

Malformazioni dell' Utero nei loro Rapporti colle Funzioni di Maternità. Tesi di libera docenza. Dott Andrea Boni, Aiuto alla Clinica Ostetrico-Ginecologica della R. Università di Pisa. Pisa: Typografia A. Valenti, 1907.

The importance of malformations of the uterus in pregnancy and labor has been recognized but recently. In 1901 Dr. Boni published a collection of 207 cases of uterus bicornis as affecting the course of pregnancy, labor and the puerperium, adding 3 cases observed at Pisa. In the present thesis he takes up systematically all the deformities and malformations of the uterus and considers them from the same viewpoint in the light of the cases published in the literature, as well as of the cases personally observed. The work, therefore, is arranged on the same plan as Kussmaul's famous monograph which appeared in Würzburg in 1859. The literature of the entire subject has been brought up to date and the cases have been tabulated at the end of the volume. This monograph should prove of great interest to those who wish to study the relation of uterine anomalies to the functions of motherhood, and shows a great amount of study and research in this particular field.

Cholécysto-Pancréatite. Essai de Pathogénie. Par le Docteur Reine Maugeret, Ancien Interne des Hôpitaux de Paris. Paris: Steinheil, 1908.

Dr. Maugeret presents in this essay a study of the pathogenesis of pancreatitis due to gall-bladder lesions. The views upon which the work was based were those of Prof. Thiroloix. When pancreatitis is present with cholelithiasis, the former is not an independent condition, but is a complication of the latter. This type of pancreatitis is not due to an intestinal infection. The infection does not take place through the pancreatic duct, nor by simple contiguity, but is derived from the gall-bladder, as is proved by the successful treatment of the pancreatitis, which consists essentially in a disinfection or a removal of the gall-bladder. The infection travels from the gall-bladder through the efferent lymphatics of that organ, reaches a group of lymph nodes situated at the head of the pancreas, which in turn receive efferent lymphatics from the pancreas.

Diagnose und Therapie der Gonorrhoe beim Manne. Von Dr. S. Jessner, Königsberg, i. Pr. Würzburg. Curt Kabitzsch (A. Stuber), 1909.

Dr. Jessner's short treatise on gonorrhea forms part of his "Dermatological Lectures for Practitioners." It offers nothing actually new either in the diagnosis or the treatment of the disease considered, but presents the subject in a consrvative, attractive, and up-to-date manner. The latest additions to the list of silver compounds are duly considered, and all methods of treatment which interest the practitioner are given in detail.

Text-Book of Physiological Chemistry, in Thirty Lectures. By Emil Abderhalden, o. Professor für Physiologie des Physiologischen Instituts der Tierärztlichen Hochschule Berlin, und Universität-Professor. Translated by William T. Hall, Instructor in Chemistry, Massachusetts Institute of Technology, and George Defren. New York: John Wiley & Sons, 1908.

The translators of Abderhalden's book have rendered a very real service to the scientific professions of English-speaking countries; Abderhalden's lectures enjoy a great popularity in Germany and will probably meet with equal success in England and America. Of the thirty chapters, four are devoted to a consideration of the carbohydrates and six to the proteins. The chemistry of the inorganic foods, oxygen, animal oxidations, ferments, the blood and lymph are fully treated. The functions of the digestive organs and questions of general metabolism are discussed in the light of the most recent work in human and experimental physiology, that has modified so much the older ideas of these problems. The literary references have been selected with the design of offering to the student the most comprehensive and important original works and compilations. An index of authors and a subject index render the work very serviceable for reference. An interesting feature of the work consists in the last two chapters on the "outlook" of physiological-chemical investigations; these chapters are extremely suggestive and stimulating to the student of science.

Society Reports.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, November 16, 1908.

THE PRESIDENT, DR. ROBERT T. MORRIS, IN THE CHAIR.

Asiatic Cholera.—Dr. WILLIAM H. THOMSON, in his paper on this subject, said there was no disease which illustrated more than did Asiatic cholera the wonderful progress in our generation of the knowledge in the medical profession regarding the infections, but it also must be admitted that nothing so illustrated the shortcomings of the profession in acquainting the public, by a proper terminology, of the difference between the three great classes of infectious diseases. The term "infectious" should include every disease caused by the entrance into and subsequent multiplication in the body of its own specific microorganism. Infectious diseases were divisible into three classes: First, that class in which the disease was communicated from the sick to the healthy directly, and in which mere proximity to the sick was sufficient to endanger those who were susceptible to the disease. To this class only should the term "contagious" be applied. The chief members of this class were smallpox, scarlet fever, measles, diphtheria, influenza, whooping cough, and typhus fever. Second, those which were communicated from the sick to the healthy, not directly, but indirectly, through some intermediate carrier. Prophylaxis or prevention of them, therefore, was secured by discovering what the intermediate carrier was, and then destroying the infecting agent. The chief members of this class were Asiatic cholera, typhoid fever, and tuberculosis. Third, those that were communicated only by inoculation through some puncture or wound or equivalent lesion of the skin or mucous membrane, and therefore they were not dangerous to bystanders, as the contagious diseases were. It was in this third class that the greatest triumphs of preventive medicine had been secured. They constituted the entire class of malarial infections by the bite of the mosquito; also yellow fever by the same means, and other very fatal maladies, such as the sleeping sickness of Africa, caused by the bite of the tsetse fly, the kala-azar of the East Indies, which was produced by the bite of bedbugs, and, finally, the bubonic plague, which was propagated to human beings by the bites of fleas which had bitten rats infected by the plague bacillus.

In the epidemic of Asiatic cholera in Hamburg in 1892, when the authorities found that one side of a street had many cases of cholera, if it was supplied by water from the Elbe, while the opposite side of the same street, which had a different water supply, did not have a case, they at once ordered scientific engineers to construct great sand filters to purify the Elbe water. On the completion of these filtering plants, cholera ceased, but not until ships infected with it had already sailed for New York. Its approach was heralded by the newspapers all over the country, and a widespread business panic took place which very seriously affected the commerce of the city of New York. This cholera scare gradually died out, and the city of New York to this day continued to drink unfiltered Croton water, with the results that thousands died here from typhoid fever, which, like cholera, was a waterborne disease, and which every year became more rife as the Croton ran low.

Notes on the Bacteriology of Cholera.—Dr. EDWARD K. DUNHAM made some remarks on this subject which he illustrated by means of lantern slide pictures. He said that in 1886 and 1887, while studying at the Hygienic Institute in Berlin under Robert Koch, he was enabled to compare a large number of cultures of the spirillum from epidemics in various parts of Europe, Egypt and South America, and it was then that he became familiar with the changes in physiological characteristics which this organism underwent with considerable rapidity. In culture media under laboratory conditions, the older the culture the further it departed from the type of recent cultures. In other words, there was a decadence in the character of the culture. During the cholera epidemic in 1892, the cases that occurred in this city were submitted to him for study, and a rather striking feature of the cases was that undess the dejecta were absolutely fresh, they failed to reveal the characteristic form of the organism in smears. It was impossible to make the diagnosis by a direct microscopical examination of the dejecta; yet if these dejecta were used for the preparation of plate cultures, one would obtain cultures containing only colonies of the cholera spirillum. The speaker then described in detail the method of making these cultures, and referred to the value of the nitroso-indol reaction. There were a number of other microorganisms which gave this reaction, the speaker said, but none, so far as he knew, that gave it so promptly and clearly as that of cholera. The more modern methods in the bacteriological study were agglutination and bacteriolysis, and depended on the action of certain immune sera, which could not always be had. For a bacteriological diagnosis from fresh dejecta, the direct microscopical examination, the rapid development in pepton solution, the appearance of colonies on gelatine plate cultures, the mobility, the appearance of gelatine stab cultures and the early nitroso-indol reaction, positive as soon as a pepton culture showed distinct cloudiness, due to growth —these data sufficed, in his opinion, to establish a positive diagnosis.

Cholera and Commerce.—Dr. WILLIAM T. JENKINS, formerly Health Officer of the Port of New York, read this paper, which dealt chiefly with the interference of both commerce and the liberty of passengers caused by regulations to prevent the advance of cholera. The following interesting and important facts regarding cholera were well known: Its place of departure was India, and its path on land corresponded to that of travel and traffic. Its trans-maritime advent corresponded with the track of commerce, and its visits to North America had been in cycles of about sixteen years. The last outbreak in America was in 1873, an interim outbreak, the explanation of which might be found, probably, in the arrival at New Orleans, where the epidemic entered on vessels from widely scattered ports. In 1887 two French steamers arrived at Quarantine with cholera aboard, but owing to prompt isolation and detention, the disease did not get any further. It was this appearance of cholera that caused the New York Academy of Medicine to appoint a committee, who, at the request of the Mayor, investigated the condition of the port and made recommendations for such improvements as would bring the Quarantine equipments up to the highest standard of modern scientific and medical knowledge. The result of its work, the speaker said, was the plant which he received from his predecessor in February, 1892. The next appearance of cholera in this port was in August and September, 1892, when it came from Hamburg. During the preceding February, fifteen cases of typhus fever had been discovered among some immigrants from Russia. This outbreak had put the Health Officer on the alert, and he notified all steamship companies of the necessity of detention, inspection, and disinfection of baggage at the ports of embarkation. It was this watchfulness that prevented an epidemic of cholera in this city seven months later. During the period from August 31 to September 15, 1892, six ships with cholera arrived, two of which carried cabin passengers, and in the cabin of each suspicious deaths had occurred. The total number of cases admitted to Swinburne Island was 72, and the percentage of deaths

was eleven. If a full knowledge of the hygienic condition of ship and passengers before sailing, at sea, and upon arrival was assured, and if on her arrival all were well, Dr. Jenkins said there was absolutely no danger of introducing cholera into the country, and therefore no reason for detention. Finally, not the least important feature in connection with this work was the promulgation and carrying into effect by the Secretary of State of regulations of inspection and detention at ports of embarkation, which were now in force and which, if properly observed, would arrest the march of any epidemic.

Dr. John B. Huber said that even before the time of Pasteur, who discussed Asiatic cholera and had a very good idea of it, Tyndall had declared that the disease must be the result of a germ, because if you sowed wheat you could not expect to reap barley, and just so the germs of smallpox or cholera could produce nothing else. In certain epidemics of cholera, fear seemed to have been a very potent factor, and in the recent outbreak in St. Petersburg, some of the soldiers who had all the symptoms of the disease failed to show the spirillum in the dejecta and were purely cases of psychological cholera.

Dr. George W. Nash of Hurley, N. Y., who was the New York Quarantine Medical Officer at Hamburg during the epidemic of cholera in 1892, said that when he arrived there the authorities had the situation pretty well in hand, and the principal thing was to guard against a recurrence of the epidemic during subsequent years. The method employed there for purifying the water was by sand filtration; the authorities were realizing strongly Koch's statement that the slower the water filtered, the less danger there was of contamination. In dealing with sanitation in small towns, the speaker referred to the difficulty of having anything done on account of the expense to the community.

Dr. Louis L. Seaman said he was in Paris during the cholera epidemic of 1892, and on account of the rigid censorship exercised by the authorities over the press, the people were kept in ignorance in regard to the real condition of affairs, and as a result there was little or no alarm or excitement. Some of the journals merely referred to the epidemic as mild cases of cholerine, although its severity might be judged by the fact that in one day he saw 151 bodies of persons who had died as the result of it. If the truth had been known, the hysterical conditions existing in New York might have been duplicated in Paris. As an example of the rapidity with which cholera did its work the speaker cited the case of a man who went to business in the morning apparently well; he was brought to the hospital at 10 o'clock, and at 4 o'clock that afternoon he was on the postmortem table. The speaker said he was in St. Petersburg about a month ago, and saw a number of cases of cholera during the outbreak there. The epidemic was handled very well by the authorities, considering the dense ignorance of the peasants and their unsanitary surroundings, and he also was of the opinion that it had been stamped out quite as quickly, probably, as it would have been in any city in the United States or anywhere else.

The President, Dr. Morris, said he tried to cross the Mediterranean on his way to Africa during the cholera epidemic of 1892, but the French officials were so active and took so many precautionary measures to prevent the spread of the disease that he had to return. There was no excitement and very little was said about it in the papers, but regulations were rigid.

Mr. Wolcott Beard spoke of the difficulties he had to contend with, and the opposition of the native witch doctors, in dealing, as Executive Officer, with an epidemic of cholera in the Philippines.

The discussion was continued by Drs. Ransford E. Van Gieson, A. Ernest Gallant, and J. Milton Mabbott, and was closed by Drs. Thomson and Dunham.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held November 12, 1908.

Dr. Godfrey R. Pisek in the Chair.

Presentation of a Case to Demonstrate the Tuberculin Reaction.—Dr. Henry Ewing Hale showed a child who had had inunctions with a 50 per cent. old Koch tuberculin in anhydrous lanolin on one side of the chest, and with a 50 per cent. Rockefeller tuberculin on the other. These applications were made two days previous, and were so typical that he said he wished to show them. The reaction consisted in the appearance of one or many red papules on more or less reddened bases.

Dr. Herman Schwarz said he had noticed that when the tuberculin salve was rubbed in on one side the reaction occasionally appeared on the other, and he advanced the theory that this reaction might be due to some reflex or neurotic condition which showed itself in some systemic reaction.

Dr. Godfrey R. Pisek called attention to some interesting observations that he had made on children who had been treated for diphtheria with antitoxin injections. These children were more prone to have dermatoses of all sorts, and they reacted more quickly to the tuberculin reactions. It had been his own experience that the Calmette eye test or the von Pirquet reaction could sometimes be obtained in suspected cases in which the Moro reaction was not obtained. But in those cases that gave histories of some previous skin affection a very quick, intense reaction was obtained from the Moro test in tuberculous children.

A Case of Spina Bifida.—Dr. Sara Welt-Kakels reported the case of a girl of three and one-half months whose family history was negative. There was no history of lues, though it was interesting that of nine pregnancies of the mother four were interrupted during the first half of gravidity. Of four childen born at full term two had died—one of pneumonia and the other of measles. The tumor was noticed at the time of birth, and had not grown perceptibly since that time. The child had been breast fed, thrived, and was never ill. The infant weighed 11¾ pounds, was pale, but fat, and there was no hydrocephalus. The child was very quiet, but moved the lower extremities as well as the upper ones. There was, however, paralysis of the sphincters of the bladder and rectum. Pressure on the distended bladder through the abdominal walls or through the rectum expelled the urine. In the sacral region was a tumor about the size of an orange, which was covered with normal skin. The skin was traversed by numerous small vessels; on the periphery was a fatty accumulation and a small pigmented area on the skin somewhat below the middle. The tumor was small, fluctuating, and transparent. It was not sensitive on pressure and no convulsions were thus elicited. On careful palpation the vertebral arches might be felt widely open. On pressing the tumor the tension of the large fontanelle was perceptibly increased. Dr. Kakels said that the prognosis in these cases was not good; that while the patient might reach middle life, on account of paralysis of the sphincters some inflammatory process of the urinary tract might sooner or later ensue, or, through the bursting of the sac, infection of the meningeal canal might occur. Cases had been reported, however, where after one or two burstings of the sac recovery had taken place. As regards treatment, the methods used were ligation of the sac or aspiration of the contents with the injection of some astringent.

Dr. William P. Northrup asked Dr. Welt-Kakels if there were any other malformations in the child presented.

Dr. Welt-Kakels replied that there were no other malformations either in the child she presented, or in other members of the family.

Dr. Northrup said that in many instances when such a malformation was met with there would be found others, and he recalled a patient seen recently with a similar tumor to the one presented by the little patient, but only about four-fifths the size, and which was to be operated on. Few of these cases recovered after operation. This child also had double club-feet. He recalled another patient with a hair lip, a complete spina bifida, and double club-feet.

Dr. Welt-Kakels reported another case, a boy, whom she had presented to the section some years ago. He had a spina bifida and incontinence of the bladder and rectum. He was six or seven years of age. An examination of the bladder was made to determine whether any stone was present or not, and forty-eight hours later the child developed a high temperature, with pyuria, and there appeared a large and tender right kidney. The kidney had to be opened and drained; later it was removed. For a time the child seemed to be doing better, but soon the temperature rose again, pus appeared in the urine, and uremia set in. She believed it was not wise to examine the bladders of such children through fear of causing a similar infection.

Obstinate Vomiting Cured by a New Method.—Dr. William P. Northrup read this paper. See Vol. 74, page 866.)

Dr. Thomas S. Southworth asked Dr. Northrup if the method had been tried of having the mother compress with two fingers behind the nipple to limit the rapidity of the flow of the milk.

Dr. Herman Schwarz asked if interrupted feeding had been tried, and whether the child vomited during or immediately after the nursing.

Dr. Ward Bryant Hoag asked if the child had been weighed before and after nursing to determine just how much milk he was getting.

Dr. J. Finley Bell thought that possibly Dr. Northrup got his idea from a study of the customs of the Indian squaws, who slung their babies over their shoulders, causing the babies to drink uphill.

Dr. Northrup said he had seen the infant but once. So far as he knew, the doctor in attendance had tried all the things he could think of. Weighing the baby before and after nursing showed that he was getting a little milk. Compressing behind the nipple with two fingers to limit the flow of milk he did not think had been tried. He could not say whether interrupted nursing had been tried or not. Vomiting came on almost immediately after the nursing. The stomach would become distended, and then the milk would immediately be expelled. As he stated in his paper, "the child took three ounces and vomited four ounces."

A Case of Ulcerative Endocarditis with Necropsy and Blood Findings.—Dr. Kaufman Schlivek reported the case of a girl three years of age whose family history was negative. She had had measles two months before her present illness, and since that time had been fretful. Her present illness began with cough and fever, the temperature ranging from 103° to 105°. There were frequent sweats, and the child complained of inability to stand or walk. Her bowels were at first normal, but during the second week of her illness she had four or five movements daily. Urination was normal. A physical examination revealed a fair general condition, though the child looked very sick; she was restless, breathed rapidly, and was somewhat cyanosed. The child lay on her right side, with her legs flexed on her thighs, and her thighs on her abdomen. The sensorium was clear. The tongue was coated and dry, the throat was red, and there was a slight general discrete enlargement of the lymph nodes. There were moist rales in both lungs, anteriorly and posteriorly, but there was good expansion at the bases. Examination of the heart showed the apex beat in the fifth space just below the nipple. The action was rapid, regular, and of fair force. There were no murmurs. The pulse was equal, rapid, regular, and of low tension. The abdomen was slightly distended, held very tense, generally tympanitic. Palpation was unsatisfactory, though no tenderness was revealed. There was liver dullness in the fifth space. The spleen was indistinctly palpable. The extremities were cyanosed and cold. There was right knee jerk, but no Kernig or Babinski sign. The left knee was tender and extension was painful. The white blood corpuscles numbered 27,000, and the differential count showed polynuclear neutrophiles 67 per cent. and lymphocytes 23 per cent. The urine was amber, clear, acid, with traces of albumen, but no sugar. There were a few hyaline casts and pus cells. Several diagnoses were made—bronchopneumonia, malaria, typhoid, rheumatism, and sepsis. For five days after her admission to the hospital there was very little change in her condition. Then petechiæ began to appear all over her body. Six c.c. of blood were taken from the forearm, plated in agar-agar and ascitic serum, glucose agar, glucose agar and ascitic serum. Each plate contained one and one-half c.c. of blood. The following day there was a growth on the several media, probably *Staphylococcus pyogenes aureus*. The diagnosis of sepsis was certain. The girl became worse, and the roughness of the first sound at the apex of the heart persisted. *Staphylococcus pyogenes aureus*, 35 colonies per c.c., were found in the blood cultures. The child continued to grow worse, and the first sound at the apex was replaced by a short, squeaking, musical murmur, which was heard over the entire precordium and for a short distance toward the axilla. This made the diagnosis septic endocarditis. Later in the day the murmur became faintly audible, the child developed pulmonary edema, and died. The treatment was stimulation, and for a few days sodium salicylate. Necropsy showed that the heart was not enlarged. The mitral valve had a pedunculated, verrucose vegetation, about the size of a large green pea, on the upper part of the anterior flap. There were two small ulcerations on this vegetation. On either side of the large vegetation was a small flat one. The lungs showed congestion and edema; the liver was enlarged and congested, and showed fatty degeneration. The kidneys were about the normal size and congested; the spleen was enlarged, congested, and showed numerous small grayish infarcts. *Staphylococcus pyogenes aureus* was cultivated. Dr. Schlivek had reported the case on account of the rarity of this condition and on account of the difficulty in diagnosis. Osler had found but three cases under ten years of age in a collection of 209 cases of malignant endocarditis. Dr. S. S. Adams had reviewed the literature of the past fifty years and had found but forty-seven cases in children under fourteen years of age.

Dr. William P. Northrup said that after his autopsy work of many years at the New York Foundling Asylum he knew of but one case of this kind. The report of this case and the specimen had already appeared in the transactions of the Pathological Society.

Dr. Herman Schwarz said that at the Mt. Sinai Hospital during the past six years there appeared two such cases, one a child of seven, the other a child of ten years.

Dr. Sidney V. Haas reported a case of ulcerative endocarditis occurring in a boy of seven or eight years. He had two pus kidneys and a gonorrheal endocarditis. A pure culture of the gonococcus was obtained.

Tics and Their Treatment.—Dr. E. W. Scripture read this paper and presented a number of patients to

illustrate it. He first showed a patient who screwed his mouth around to the left side. This was a movement that might have been made for a definite purpose by a group of voluntary muscles, but the movement was made unconsciously in some instances; in this case the patient said he made the movement whenever he thought of it. The most usual tics were those of the eyelids, the snorting tic, the sucking tic, the surprise tic of the forehead, the frowning tic, the grimacing tic, the scalp tic, various tics of the ear muscles, several tics of the chin, the licking and clicking tics of the tongue, several varieties of masticating tics, various tics of the neck, including torticollis, tics of the shoulders, arms, legs, etc. There were also coughing, spitting, swallowing, eructation, vomiting and respiratory tics. In some cases it was possible to trace the origin of the tic, as, for instance, in one patient who had a speck of dust in his eye, and after the speck was removed he had continued to shut his eye tightly. He had known other cases where the snort probably had its origin in the effort to clear the nose. The nasal obstruction was removed,, but the snort remained. No one had been able to tell why these movements persisted. They appeared to be related to the obsessions so common in childhood, as where the person felt compelled to touch every post he passed or to avoid the cracks in the sidewalk. The person affected by a tic could, by an effort, refrain from the movement, but in most cases he had to seek a favorable opportunity, when no one was looking, and perform an extra number of movements. Some of those who were subject to the tic were of a neurasthenic disposition. Some neurasthenic children became stutterers, and others were affected by tics. In the neurasthenic, peripheral irritation was among the various causes that produced tics. Chorea furnished a large number of "tickers." In these cases the irritation might be peripheral or central. Some children acquired tics by imitating others. Some tics might arise from emotional disturbances. These tics developed on a hysterical basis. The tic was distinguished from normal movements by the lack of an adequate cause. Where there was an adequate cause the movement was not a tic, as, for example, a child with a snorting tic was found to possess a large polyp in the nose; when the polyp was removed the movement ceased. This was, therefore, not a tic. The tic was distinguished from the spasm by its mental character. A spasm involved only the spinal reflex arc; it was not modified by attention, distraction, or emotion, and usually affected the muscles supplied by a single nerve. It was not preceded by a feeling of compulsion or followed by a feeling of relief. If the convulsive movement continued during sleep it was a spasm; if not, it was a tic. He had had a severe case of torticollis which had been repeatedly operated upon; the movement ceased during hypnotic sleep. The tic was distinguished from chorea by the systematic nature of its movements and the relatively longer pauses. In paramyoclonus multiplex the cramps occurred in single muscles, and there were other differences. The term stereotype movements or "habit spasms" should be reserved for movements that did not differ in their form from normal movements; the convulsive character was lacking. He thought the spasmodic movements found in cases of hysteria were genuine tics. The tic of the neurasthenic was often benefited by tonic treatment. The tic due to hysterical conditions demanded treatment aimed at the mental condition. One method of treatment that he had found very effective was conscious repetition. The patient was told to hold a mirror before himself and to watch for the tic, and when he saw it he was to repeat it five times voluntarily. His first attempts to imitate himself were often ludicrously inadequate. He was made to persist in the effort to imitate himself exactly until the movement was entirely under his control. The failure of the imitation was especially marked when the tics were unconscious. The patient was advised to voluntarily repeat the movement every time he caught himself making it. He explained this treatment as follows: The tic was carried out by mental activity of less than full consciousness; the act might have become entirely subconscious. Perfect voluntary imitation of the act trained the mind to doing exactly the same act consciously, and thereafter the act was no longer an involuntary subconscious one, but a voluntary conscious act.

Dr. Charles Herrman said there was no adequate provision made for the treatment of stammerers and stutterers, and there should be in every clinic some department for the special care of these cases. Their number was large. From what he had seen, there was a decided association between stammering and stuttering and tics. The most common tic was that of the eyes. Mental torticollis was a tic they should recognize more often; this was a tic that was not due to rheumatism or other causes usually given. Many of these cases were operated on unsuccessfully. He said he had found in the history of these mental tics a distinct neurotic family taint, and in addition there often appeared night terrors or enuresis. These neuroses might appear either in the patients with tics, or in other members of the family. An important differential point between tics and chorea was that the tic was repeated in the same place in the same manner; in chorea there was no telling where the next twitch would be.

Dr. L. E. La Fétra said he had seen many of these cases at the Vanderbilt Clinic and had sent them to Dr. Scripture's class in the same institution. The results obtained were most gratifying.

Dr. B. Onuf spoke of the difficulties attending the differential diagnosis between tics and athetosis. Frequently chorea had its starting point in these tics. Often there was associated a mental tic with the physical one, *e.g.* an impulse might arise while one was talking to depart from the topic of conversation and speak of lamps, watches, etc., and so the patient would be unable to carry on a connected conversation. In these patients it was very important that they should be subjected to a system of education; they must learn to control their actions and their will. It was often necessary to remove them from their usual surroundings.

Dr. Charles E. Atwood said that the hydrotherapeutic treatment in connection with the treatment advocated and carried on by Dr. Scripture was very beneficial. Electricity was used as well, applying faradism to the opposing muscles and galvanism to the affected muscles.

Dr. Louis C. Ager asked if there were any grounds for supposing that the method of introducing cadence and rhythm into the voice changed in any way the reflex cerebral arc, or whether it was simply a form of self-hypnosis.

Dr. Herman Schwarz asked if there was any difference between stuttering and stammering.

Dr. Henry Heiman said it was often very difficult to differentiate these tics from chorea, and one of the methods used at the clinic was to have the patient protrude the tongue; in chorea one of the first symptoms was the occurrence of the choreic movements of that organ.

Dr. Scripture said he was glad to note the readiness with which the people took up his idea, and above all the will power displayed to carry it out. Anywhere from one-third to one-half the stutterers could be cured by the general practitioner if they would devote a little attention to the method employed. One per cent. of the entire population stuttered. There was no real difference between stuttering and stammering; in the former the same syllable was repeated over and over again; in the latter cramps were present. Patients with complicated tics

should be taught to move gracefully and to assume graceful attitudes.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held November 27, 1908.

DR. W. S. STONE IN THE CHAIR.

Vesicovaginal Fistula Following Abortion in an Operated Case of Incomplete Congenital Transverse Septum of the Vagina.—Dr. SAMUEL M. BRICKNER reported the history of a woman, 24 years old, who was admitted to Mt. Sinai Hospital in July, 1907. Her menses began at the age of 13, and a doctor made a puncture to allow the menstrual flow and blood to escape. The flow had always been regular, of three days' duration, moderately profuse, and accompanied with no pain. She had been married eleven months, but was never pregnant. Coitus was very painful. On examination the urethra and outlet were found normal, but the vagina ended about one and a half inches from the vulva. At the internal end a pin-hole opening and a mucous discharge could be seen. The rectal examination revealed a small, retroverted, movable uterus, and a boggy mass over the cervix and septum. This was evidently the vagina filled with secretion. The appendages were not felt, and her condition was otherwise negative. A cross-shaped incision was made through the minute opening, which was situated a little to the left in the upper left quadrant of the septum. This incision was extended to the right, left, and downward. It could not be extended upward, because the posterior wall of the septum was tightly adherent to the cervix. This was bluntly dissected away from the cervix. The septum was then completely excised circularly, the cervix being well exposed and a piece of gauze inserted into it. The cervix was infantile in size and shape. The septum was extremely thick, its base occupying practically the entire floor of the vagina. A continuous suture was passed through the cut edges, no mucous membrane being available for the upper part of the posterior wall. The vagina was then tightly packed with gauze. The specimen was covered by squamous epithelium. Within the next few days the gauze was removed and reinserted several times. Later glass plugs were used, which the patient was taught to remove, clean, and reinsert daily. When she was discharged the vagina could easily admit a large glass plug. The walls were thick and lined with mucous membrane. She was told to clean and reinsert the plug daily; but when she returned for inspection it was learned that she had not worn it regularly, and that considerable contraction of the vagina had taken place. She passed from observation from September, 1907, until she returned in October, 1908. She stated that she had become pregnant last spring, and at four and a half months had entered the Lying-in Hospital, where she aborted and was curetted. After leaving the hospital she observed that she lacked urinary control. At first she had incontinence during the day only, but later it continued both day and night. The urine dribbled continuously, more when she stood or walked than when sitting or lying, but it never stopped altogether. The second examination showed a vagina about two inches deep. The upper vault was rounded off, and in its summit was a small orifice from which urine leaked and entered directly into the bladder. The cervix could not be seen, but in the middle third of the vagina was a small orifice through which a probe could be passed for two and a half inches, evidently into the uterus. The uterine body could be felt anteriorly. A vaginal septum consisting of scar tissue occupied the vagina transversely. On October 24 the septum was incised transversely between the fistulous opening and the orifice leading to the cervical canal, exposing the cervix and the fistula, which was one-half an inch long, and one-quarter of an inch wide. The cervix was seized with bullet forceps, and the edges of the fistula were freshened. The bladder mucosa was separated from the muscularis, the bladder mucosa inverted, and sutured with interrupted chromic gut sutures. The overlying tissues were also sutured with chromic gut, and a permanent catheter inserted. Four days later the catheter was draining well. On the eleventh it was removed, the bladder was irrigated, the return flow being clear. On November 12, eighteen days after the second operation, the vagina was seen to be filled with scar tissue. The patient urinated about every three to five hours. A small opening into the uterus still remained. The fistula was closed. The following were the features of interest in this case: First, in the pregnancy following the operation for the relief of the septum; secondly, in the difficulty of delivering even a four and a half months fetus; thirdly, in the complete subsequent scarification of the vagina; and fourthly, in the origin of the septum. The origin of congenital transverse septa was of great embryological interest, and Dr. Brickner had shown in a former paper that they were normal in adult sheep, whales, dugongs, the manatee and the chimpanzee. When they occurred in the human female, they might represent return to an ancestral type. Their function was purely speculative, but might have to do with the facilitation of conception; and when they appeared in the human being they might have the same purpose, to aid in overcoming other minor defects of development.

Dr. BROOKS H. WELLS said that he had seen two instances in which transverse septa occupied the lower end of the vagina. In all congenital cases these transverse septa occurred because the lower end of the Müllerian duct had not opened. The lower end of this tube had not become absorbed, resulting in these septa. Dr. Wells said he had seen these septa lying in what appeared to be a normal hymen. In this case, however, there was a mass of cicatricial tissue caused in all probability by diseases of childhood.

Dr. H. N. VINEBERG, after examining the patient, said that she had a very shallow vagina and with a mass of cicatricial tissue in its upper part. No cervix could be felt.

Unusual Absence of Peritoneal Adhesions After Severe Septic Infection.—Dr. LE ROY BROUN reported this case. The patient was married, twenty-eight years old, and never had a miscarriage or children. Six weeks ago she was two months pregnant, and had an abortion performed. Two weeks after this she began to have pain in the abdomen and back. She had a foul discharge, and this was attended with repeated chills and fever. Before entering the hospital she was curetted by her attending physician. On admission her pulse was hardly perceptible and numbered 120; her temperature was 102°, respirations 30. Her abdomen was distended with a hard inflammatory mass reaching to the umbilicus. The vault of the vagina was filled with an inflammatory exudate, and the uterus could not be made out. The patient was kept under observation for one week, after which the mass became more tense anteriorly. On January 21, eight days after her admission, an incision was made in the anterior cul-de-sac and a large amount of broken-down blood and pus was evacuated. Drainage was introduced and the extent of the abdominal exudate rapidly diminished, with corresponding physical improvement. At different times, and through the same anterior incision, punctures and drainage were made in other pus pockets. The smears from these discharges showed median-sized cocci, growing in chains. There were many pus cells. On March 5 incision and drainage through the posterior cul-de-sac liberated a quantity of pus of the same character as on former occasions. The anterior vaginal incisions ceased to discharge and

closed, the posterior refusing to heal. After two months of expectant treatment she was readmitted to the hospital, May 20, for abdominal section. The uterus was small and in good position. To the left of the uterus was an inflammatory mass, probably ovarian in origin, which was connected with the opening in the posterior cul-de-sac. On May 21 an abdominal section was made and dense adhesions were anticipated, but a remarkable absence of such condition was found. The left ovary and tube were embedded in adhesions which were easily severed. The ovary was the seat of an old abscess, and the abscess cavity communicated with the cul-de-sac opening. The tube of this side was thickened. The abscess, together with the tube, was removed and drainage instituted. The recovery was even. The presence of many adhesions was anticipated after such an extensive and severe infection. The failure to find them was striking, their existence being chiefly limited to the area of the infected left tube and ovary.

Abdominal Sections for Removal of Pathological Conditions Following Former Conserving of Parts in First Operations.—Dr. BROUN also reported these cases. The first patient was a woman, 39 years old, with a large ventral hernia in the line of a former laparotomy scar. An ovarian cyst, 8 or 10 cm. in diameter, was to the left of the cervix. The pelvic adhesions were very dense. The uterus had been amputated at a previous operation. The woman said that a myomectomy had been done in 1903, and a supravaginal hysterectomy in 1906. At operation the pelvic adhesions were found to be unusually dense and abundant. One ovary had been removed; the remaining ovary was the seat of a unilateral cyst of the type of a distended Graafian follicle. There was much oozing from raw surfaces. The ventral hernia was repaired and the recovery was uninterrupted. Another patient had a multiple fibromyoma of the uterus with hemorrhages. A supravaginal hysterectomy was done. One ovary was removed. About one year later an ovarian cyst developed; this was removed. The character of the cyst was unilocular and had the appearance of an enormously distended Graafian follicle. These two cases suggested to Dr. Broun a common cause for their occurrence, an obstruction in the return circulation. They were not true adenocystoma; they were all enormously distended Graafian follicles and could readily be caused by the disturbance in the return circulation of the ovary, such as necessarily followed a hysterectomy.

Dr. H. N. VINEBERG said that the first case was another illustration of the fact that there was a class of cases gynecologists were not treating in the right way. He knew cases of pus collections in the abdomen treated by methods that prevailed ten years ago. They should be able to attack these cases with pus in the abdomen with as little risk to the patient as in cases of appendicitis; they should not make one puncture after another through the vagina and let the patient go on for months and then be compelled to open the abdomen and find a simple condition to deal with. In the treatment of such cases he did not believe they were up to date. The next advance in gynecology would be in the direction of the proper treatment of these cases. Conservative work must go on, but a suitable class of patients must be first obtained.

Dr. J. O. POLAK said that the conditions found in the first case reported by Dr. Broun showed, to his mind, an extreme conservatism on the part of nature: in the exudative cases was to be found nature's protection, and these were the cases that could be handled better by the vaginal than by the abdominal route. In cases of general septic peritonitis he could do more by a radical procedure; but in the exudative cases nature had a way of protecting the peritoneum by an exudate; and this could be tapped better by vagina.

Dr. CLARENCE C. SICHEL said he has had three cases in which the intestines and uterus were bound down with dense adhesions, and he thought that such cases could be better attacked by way of the abdomen. They were dealing with pus, and even if drainage must be subsequently employed through the cul-de-sac, a better recovery was made than when an opening was made in the vagina alone.

An Analysis of Eighty Consecutive Cases of Ectopic Gestation.—Dr. ROBERT T. FRANK read this paper, which was based upon the records of eighty unselected consecutive cases of ectopic gestation, admitted to Mt. Sinai Hospital from 1902 to 1908. Most of the cases were found in the active child-bearing period. Sterility appeared to have but slight importance as an etiological factor, only six women being sterile, and ten not having had children within four years preceding the ectopic. There were several women who had been married less than six months. Exactly one-half of the women did not skip a menstrual period. Spotting, however, either alone or alternating with profuse flow, occurred in fully 72 per cent. of the cases. Pain was rarely absent, and in more than one-half the cases it was unilateral and well localized. Patients in collapse had a small, very rapid pulse, sometimes not perceptible at the wrist. The physical examination with few exceptions demonstrated enlargement of the uterus. In 86 per cent. of the patients a boggy, tender mass was noted to the side of, or behind, the uterus. Fainting occurred in 32 per cent. of the cases. The blood count and the hemoglobin percentage proved of no special diagnostic value. Of the symptoms a history of spotting, cramplike pains, especially if localized, and attacks of faintness were of most significance. The rapid pulse rate, pallor, and a mass in the vicinity of the uterus, in connection with the above subjective signs, clinched the diagnosis. Of the eighty cases, all but three were subjected to operation. There were 42 ruptures, 21 on the right, and 8 on the left side; there were 20 abortions, 12 on the right, and 8 on the left side; there were 11 hematoceles, 4 unruptured, 1 intraligamentous rupture, 1 abdominal, and 1 ectopic with intrauterine. Exactly one-half the ruptured tubes were operated upon at once, but only two of the 20 cases of tubal abortion required immediate intervention. The conditions discovered after opening the abdomen corresponded closely to the clinical signs. In 37 cases of the series free blood without tendency to encapsulation was encountered. There were 77 recoveries and three deaths, a mortality of 3.75 per cent. Of these 80 cases at least eight were curetted, ectopic gestation not having been recognized. Were they all able to judge the exact merits and the urgency of the condition which confronted them, he believed that all doubtless would operate in haste less frequently.

In hospital practice, the speaker said, the following appeared to him to be the best method to pursue: (1) Before all else the diagnosis must be assured. Patients who gave a history suspicious of ectopic pregnancy, and in whom the uterus did not show the shape and size corresponding to their supposed period of gravidity, or who had a mass near the uterus, should be consigned to a hospital, or should be kept under the closest observation at their homes. (2) Such patients should never be subjected to forcible examinations, nor should they be curetted until every possibility of ectopic had been definitely excluded. (3) If after two or three days of observation the condition had not definitely improved and no marked tendency to hematocele formation had developed, laparotomy was indicated. Should severe attacks of pain, fainting, or collapse ensue during this period of waiting, operate at once. Where a hematocele was still small or ill-defined, laporotomy would shorten the period of convalescence. In well-defined hematoceles, vaginal section for evacuation and drainage would suffice.

(4) If a patient, when first seen, was in a precarious condition, it was safer to err on the side of early operation than to wait. (5) When a patient was seen in extreme collapse, immediate rapid laparotomy, with subsequent measures to combat both the hemorrhage and the shock, was indicated. That inexperienced diagnosticians were deceived and failed to distinguish between transitory primary shock and real grave hemorrhage was doubtless true, but he said he would prefer to have them interfere unnecessarily early rather than to wait. Whether the future advance in differential diagnosis between hemorrhage and shock would enable the surgeon to recognize the anatomical conditions before operation was a matter of pure speculation. At present the earmarks which constituted the small class of extreme cases would naturally remain an open question, but indications would vary with the experience of each individual gynecologist.

Dr. Brooks H. Wells said that this controversy as to the merits of deferred or immediate operation in cases of ectopic gestation reminded one in many ways of the old story of the two knights who fought over the question of the metal of the shield hanging by the wayside. They who had traveled the road many times should remember the gold of the one side, as well as the silver of the other. A woman with an ectopic pregnancy was in serious danger, danger so great that the highest duty of her physician was to keep always the possibility of its occurrence in mind and so be ready to recognize the first red flag held up by nature, the slight unusual menstrual irregularity and the slight unusual pelvic pain. It was ideal to make the diagnosis and remove the cause before rupture had occurred. It was good surgery to operate in all cases as soon as a proper environment and the necessary skill could be secured.

There was only one possible exception to this, when the patient was in desperate collapse from sudden hemorrhage. This question, as it appeared to him, would never be settled by academic discussion. It was one that must always be largely influenced by the personal equation of the surgeon in charge; by the facts of his individual experience, judgment, and skill, and he would be the safest man who proceeded deliberately. Yet he who refused operation because of alarming conditions could not by so doing shift his responsibility in the event of the patient's death. He had twice seen women with ruptured ectopic pregnancy allowed to die because the surgeons in charge would not operate until reaction occurred, and he knew with certainty of many other instances where the same men had followed the same waiting plan. With these facts in mind it became impossible for him to believe that women with ruptured ectopic pregnancy might not die, even if certain men had stated that they had not seen patients die, or had not lost patients by waiting, or if another might claim that bitches with cut pelvic arteries recovered.

Dr. Wells said that his own inclination to operate was strengthened by the fact that out of a large number of ectopic cases he had operated upon eight during dangerous collapse and they, as well as all the others, had recovered. His own rule was in cases with dangerous collapse to operate as soon as possible when some improvement was shown during the time of waiting for necessary preparation. He advised keeping the patient on the table, the use of light ether-oxygen anesthesia, a moderate Trendelenberg's position, operate quickly, tying the tube, scooping out the clots that were easily reached, closing the abdomen, give hot salt solutions by rectum, and expect the patient to get well. The benefits of a long delay before operation, a delay of from one to several weeks, so that the patient's general condition might improve, had been strongly urged by some recent papers. In the long-delayed cases one had not alone the primary mortality to consider, but also the increased morbidity following long delay. In his own experience the cases that had caused the greatest anxiety had been delayed operation with sepsis, not due to operation, but to serious intrapelvic conditions found at operation. Operation performed before rupture, or before serious bleeding had occurred, was not ordinarily difficult for anyone skilled in this class of surgery, and should be followed by almost no mortality. Operation delayed for several weeks meant complications with added danger from adhesions and often pus and sepsis from the ruptured tube. Dr. Wells said that he did not place much reliance on the strictly mathematical or statistical factors of an argument in a question like this yet, as it was admitted that about 95 per cent. of the cases of ectopic pregnancy with bleeding would not die immediately from hemorrhage, one might hold that when one could show a mortality of any two or three per cent. in his general abdominal and pelvic operations, he could be safely trusted to use proper care and judgment and to operate upon a ruptured ectopic at any time he thought wise. If, on the other hand, the mortality ran up to more than five per cent. it seemed equally evident that in the long run that the surgeon who had such mortality among his cases would gain nothing by immediate operation. This brought the argument back again to the personal equation of the surgeon in charge.

Dr. Le Roy Broun said there was a decided difference in the structure of an artery of a dog and of a human being. Robb's position was based upon the failure of a bitch to bleed to death after the artery had been severed. The internal coat of a dog's artery differed from that of a human being in that there was a more elastic condition of the longitudinal fibers; when such an artery was cut this elastic coat would cause the artery to retract and in consequence of this retraction the bleeding would naturally cease.

Dr. Joseph Brettauer considered the question of deferred or immediate operation. He said that in those cases which were serious, such as hemorrhage, where the woman was *in extremis,* it was best to operate. This question might be considered in those cases where it did not matter what was done—the patients would get well with or without operation. In the milder cases where the pulse was not much increased in frequency and the signs of acute hemorrhage were not marked, the question arose, should one operate, or should one wait? In the last two years Dr. Brettauer said he had been satisfied and gratified at the results of operating; the sooner one operated the better, and the more chance the patient would have to get well.

Dr. Philander A. Harris said that he had operated upon 154 cases of tubal pregnancy, and in not a single case had death followed operation which was accepted by the patient, at the time he proposed it, in any of the cases exhibiting the so-called familiar condition known as shock. There were two deaths and these two patients represented "deferred opration." The remaining cases, 152 in number, he placed in another class, in that operation was never deferred after it was advised for the patients and accepted by them. Among these 152 cases he had four deaths, but in not a single instance did a patient die who was operated upon in a condition of shock, and there were many such. The four deaths resulted from sepsis.

Dr. H. N. Vineberg said he was surprised at the number of cases in which there was no absence of menstruation; Dr. Frank's figure in this respect was larger than his. There were only ten out of eighty patients that had not skipped a menstrual period. The sooner operation was performed upon this class of sufferers from ectopic gestation the better was the chance for recovery which these patients would have.

Philadelphia Neurological Society.

At a stated meeting held November 27 Dr. Wm. G. Spiller presented "A Case of Facial Spasm Treated by Alcoholic Injection." The patient was a man, about thirty-five years old, in whom violent facial spasm had been present for many years and had resisted all ordinary forms of treatment. An incision was made in the mastoid region on the affected side, the nerve exposed, and an injection of alcohol made into the trunk of the nerve. The spasm ceased immediately and facial palsy resulted. This soon began to improve and it has now entirely disappeared. Dr. Spiller then showed "A Case of Facial Palsy Associated with Exophthalmus on the Same Side" in a girl, thirteen years old, who, following a convulsion at the age of three, presented the symptoms mentioned, and which had persisted without change. The eyegrounds exhibited no abnormality. No satisfactory explanation for the condition was at hand. Dr. Spiller referred to a second case, in a woman, with facial palsy, who related that at the onset of her disorder the affected side of the face had been swollen and the eye on that side had protruded. Dr. Alfred Gordon demonstrated a patient exhibiting "The Cerebellar Syndrome Showing Progressive Improvement after a Decompressing Operation." The patient was a colored man, forty-one years old, who presented symptoms of a cerebellar growth, with bilateral choked disk and marked impairment of vision. Trephining openings in the skull were made in the occipital region on each side, with marked improvement in the symptoms, but with the development of vertigo when the patient turned the head to the side opposite that of the lesion or on awaking after lying on the side designated. Dr. W. J. McConnell reported "A Case Presenting Symptoms of Bilateral Motor Tract Disease, with Dissociation-anesthesia." The patient was a man with a syphilitic history, who presented paresis on one side of the lower part of the body and loss of the various forms of sensibility on the opposite side. Improvement ensued under vigorous antisyphilitic treatment. Dr. C. K. Mills presented "A Case with the Symptom-complex of a Lesion of the Upper Part of the Anterior Spinal Arteries (Spiller's Syndrome)." The patient was a woman who, in apparently perfect health, was suddenly overtaken by an apoplectic seizure, from which she recovered with slight but not aphasic disturbances of speech and weakness in all four extremities. The paresis in the lower extremities disappeared, while that in the upper persisted, and apparently was attended with wrist-drop and wasting. Dr. Mills also presented a communication entitled "A New Symptom-complex, Flaccid Paralysis or Extreme Hypotonia of the Muscles which Poise and Support the Head." In illustration of this symptom-group he recited two cases of brain tumor, in one of which, occurring in an adult male, autopsy disclosed the presence of a subcortical tumor in the frontal region and involving a portion of the corpus callosum. In the second case, the symptoms pointed to a cerebellar new-growth but no autopsy could be secured. Dr. Wm. G. Spiller read a paper entitled "The Duration of Life after Extensive Hemorrhage of the Brain." He presented evidence to show that life is, as a rule, prolonged for some hours after even extensive and destructive cerebral hemorrhage, indicating that almost instant death must be attributed to other causes. Dr. Wm. J. Dugan read a paper entitled "The Uses of High Frequency Currents in Neurology." Among other things, he had found the current useful in inducing sleep and in relieving the pains of locomotor ataxia, but contraindicated in cases of hysteria. Dr. S. Leopold presented a communication entitled "Sacral Tabes: A Case with Necropsy." In addition to classic symptoms of posterior sclerosis there was preservation of knee-jerks with loss of Achilles tendon jerks.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

South Carolina State Board of Medical Examiners.

Columbia, June 9, to and 11, 1908.

GENERAL ANATOMY.

1. Name the bones of the head.
2. Name the bones of the lower extremity.
3. Name the muscles of the abdomen—deep and superficial.
4. What chief arteries supply the neck and head?
5. Where are the epigastric arteries found? Branches of what arteries?

REGIONAL OR SURGICAL ANATOMY.

1. In the lymphatics of the peritoneum, which are most rapid in absorption, those of the diaphragm or of the pelvis? If you wish to stimulate in abdominal incision, what position would you place the patient in? If to retard too rapid absorption of pus in cavity, what position?
2. What are the anatomical points to be remembered in paracentesis thoracis?
3. From its anatomical position, why is rupture of the kidney of less danger than rupture of the liver and the spleen?
4. A case presented with apparent dislocation with atrophy of shoulder muscles and arm, only partial motion. What anatomical points would decide between dislocation of the shoulder and paralysis of the deltoid?
5. What nerve supplies the superior oblique muscle of the eye, and what defect of vision would you have in paralysis of the same? What nerve supplies the external rectus; what would you find in paralysis of that muscle?
6. What is the most common point of fracture of the humerus? What are some of the sequelæ?
7. Give surface marking of the brachial artery.
8. Give surface marking of the femoral artery (common and superficial); where best compressed? Where best ligated?
9. In lateral lithotomy, name anatomical points to be avoided.
10. Give the anatomical position of the deep epigastric artery to direct and indirect hernia.

PHYSIOLOGY.

1. What conditions hasten or retard the coagulation of blood, and mention the physical properties of the blood?
2. What produces the second sound of the heart, where best heard, and what events in the heart's action are coincident with it?
3. What is the difference between warm and cold blooded animals, and how is heat produced and disseminated from the body?
4. How is the secretion of glands chiefly regulated, and how do the kidneys secrete urine?
5. What results would follow a complete division of the right facial nerve?

CHEMISTRY.

1. Give chemical formula for common salt; nitrate of silver; sulphuric acid; nitric acid; water.
2. What is the difference between blue mass, mercurial ointment, and citrine ointment?
3. What is gray powder?
4. What is the difference between static and galvanic electricity? Give methods of production.
5. What are the positive and negative poles of a battery termed?

PRACTICAL URANALYSIS, MICROSCOPY TOXICOLOGY

1. How do you make a chemical analysis of the urine for life insurance?
2. Give indications of high and low specific gravity in the twenty-four hour urine.
3. What does transitory low specific gravity indicate?
4. Give differential morphology of blood, pus, oil and water under the microscope.
5. Describe simple and compound microscopes.
6. What oculars and objectives are in common use?
7. Give symptoms and antidotes to poisoning by sulphate of atropine.
8. Give symptoms and antidotes to poisoning by opium.
9. How would you detect a case of poisoning with carbolic acid or potassium hydrate?
10. What fumes are given off by arsenic when it is burned?

MATERIA MEDICA.

Give the dose and physiological effect of:

1. Fluid extract of ergot
2. Sulphate of sparteine

3. Veratrum viride.
4. Chloral hydrate.
5. Tincture of digitalis.

THERAPEUTICS.

In treating the following diseases, give dose, frequency of administration and physiological effect of drugs used; also other remedial measures used, giving physiological effect and mode of use:

1. Acute articular rheumatism.
2. Acute lobar or croupous pneumonia.
3. Erysipelas.
4. Dysentery.
5. Enterocolitis of children.
6. Dysmenorrhea.
7. Orchitis (non-specific).
8. Acute nephritis.
9. Acute gastritis.
10. Gastric ulcer.

BACTERIOLOGY AND PATHOLOGY.

1. What is meant by aërobic bacteria? What is meant by anaërobic bacteria?
2. Name three most important culture media.
3. State briefly the morbid anatomy of catarrhal appendicitis.
4. What connection has typhoid fever with the formation of gallstones?
5. Differentiate between fatty degeneration and fatty infiltration.

PRACTICE OF MEDICINE AND DISEASES OF CHILDREN

1. Differentiate simple melancholia and hypochondria.
2. (a) What are the causes of cardiac arrhythmia? (b) Symptoms and treatment of angina pectoris?
3. (a) What are the possible sequelæ of pneumonia? (b) What symptoms would cause you to suspect incipient pulmonary tuberculosis?
4. Mention the causes of anemia.
5. Symptoms of interstitial nephritis.
6. Symptoms and treatment of acute dysentery.
7. Make diagnosis and give reasons from following history and symptoms:

J. S., aged 40 years. He had suffered for years with indigestion, and for several months with pain in epigastrium, which was relieved by eating, and for one week remained in bed on account of aggravation of epigastric pain. At 1 o'clock in the day got up and went to the back door to look out. While there was seized with sudden severe pain in abdomen. He vomited and crawled back to bed. At 3 P.M. his pulse was 90, temperature 101 degrees F., abdomen of board-like rigidity, tenderness everywhere, but more tender in epigastrium. He was given morphine, gr. ¼. At 9 P.M. he was somewhat improved, and his muscular spasm was a little less. At 11 P.M. was pale and looked sick. There was distinct spasm and tenderness in epigastrium, shading off into other regions of abdomen, which was generally retracted. There was no dullness. Tongue moist. Pulse 90, temperature 101 degrees F.

8. Symptoms and sequelæ of scarlet fever.
9. What per cent. of fat and proteids would you prescribe for a child four months old? How would you direct the mother to make it?
10. Causes of convulsions in children? Causes of vomiting in children?

OBSTETRICS AND DISEASES OF WOMEN.

1. With what conditions may pregnancy be confounded?
2. (a) How does placenta prævia develop? (b) Where does the hemorrhage come from that endangers the mother's life? (c) In what way is the child's life endangered in this condition? (d) How would you treat a case of placenta prævia when hemorrhage occurs prior to full term?
3. How would you treat a case of postpartum hemorrhage?
4. What are the prodromal symptoms of eclampsia, and what would you do to prevent it?
5. How would you treat a case of prolapse of the arm in a transverse position?
6. How would you treat a case of retained placenta?
7. Under what conditions is a physician justified in inducing premature labor?
8. What symptoms and conditions would cause you to suspect twin pregnancy?
9. How would you perform a curettage after an incomplete abortion?
10. What are the ultimate dangers from gonorrhea in the female?

SURGERY.

1. Causes which retard, interfere with, or prevent a wound from healing; (1) in wound itself; (2) in subject of wound; (3) in treatment.
2. To promote the primary union of a wound, name six important factors.
3. When a visible part is inflamed, there are four notable phenomena to be observed; what are they?
4. (1) What causes bedsores? (2) How would you prevent them? (3) When present, how would you treat them?
5. Acute orchitis: (1) Etiology; (2) symptoms; (3) treatment.
6. How would you treat chronic ulcer of the leg?
7. Give symptoms and treatment in downward dislocation of the head of the humerus.
8. How would you treat a simple fracture of the middle third of the femur?
9. Necrosis of the lower third of femur in a boy of twelve years. Give early symptoms and treatment.
10. In amputating the lower third of the leg, give the several steps of the operation, including dressing.

PRACTICAL HYGIENE, SANITARY SCIENCE, STATE MEDICINE.

1. State the period of incubation and contagion in scarlet fever, diphtheria, pertussis, measles, rubella, smallpox, typhoid fever, parotitis.
2. What hygienic care should be taken by pregnant and parturient women?
3. What condition would cause you to condemn meat, and what would you do to insure milk from impurities, that is, milk meant for the public?
4. What infectious diseases may be conveyed through the medium of air, water and food, respectively?
5. What are the injurious effects of excessive use of tobacco?
6. Give draft of acceptable regulations of schools as to contagious diseases.
7. At a moderate temperature what is the most satisfactory relative humidity for comfort?
8. At 80 degrees F. what humidity is uncomfortable?
9. Give hygienic care of infants as to clothing, bath, and their various organs.
10. Name six diseases subject to quarantine, and how long would you quarantine each?

MEDICAL JURISPRUDENCE.

1. In what condition would you expect to find the lungs, kidneys and heart after death from asphyxia?
2. What is the difference in the appearance of burns produced before death and those made after death?
3. When a physician takes charge of a case gratuitously, is he exempt from the charge of malpractice if it can be proven that his treatment was improper, or that he neglected his patient?
4. What causes rigor mortis?
5. In women what is the last of the internal organs to putrify?
6. What is the duty of the physician when it is necessary for him to take down a dying declaration?
7. In a case of suspected infanticide, describe the method of determining whether the child breathed or not.
8. What is legally meant by feticide? Is the criminality of the act any greater if performed after quickening than before?
9. State briefly the difference between idiocy and mania.
10. In death by lightning, in what condition would you expect to find the heart? In what condition the other internal organs?

ANSWERS TO STATE MEDICAL BOARD EXAMINATION QUESTIONS.

SOUTH CAROLINA STATE BOARD OF MEDICAL EXAMINERS.

Columbia, June 9, 10 and 11, 1908.

REGIONAL OR SURGICAL ANATOMY.

1. In the lymphatics of the peritoneum, those of the diaphragm are more rapid in absorption than those of the pelvis.

To stimulate, the patient should have the foot of his bed raised, so that the fluid (salt solution) may be conveyed more readily to the diaphragm, where absorption is more rapid.

To retard the too rapid absorption of pus in the abdominal cavity, the head of the bed should be raised so that drainage may be directed toward the pelvis, where absorption is slower.

2. In *paracentesis thoracis:* The puncture should be

made in the mid-axillary line, and in the fifth, sixth or seventh spaces; it should be made midway between the ribs, so as to avoid the intercostal vessels; it should be made during inspiration, as then the spaces are wider.

3. Rupture of the kidney is of less danger than rupture of the liver and the spleen, because the kidney is retroperitoneal, and therefore the pritoneal cavity is not so liable to be infected by the extravasation.

4. In *dislocation of the shoulder:* the head of the humerus is not in the glenoid cavity, and motion of the arm is considerably impaired; in *paralysis of the deltoid,* the head of the humerus is in the glenoid cavity, and the arm is freely movable.

5. The superior oblique muscle of the eye is supplied by the fourth cranial nerve (the trochlear or patheticus); in paralysis of the same *diplopia* results. The external rectus is supplied by the sixth cranial nerve (the abducens); in paralysis of the same there will result convergent strabismus and diplopia.

6. The *most common* place *of fracture of the humerus,* is at the lower extremity of the bone. *Some of the sequelæ,* are: (1) non-union; (2) "gun-stock" deformity; and (3) loss of the "carrying angle."

7. With the arm extended, and the forearm supinated, the *brachial artery* is indicated by a line drawn from the anterior axillary fold, along the inner border of the biceps, to the middle of the bend of the elbow-joint.

8. The *femoral artery* is indicated by a line drawn from the central point of a line joining the anterior superior spine of the ilium and the symphysis pubis to the adductor tubercle on the inner condyle of the femur.

The femoral artery is *best compressed* just below Poupart's ligament; and it is *best ligated* at the apex of Scarpa's triangle.

9. *In lateral lithotomy, the anatomical points to be avoided,* are: (1) The bulb of the urethra, and its artery; (2) the rectum; (3) the pudic artery; (4) complete division of the prostate gland; (5) the left ejaculatory duct.

10. *The deep epigastric artery* is internal to indirect inguinal hernia; and external to direct inguinal hernia.

PHYSIOLOGY.

1. Conditions which *hasten* the coagulation of the blood are: (1) Moderate warmth, (2) contact with foreign matter, (3) agitation, (4) the presence of calcium salts.

Conditions *retarding* the coagulation of the blood are: (1) A low temperature, (2) the addition of neutral salts in large quantities, (3) contact with oil, (4) contact with the living vessel walls, (5) when mixed with an oxalate, (6) the injection of peptones or lead extract.

The physical properties of blood: Fluid, somewhat viscid, red, specific gravity from 1055 to 1062, alkaline reaction, saltish taste, characteristic odor, variable temperature (average about 100 degrees F.).

2. The *second sound of the heart* is *caused* by the vibrations due to the closure of the semilunar valves.

It is *best heard* at the base of the heart, over the second right costal cartilage.

The events in the heart's action coincident with the second sound, are: (1) The closure of the semilunar valves; (2) the continued dilatation of the auricles; (3) the beginning of the dilatation of the ventricles; (4) the opening of the auriculoventricular valves.

3. *Warm-blooded animals* are those whose body temperature remains almost constant.

Cold-blooded animals are those whose body temperature varies with that of the surrounding medium, but which is always a little above that of the medium.

The heat of the body is *maintained* by the thermotactic centers in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost.

Heat is produced in the body, by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord.

Heat is given off from the body, by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.

4. The secretion of glands is chiefly regulated by: (1) The variations in the quantity of blood which the gland receives; (2) the nerve impulses to the gland.

The mechanism of the *secretion of urine by the kidneys* is twofold: (1) By filtration, most, if not all, of the fluid is eliminated, and also inorganic salts; this depends upon blood pressure, and takes place in the glomeruli. (2) By cell activity and selection, in the cells of the convoluted tubules, the urea and principal solids are eliminated.

5. When the facial nerve is divided, paralysis of the facial muscles ensues, and "the muscles of the face being all powerless, the countenance acquires on the paralyzed side a characteristic, vacant look, from the absence of all expression; the angle of the mouth is lower, and the paralyzed half of the mouth looks longer than that on the other side; the eye has an unmeaning stare, owing to the paralysis of the orbicularis palpebrarum. All these peculiarities increase the longer the paralysis lasts, and their appearance is exaggerated when at any time the muscles of the opposite side of the face are made active in any expression, or in any of their ordinary functions. In an attempt to blow or whistle, one side of the mouth and cheeks acts properly, but the other side is motionless, or flaps loosely at the impulse of the expired air; so, in trying to suck, one side only of the mouth acts; in feeding, the lips and cheek are powerless, and, on account of paralysis of the buccinator muscle, food lodges between the cheek and gums."—(Kirkes' *Physiology.*)

CHEMISTRY.

1. *Chemical formula,* for common salt, is NaCl; for nitrate of silver, $AgNO_3$; for sulphuric acid, H_2SO_4; for nitric acid, HNO_3; for water, H_2O.

2. Blue mass contains 33 per cent. of mercury; mercurial ointment contains 50 per cent. of mercury; and citrine ointment contains 7 per cent. of mercury.

3. Gray powder is Hydrargyrum cum Creta, or mercury with chalk, and contains 38 per cent. of mercury.

5. The *positive* pole of a battery is termed the *anode;* the *negative* pole is termed the *cathode.*

PRACTICAL URANALYSIS, MICROSCOPY, TOXICOLOGY.

1. In examining *normal* urine the following points are to be considered:

The quantity voided in twenty-four hours, its general appearance, color, odor, reaction, specific gravity, quantity of solids excreted, quantity of urea, uric acid, chlorides, sulphates, phosphates.

In *abnormal* urine, in addition to the above, examination should be made for albumin, sugar, excess of indican, acetone, blood, bile, pus, casts, epithelium, parasites, pathogenic bacteria, and foreign bodies.

2. *High specific gravity* of the urine, may indicate: Diabetes mellitus, fevers, and chronic parenchymatous nephritis.

Low specific gravity of the urine, may indicate: Diabetes insipidus, chronic interstitial nethritis, contracted kidney, some nervous disorders, albuminuria, hysteria.

3. *Transitory low specific gravity* may indicate: Hysteria, or some nervous disorders, or the ingestion of an abnormal amount of fluids.

5. *A Simple Microscope.* "With this an enlarged, erect image of an object may be seen. It always consists of one or more converging lenses or lens-systems, and the object must be placed within the principal focus. The simple microscope may be held in the hand or it may be mounted."

A *Compound Microscope.* "This enables one to see an enlarged, inverted image. It always consists of two optical parts, an *objective,* to produce an enlarged, inverted, real image of the object, and an *ocular,* acting in general like a simple microscope to magnify this real image. There is also usually present a mirror, or both a mirror and some form of condenser or illuminator for lighting the object. The stand of the microscope consists of certain mechanical arrangements for holding the optical parts and for the more satisfactory use of them."—(Gage's *The Microscope.*)

6. *Oculars in common use,* are: Those having a magnification of 5, 7.5, 10, 12.5, and 15 times.

Objectives in common use, are: *Dry:* 2 inches, 1⅓ inches, ⅔-inch, ⅓-inch, 1/6-inch and ⅛-inch; (2) *Immersion:* 1/12-inch and 1/16-inch.

7. *Symptoms of poisoning by sulphate of atropine:* Dryness of the mouth and throat, thirst, drowsiness, dysphagia, face flushed, pupils much dilated, eyes prominent, numbness and partial paralysis of the extremities, and there may be delirium and coma.

Antidotes: Pilocarpine and morphine are *physiological* antidotes.

8. *Opium poisoning: Symptoms:* In opium poisoning there may be three stages: (1) a period of excitement, in which the patient is active, talkative, and has hallucinations; (2) a period of drowsiness, in which the patient is sleepy, but may be aroused; his face is pale, lips livid, pupils contracted; this passes into (3) the stage of coma, from which the patient cannot be aroused; reflexes are abolished, pupils are contracted, the pulse is slow and irregular, and respirations are infrequent and shallow.

Treatment consists in washing out the stomach, preferably with a dilute solution of potassium permanganate; ambulatory treatment, to keep the patient awake; artificial respiration is indicated, and strong coffee should be administered by the mouth or rectum; the bladder should be emptied by the catheter.

There is no antidote.

9. *Carbolic acid poisoning* may be detected by the white and corrugated mucous membrane of the mouth; the dark or smoky urine; the brown spots wherever the carbolic acid came in contact with the skin; the odor of phenol.

Poisoning by potassium hydrate may be detected by the: sloughing of the mucous membrane of mouth and esophagus; the stomach contents are alkaline, soapy and frothy; on warming the stomach contents there is no odor of ammonia.

10. When arsenic is heated in air, it is converted into arsenic trioxide.

MATERIA MEDICA.

1. Fluid Extract of Ergot. *Dose:* ℥. xxx.

Physiological effect: It stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative, it raises the blood pressure, it increases peristalsis, and is an emmenagogue.

2. Sulphate of Sparteine. *Dose:* gr. 1/5.

Physiological effect: It increases the force of the heart, paralyses the respiratory and motor centers, and increases the flow of urine.

3. Veratrum Viride. *Dose:* gr. ij.

Physiological effect: It reduces body temperature, reduces arterial pressure, is a respiratory depressant, relaxes voluntary and cardiac muscle, causes gastrointestinal irritation and diaphoresis.

4. Chloral Hydrate. *Dose:* gr. xv.

Physiological effect: It is a hypnotic and antiseptic, it is a cardiac respiratory depressant, and it lowers the blood pressure and body temperature.

5. Tincture of Digitalis. *Dose:* ℥. xv.

Physiological effect: It is a gastrointestinal irritant, it slows the rate of the heart, prolongs diastole, increases the force of the heart, it contracts the blood-vessels and causes a rise in blood pressure, it also acts as a diuretic.

BACTERIOLOGY AND PATHOLOGY.

1. *Aërotic bacteria* are such as require the *presence* of oxygen as an essential to their growth.

Anaërobic bacteria are such as require the *absence* of oxygen as an essential to their growth.

2. *Three most important culture media:* Bouillon, gelatin, and agar-agar.

3. In *catarrhal appendicitis:* The musoca will be found swollen and eroded, granulation tissue may be found; the muscularis is thickened and edematous; the serosa is congested and edematous but not extensively; the contents are more or less mucopurulent and are retained in the appendix.

4. The typhoid bacilli find their way to the gall bladder, and there cause a catarrhal inflammation which modifies the chemical composition of the bile and brings about first an excessive secretion and then a precipitation of cholesterin and salts. These latter, with the bacilli and epithelial débris tend to cause gall-stone formation.

5. In *fatty degeneration* the fat is formed by changes in the protoplasm of the cells; while in fatty infiltration the fat is brought by the blood to the cells, and is there deposited.

PRACTICE OF MEDICINE AND DISEASES OF CHILDREN.

2. (*a*) *Cardiac arrhythmia* has no particular clinical significance, unless it accompanies some disease. According to Butler *(Diagnostics of Internal Medicine)*, search should be made for one or more of the following: (1) Valvular cardiac disease, especially mitral lesions, in which it is usually, but not always, a sign of beginning failure of compensation, passing in many instances into delirium cordis; simple dilatation, chronic myocarditis, sclerosis of the coronary arteries, and fatty degeneration; possibly obscure changes in the cardiac ganglia, and overstrain or impaired nutrition in wasting diseases or long-continued fevers. (2) Poisons circulating in the blood, such as alcohol, coffee, tea, tobacco, digitalis, aconite, and belladonna, or the toxins of the infectious diseases, especially of typhoid fever and pneumonia. (3) Diseases of the intracranial contents, meningitis, hemorrhage, abscess, softening, concussion, and not infrequently mental excitement. (4) Neurasthenic conditions resulting from excesses or overstrain. Brief attacks of moderate arrhythmia are not uncommon in neurotic individuals, following even a slight departure from their usual habits in food, drink, or exertion. (5) Digestive disturbances, acute or chronic, and jaundice or constipation, particularly if associated with an unusually hypochondriacal frame of mind. (6) More rarely arthritis deformans, exophthalmic goiter, and renal disease.

(*b*) *The symptoms of true angina pectoris* are: Excruciating pain radiating from the heart to the neck, shoulder and arm (generally the left); a sense of impending death; cardiac constriction; the face is anxious and pale; cold perspiration and sometimes dyspnea.

The *treatment:* Inhalation of 3 to 5 minims of amyl nitrite; spirit of nitrous ether, or morphine (gr. ¼ hypodermatically), or inhalation of chloroform may be given; heat may be applied over the region of the heart, and stimulants should be given after the attack. During the intervals severe mental or muscular exercise must be avoided.

3. (*a*) *The possible sequelæ of pneumonia,* are: Chronic pneumonia, gangrene of the lung, phthisis, empyema, nephritis.

(*b*) *Incipient pulmonary tuberculosis may be suspected from:* (1) *Physical signs:* Deficient chest expansion, the phthisical chest, slight dullness or impaired resonance over one apex, fine moist râles at end of inspiration, expiration prolonged or high pitched, breathing interrupted. (2) *Symptoms:* General weakness, lassitude, dyspnea on exertion, pallor, anorexia, loss of weight, slight fever, and night sweats, hemoptysis.

4. *The causes of anemia,* are as follows: (1) *Of the primary anemias:* The cause is unknown, probably it is some form of intoxication. Predisposing causes are: Insufficient and improper food; nervous disturbances, such as violent shock; pregnancy and lactation; gastrointestinal diseases, such as atrophy of the stomach and interstitial gastritis; parasitic diseases, such as ankylostomiasis and bothriocephaliasis; frequently repeated hemorrhages; general diseases, infectious diseases, and intoxications. (2) *Of the secondary anemias:* Bad hygienic surroundings, as insufficient food or food of bad character, inspiration of noxious gases, overwork and crowding; parasitic diseases; exhausting diseases, as cardiac, renal, or gastrointestinal diseases, cirrhosis of the liver, rickets, scurvy; chronic infectious diseases, as tuberculosis, syphilis, leprosy, malaria; frequently repeated small losses of blood; overlactation and gestation; toxemia, as Saturnism, mercurialism, and jaundice.—(From Macfarland's *Pathology.*)

7. The diagnosis is gastric ulcer with perforation.—(From Cabot's *Case Teaching in Medicine,* from which the question is taken.)

10. *Causes of Convulsions in children,* are: Overeating, especially of indigestible food; rachitis, debility from exhausting diarrheal diseases; high fever, especially at the onset of the acute specific infections; very seldom dentition, phimosis, and acute middle-ear inflammation; injuries to the brain at birth, infantile hemiplegia, meningitis, and tumor of the brain; rarely of spinal cord disease.—(From Butler's *Diagnostics of Internal Medicine.*)

Causes of vomiting in children, are: An overloaded stomach; acute gastric indigestion; acute intestinal obstruction; the onset of the acute infectious diseases, as scarlet fever, malaria, pneumonia; toxemia, peritonitis; acute meningitis; cerebral tumor.

OBSTETRICS AND DISEASES OF WOMEN.

1. *Conditions with which pregnancy may be confounded,* are: Retained menses, ovarian tumors or cysts, uterine fibroids, ascites, obesity, hematometra, physometra, hydrometra, tympanites, subinvolution of uterus, retroversion of uterus, pseudocyesis.

4. Eclampsia. The *symptoms* are: "Headache, nausea, and vomiting, epigastric pain, vertigo, ringing in the ears, flashes of light or darkness, double vision, blindness, deafness, mental disturbance, defective memory, somnolence; symptoms easily explained by the circulation of toxic blood through the nerve centers. These may be preceded by lassitude, and accompanied by constipation, or by diarrhea. Headache is perhaps the most significant and common warning symptom. In bad cases the urine is reduced in quantity (almost suppressed), very dark in color, its albumin greatly increased, so that it becomes solid on boiling. Next comes the final catastrophe of convulsions. The convulsive fit begins with twitching of the facial muscles, rolling and fixation of the eyeballs, puckering of the lips, fixation of the jaws, protrusion of the tongue, etc., soon followed by violent spasms of the muscles of the trunk and limbs, including those of respiration; hence lividity of the face and stertorous breathing, biting of the tongue, opisthotonus, etc. The fit lasts fifteen or

twenty seconds, ending in partial or complete coma, possibly death; or consciousness may return, to be followed by other convulsions."—King's *Manual of Obstetrics.)*

Preventive Treatment: (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ.

7. Conditions warranting the induction of premature labor: (1) Certain pelvic deformities, (2) placenta prævia, (3) pernicious anemia, (4) toxemia of pregnancy, (5) habitual death of the fetus toward the end of pregnancy, (6) hydatidiform mole, (7) habitually large fetal head.

8. Twin pregnancy may be diagnosed by the following signs: (1) The abdomen may be irregular in shape and may show a sulcus indicating the space between the two fetal sacs; (2) persistent and increased tension of the uterine walls; (3) two fetal heart sounds may be heard; (4) multiplicity of small parts; (5) two fetal heads or backs may be palpated; (6) diminished fetal mobility. Sometimes it is difficult to diagnose the condition before the birth of one child.

SURGERY.

1 and 2. *Six important points to promote primary union of a wound:* (1) Stop the bleeding; (2) remove foreign bodies; (3) asepticize; (4) coapt the edges; (5) provide for drainage (if necessary); (6) rest the injured part.

Any interference with the above will retard, interfere with, or prevent the healing of the wound.

3. *Four notable phenomena in inflammation of a visible part:* (1) Redness; (2) swelling; (3) heat; (4) tenderness.

4. Bedsores. (1) *Causes:* Undue pressure and irritating secretions; a crease or fold in a sheet, a crumb of bread, a feather, or a bit of string on the sheet may cause them. Especially is this so when the skin is irritable from excessive perspiration, inefficient washing, or involuntary passages of urine. Bedsores are particularly common in spinal affections and in wasting diseases.

(2) *Prevention* consists in reducing the pressure, careful repeated washing, drying, and dusting with zinc oxide, and subsequent protection with lint or cotton-wool, etc. Leather-backed adhesive plaster may be applied over bony prominences, or, if seen early, collodion may be used. Frequent rubbing with alcohol may prove a preventive. When congestion appears, a water-bed or air-cushion may be used. Spirits of camphor or glycerol of tannin may be rubbed in twice daily, to harden the skin. Salt and alcohol (two drams to the pint) may also be used.

(3) *Treatment:* A solution of silver nitrate may be used when the skin is about to break, in the strength of gr. 20 to the ounce; and in solution of gr. 10, daily, when the skin breaks. The sloughs should be removed as fast as they form. Stimulation, good nourishment, and sleep are valuable in treatment.—(From Gould and Pyle's *Cyclopedia of Medicine and Surgery.)*

PRACTICAL HYGIENE, SANITARY SCIENCE, STATE MEDICINE.

4. *Infectious diseases which may be conveyed through the medium of the air:* Tuberculosis, pneumonia, diphtheria, measles, scarlet fever, whooping cough, erysipelas, influenza.

Through the medium of water: Typhoid, dysentery, cholera, yellow fever, scarlet fever, diphtheria.

Through the medium of food: Tuberculosis, diphtheria, typhoid, scarlet fever, cholera.

5. "The continued use of tobacco, by smoking or chewing it to *excess,* produces granular inflammation of the fauces and pharynx, atrophy of the retina, dyspepsia, lowered sexual power, sudden faints, nervous depression, cardiac irritability, and occasionally angina pectoris. Used by the young, it hinders the development of the higher nerve centers and impairs the nutrition of the body by interfering with processes of digestion and assimilation."—(Potter's *Materia Medica, etc.)*

MEDICAL JURISPRUDENCE.

1. *After death from asphyxia,* I would expect to find the *lungs, kidneys, and heart,* congested. Occasionally, in young persons, the lungs are anemic and emphysematous; the right side of the heart and lungs is usually gorged with dark-colored blood.

2. In *burns* produced *before death:* there is usually a blister, with a bright, red base, and containing a serous fluid, which is albuminous; occasionally, there will be no blister if there has been excessive shock; also, there will be a red line of demarcation between the injured and the uninjured parts, and this, being a vital process, is only developed during life.

In *burns* produced *after death* there is no true blister, no red base, and gas is present in place of serous fluid.

3. Taking charge of a case *gratuitously* causes no exemption from the charge of malpractice, in case of neglect or improper treatment.

4. *Rigor Mortis* is supposed to be due to the coagulation of the myosin in the muscles.

5. In women, the last of the internal organs to putrefy, is the uterus.

6. *The duty of the physician, when it is necessary for him to take down a dying declaration, is:* (1) To explain to the patient the hopelessness of the case; (2) to satisfy himself as to the patient's soundness of mind; (3) to write down the exact words of the dying person, without adding any comment or explanation of his own; (4) to read the declaration over to the dying person, and, if possible, have him sign it; (5) the statement should be perfectly voluntary.

8. By *feticide* is meant the unlawful destruction of a fetus before it is born. The criminality is the same whether done before or after quickening.

9. "Idiocy differs from other states of insanity in the fact that it is marked by a congenital defficiency of the mental faculties. There is not here a perversion or a loss of what has once been acquired, but a state in which, from defective structure of the brain, the individual has never been able to acquire any degree of intellectual power to fit him for his social position. It commences with life and continues through it."—(Taylor's *Medical Jurisprudence.)*

10. *In death by lightning:* the *heart* may be (1) unaltered, or (2) congested, or (3) full of blood, or (4) empty. The other internal organs are congested.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 5
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan 4
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Jan 12
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April 6
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	March 9
Delaware	J. H. Wilson	Dover	June 15
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Jan. 12
Florida*	J. D. Fernandez, Jacksonville	Tallahassee	May 19
Georgia	E. R. Anthony, Griffin	Atlanta	May —
Idaho	W. F. Howard, Pocatello	Boise	April 6
Illinois	J. A. Egan, Springfield	Chicago	Jan. 18
Indiana	W. T. Gott, Indianapolis	Indianapolis	May 25
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	D. F. Cook, Clay Center	Kansas City	Feb. 9
Kentucky*	J. N. McCormick, Bowling Green	Louisville	April 27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 20
Maine	Wm. J. Maybury, Saco	Portland	March 9
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 15
Massachusetts*	E. B. Harvey, State House, Boston	Boston	March 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jan. 5
Mississippi	S. H. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	
Montana*	Wm. C. Riddell, Helena	Helena	April 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Feb. 2
Nevada	S. L. Lee, Carson City	Carson City	May 3
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	
New Jersey	J. W. Bennett, Long Branch	Trenton	June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jan. 11
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	Feb. 2
N Carolina*	B. K. Hays, Oxford	Asheville	June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 5
Ohio	Geo. H. Matson, Columbus	Columbus	June 8
Oklahoma*	F. P. Davis, Enid	Chickasha	Jan. 12
Oregon	B. E. Miller, Portland	Portland	Jan. 5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	June —
Rhode Island	G. T. Swarts, Providence	Providence	Jan. 7
S Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	Jan 13
Tennessee*	T. J. Happel, Trenton	Memphis Nashville Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Cleburne	June 22
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Jan 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washingtn*	K. Turner, Seattle	Spokane	Jan. 5
W. Virginia	H. A. Barbee, Point Pleasant	Huntington	April 13
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan 12
Wyoming	S. B. Miller, Laramie	Cheyenne	Feb. 10

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the weeks ending December 19 and 26, 1908:

	Dec. 19		Dec. 26	
	Cases	Deaths	Cases	Deaths
Tuberculosis Pulmonalis	418	185	384	135
Diphtheria	376	31	393	37
Measles	352	13	369	12
Scarlet Fever	282	15	281	17
Smallpox	—	—	—	—
Varicella	199	—	204	—
Typhoid Fever	60	10	41	2
Whooping Cough	30	5	28	3
Cerebrospinal Meningitis	6	4	5	4
Malarial Fever	—	—	—	—
Totals	1723	263	1705	210

Why Mercurial Treatment in Tabetics Aggravates the Condition of Some, Ameliorates that of Others, and Is of Indifferent Use in Most Cases.—Maurice Faure, in a paper read before the ninth French Medical Congress, says that the diversity of opinion with reference to the use of mercury in tabetics comes from the diversity of results obtained. It is not possible to judge from a mass of patients without arriving at opposite conclusions. It is necessary to classify all tabetics into three categories with reference to mercurial treatment. 1. Mercurial treatment is badly borne and may cause aggravation of symptoms in cases in which the patient is the victim of accompanying intoxications (vesical infections, digestive troubles, respiratory troubles, hepatic or renal alterations, tuberculosis, cachexia, etc.). 2. Mercurial treatment is useful in tabetics, who have nervous symptoms of long standing (there being no other contraindications present), but that are still progressive. When there are only transitory troubles they disappear not to return (diplopia, pains, lack of general nutrition, slight instability, anesthesia, hyperesthesia, dysesthesia, etc.). In patients not treated by mercury such improvement is less frequent and less sure, and the prognosis for the future of the disease is generally more serious. 3. Mercurial treatment is useless (and generally indifferent) in tabetics whose symptoms have been fixed for a long time and show neither regression nor progression. To best appreciate the action of mercurial treatment we must determine for each subject the salt most useful, the dose best borne, and the best intervals for administration, since the individual tolerance varies and the results observed with the same technique are too variable to furnish reliable information. In conclusion, it is inexact to consider the mercurial treatment as the only therapeutics for tabes; it is not less inexact to consider mercury as having no place in the treatment of this disease.

Reputed Cure for the Opium Habit.—A new remedy for the opium habit is claiming the attention of the profession. The plant yielding it is the *Combretum sundaicum*, a woody climbing plant abundant on the plains in certain parts of Asia. The method of preparation and administration which appears to be invariably adopted is as follows: The branches and leaves are the parts of the plant used. The latter are separated from the woody portions, which are cut into thin slices and short lengths. Leaves and stem are roasted separately on an iron plate over a charcoal fire and then mixed together, the reason for separating being that the leaves would be charred by the amount of heating necessary for the wood. A decoction is then prepared by boiling from 8 to 11 ounces of the roasted drug in 4 gallons of water for three hours in a loosely-covered vessel and straining, at first roughly and then through a white cloth. Each patient is supplied with two bottles of the decoction, usually holding about 25 ounces each; into one he puts a quantity of burnt opium equal to the amount of his usual daily allowance, and none into the other. A dose of about 1½ ounces is taken from the first bottle as many times a day as the patient has been in the habit of smoking, usually three or four times. Each time a dose is taken the bottle is filled up from the second until the latter is emptied, when the patient continues taking the mixture that remains, without further alteration of its composition. Thus the patient begins with a dose of opium of only about one-sixteenth, or a daily dose of from one-sixth to one-fourth of his usual daily amount, and instead of smoking it he takes an aqueous extract of the residue left after roasting it in the same way as for smoking; with each dose he takes a quantity of the decoction of combretum, and the amount of extract of opium progressively diminishes to the seventeenth dose, when it is approximately only one-third of that in the first dose; it then remains constant to the last, or thirty-second dose. It is stated that in the majority of cases the cure is then effected; if it is not complete, the patient obtains a second supply of the medicine, into which is put only half the amount of burnt opium that was added to the first. As, however, the dose has been already reduced to one-third, it appears an irrational proceeding to increase it again to a half prior to a further reduction. In some cases a third bottle is necessary. When once the point is reached at which the patient can do without opium, further use of the combretum is not considered to be necessary; the "cure" is thus not a mere substitution of one drug habit for another.—*British Medical Journal.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the two weeks ending December 18 and 25, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, San Francisco	Nov. 22–29	3	..
Illinois, Danville	Nov. 30–Dec. 6.	1	..
Indiana, Lafayette	Dec. 1–7	4	..
Kansas, Kansas City	Nov. 28–Dec. 5.	1	..
Topeka	Nov. 28–Dec. 5.	5	..
Louisiana, New Orleans	Nov. 25–Dec. 5.	1	Imported.
Michigan, Grand Rapids	Nov. 14–21	1	..
Minnesota, Stillwater	Nov. 1–30	1	..
Montana, Butte	Nov. 24–Dec. 1.	3	..
Ohio, Cincinnati	Nov. 27–Dec. 11.	15	..
Tennessee, Knoxville	Nov. 28–Dec. 5.	1	..
Wisconsin, La Crosse	Nov. 28–Dec. 5.	4	..
Manitowoc	Nov. 21–Dec. 5.	21	..

SMALLPOX—FOREIGN.

China, Amoy (Kulangsu)	Oct. 10–Nov. 8.		2
France, Toulon	Oct. 31	1	..
Italy, general	Nov. 15–22	25	..
Naples	Nov. 15–22	15	..

YELLOW FEVER.

Mexico, Mexcanu	Nov. 21–28	1	..
Merida	Nov. 21–28	3	1
Vera Cruz	Nov. 21–28	1	..

CHOLERA.

Russia, general	To Nov. 14	27,160	12,802

PLAGUE.

Azores, Terceira	Oct. 1–31	53	33
India, general	Oct. 17–31	4,186	3,841
Peru, general	Oct. 27–Nov. 4	30	21
Callao	Nov. 14	2	..
Lima	Nov. 14	2	..

SMALLPOX—UNITED STATES

		CASES.	DEATHS.
California, San Diego County	Nov. 1–30	11	..
San Francisco	Nov. 27–Dec. 3.	7	..
Indiana, Elkhart	Dec. 6–12	1	..
Lafayette	Dec. 8–14	6	..
Kansas, Kansas City	Dec. 13–19	2	..
Texas, San Antonio	Dec. 6–12	1	..
Utah, Salt Lake City	Nov. 1–30	36	..
Wisconsin, La Crosse	Dec. 6–12	2	..
Milwaukee	Dec. 22–28	3	..

SMALLPOX—FOREIGN.

Algeria, Algiers	Nov. 1–30	..	20
Brazil, Bahia	Nov. 7–14	51	2
Pernambuco	Oct. 15–31	..	24
Rio de Janeiro	Nov. 9–15	311	141
Canada, Kingston	Nov. 23–29	2	..
India, Bombay	Nov. 18–24	..	1
Mexico, Vera Cruz	Dec. 6–12	1	..
Peru, Lima	Nov. 15–21	1	..
Russia, Moscow	Nov. 22–28	9	3
Spain, Valencia	Nov. 22–28	3	..
Turkey, Constantinople	Nov. 28–Dec. 6	..	9

CHOLERA.

Japan, Fuoko ken	Sept. 15–25	49	22
Oita ken	Jan. 1–Nov. 15.	7	4
Saga ken	To Nov. 13	2	..
Tsushima	Oct. 20–31	70	..
Korea, general	Oct. 21–Nov. 15.	31	2
Philippine Islands, Manila	Oct. 25–31	45	23

YELLOW FEVER.

Mexico, Merida	Nov. 26–Dec. 5.	3	..
Vera Cruz	Nov. 26–Dec. 5.	4	3
Zumpich	Nov. 1–30	2	..

PLAGUE.

Brazil, Pernambuco	Oct. 1–30	..	3
Chile, Iquique	Nov. 1–8	1	..
China, Hongkong	Nov. 1–7	1	1
Ecuador, Guayaquil	Nov. 22–28	..	2
Peru, Lima	Nov. 5–11	5	1

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Original Articles.

PULMONARY EMBOLISM FOLLOWING OPERATION.*

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WE have had in St. Luke's Hospital since 1899 fifteen cases of sudden death following operation which have been attributed to pulmonary embolism. Such autopsies as have been performed have verified the condition. The five cases here related were in my service.

CASE I. Kate P., forty-two years. Somewhat anemic from prolonged uterine hemorrhage. Small submucous fibroid. Enucleation of fibroid by vaginal route. Death on the eighth day, fifteen minutes after sudden onset of symptoms.

Autopsy: Local condition perfect; no thrombosis of pelvic veins. Two clots in right branch of pulmonary artery.

CASE II. Charlotte H., twenty-six years old. Strong, healthy woman. Chronic appendicitis. Operation extremely simple—intermuscular incision, inversion of appendix stump. Perfect convalescence. Upon the ninth day she had just gotten out of bed and was sitting in a chair as I made my rounds. I thought she looked tired and somewhat different from her previous satisfactory condition. There was a slight rise in temperature and I recommended that she go back to bed. Five minutes later she developed sudden oppression and cyanosis and was dead within ten minutes. Autopsy: Wound conditions and venous trunks negative. Clot in main pulmonary artery and the right branch. There is a note of several slight patches of atheroma, particularly of the mitral valve—a probably significant feature in a subject of twenty-six years.

CASE III. Mary J., thirty-eight years old. Well defined abscess. Appendectomy and drainage. Death on the tenth day, thirty-five minutes after onset of symptoms.

CASE IV. Inez H., thirty-five years old. Strong colored woman. Perirectal abscess. Incision and drainage. Death on the fourteenth day, after an uneventful course, ten minutes after the initial symptom.

CASE V. Albert B., forty-two years old. Chronic appendical abscess of long standing. Complex condition requiring resection of cecal wall. Perfect convalescence. He was found dead in bed on the tenth day, having been in the best of condition fifteen or twenty minutes previously. Autopsy: abdominal findings negative. Clot in the left branch of the pulmonary artery.

The experiences just noted can be duplicated in most institutions where many operations are performed. Also I cannot think of a single surgeon of considerable experience with whom I have conferred who has not had similarly disturbing occurrences.

The condition has long been recognized, and lately a good deal of attention has been given to it all over the world. Theoretical explanations are numerous and efforts at prophylaxis are being made and even attempts at cure by operative interference.

The mechanical transmission of clots formed in the venous system toward its terminus, the pulmonary artery, is readily comprehensible. It is also easy to understand how under certain conditions such clots are formed or their development favored, namely, in deficiencies of the circulation, essential blood changes, as a result of extensive or long standing diseases or inflammations, and severe trauma, particularly from certain surgical procedures or manipulations. Given such conditions, we must more or less resign ourselves occasionally to this casualty of pulmonary embolism. Coming as a sequel of an operation which has been gently and properly performed without undue malhandling of the tissues, the unsatisfactory termination can in all fairness be attributed to the condition rather than to the procedure.

The purpose of this paper is to call attention to the necessity of inquiry into the causes of pulmonary embolism in quite a different class of cases—that is, following operations often of a quite benign character, properly performed on subjects whose physical condition makes them an apparently good risk for operations such as the radical cure of uncomplicated herniæ, particularly the inguinal variety, "interval" removal of the appendix, and many operations on the female pelvic viscera.

Nothing can be more disheartening after an operation performed *secundum artem* on a patient of vigorous health and physique, followed by perfect convalescence and ideal wound healing, when suddenly, out of a clear sky, death comes within a few minutes after the first symptom which we clearly recognize as blocking of the pulmonary circulation. Even in these cases it might be a melancholy satisfaction, a sort of moral whitewashing, if we could demonstrate the occurrence in the field of operation of signs of nature's overefforts of repair in a more or less extensive thrombosis of the venous circulation. Autopsies in this particular class of cases are, however, provokingly free from evidences of mechanical phenomena, and generally leave us as ignorant as ever, much less furnish any hint how to apply the benefits of experience to our further practice.

The absence of a demonstrable mechanical sequence gives a certain support to those who refer the formation of the original clot to the right heart with extension or transmission to the pulmonary ar-

*Read before the Surgical Section of the New York Academy of Medicine, December 4, 1908.

tery, or even developing primarily in that vessel. While such an explanation sounds attractive in certain cases, it fails to appeal to me when it is sought to apply it to the particular class of cases we are considering—persons in good health free from circulatory lesions. It is ridiculous to say that such people can get up a stagnation of the circulation merely from a few days' confinement to bed. This theory is, however, the popular one and its lack of value will be duly considered.

No end of views have been advanced—some of them quite fanciful, while others seem reasonable in the class of cases first mentioned, but none will satisfactorily cover those we are more particularly interested in.

In a very few instances there is an explanation in the presence of phlebitis or thrombosis of some portion of the venous system at a distance from the operative field, such as the deep pelvic veins or the femoral vein, usually the left. This condition simply changes the form of the inquiry to—why the phlebitis? Why phlebitis of the left femoral vein follows an "interval" appendectomy has, of course, been widely discussed. None of the manifold explanations holds water, and it does not lie in the scope of this paper to discuss this phase, which seldom enters into the conditions we are interested in.

In seeking for light on our subject we turn naturally to some of the elementary conditions, such as age, sex, kind of operation, wound healing, etc. Some of the observations here recorded are derived from tabulating a hundred and odd cases obtained from various sources, but the dissimilarity of the conditions forbids any attempt to formulate them except tentatively.

The sex—there does not seem to be any preponderance. Lotheissen, however, finds it much more frequent in men. The age is of some significance, for only about fifteen per cent. are recorded as under forty, while a considerable majority come between forty and sixty. None was noted before twelve or over eighty. It is interesting to note of the cases which were described as pulmonary embolism of an accute and dangerous type, but recovering; the subjects were practically all quite young.

Anesthesia, or the kind of anesthesia throws no light, death following all forms, including local and spinal. Suppuration, though possibly a factor, as one can readily understand, is not necessarily so, as many autopsies showed absolutely irreproachable conditions.

Naturally vascular changes and distinct blood alterations, if present, might be blamed. Likewise hemorrhage antecedent or occurring during or after operation. Milk diet even has been under suspicion and it has been proposed to decaleify it by the use of citric acid.

A factor that stands out most prominently is the location of the operative field, practically always below the belt—laparotomies, hermotomies, or operations on the extremities.

Finally we come to the most prominent feature—the influences of confinement in bed in promoting coagulation and the formation of clots. As showing the diversity of opinions on this particular point and of the etiology in general, the following notes are appended, being taken from the discussion of Trendelenburg's, Kümmell's and others' papers on this subject at the German Surgical Congress of 1908:

Rehn of Frankfort does not favor getting patients out of bed so early. Pulmonary aeration may be a protection against marasmus thrombi, but not against the septic.

Lauenstein of Hamburg says postoperative emboli are due to sepsis.

Abel of Berlin holds that in gynecological practice nothing is to be gained by getting patients out of bed early unless in the case of elderly individuals.

Meinert of Dresden thinks the majority of postoperative emboli are due to concentration of the blood from loss of water during the operation. Consequently a generous supply of water even during the operation is indicated.

Olshausen of Berlin says that in embolism after laparotomy, myomectomy stands the highest, perhaps the elevated pelvis, the patient hanging down on her flexed knees, is to blame. Shoulder supports should be used to counteract this fault.

Muller of Rostock says that following fatal embolism dilatation of the saphenous vein is often observed at the autopsy, which may have favored the formation of a thrombus.

Gebele holds that the chief prophylactic factor of pulmonary embolism is asepsis. Cardiac stimulation and pulmonary gymnastics are important. After laparotomy he would keep the patient fourteen days in bed, and getting up earlier may be the cause of embolism.

Henle of Dortmund, influenced by the bad results of getting patients up early in the Breslau Clinic, keeps his patients fourteen days in bed. The lower extremities are massaged to prevent thrombus formation in the saphenous vein.

Hochenegg of Vienna thinks the most important factor is infection from the intestinal canal; early purgation is recommended.

Körte keeps laparotomy patients fourteen days in bed to get a sufficiently firm union; getting up earlier is dangerous, as plugs in ligated vessels may be dislodged.

Krönlein of Zurich says that in view of the greater frequency of emboli in gynecological practice research regarding a peculiar condition of the pelvic veins in the female should be made.

Heller of Quedlinberg believes that patients with incisions above the umbilicus should get up early, as they have greater difficulty in breathing in the prone position.

Löbkin of Bochum says that circulatory conditions should be considered and the urinary output watched; subcutaneous infusions may be judiciously employed.

Eiselsberg of Vienna keeps laparotomy patients in bed two weeks, a shorter period is distasteful to them.

The most popular single theory of to-day makes immobility and confinement to bed play an important part in the formation of venous thrombosis. As has been already stated, while we may admit its possibilty in elderly people, those with cardiovascular and chronic pulmonary lesions, the cachectic and the subjects of dyserasias—again I repeat, it is ridiculous to say that such is the course of events in healthy and relatively young subjects as a result of putting them to bed for a few days. As a matter of fact, and I wish particularly to emphasize this most important point, *the majority of cases of embolism occur early after operation.* I have grouped my collection of cases into three classes: First week, second week, and all later cases up to three months; and we get these signifi-

cant results—a steadily declining proportion of emboli: First week after operation, 60 per cent.; second week after operation, 29 per cent.; all others up to three months, 16 per cent. Moreover, there were more deaths in the first and second twenty-four hours after operation than on any other days. Some of the patients, it might be noted, had been up and about for days, even weeks, when the fatal accident occurred.

Similar observations are recorded, *e. g.* Ranzi of Eiselberg's clinic reports: First five days, 23 cases; second five days, 9 cases; third five days, 8 cases; fifteenth day to three months, 7 cases. If the above data shall be found to be consistent such findings must obviously agree against the growing tendency to rush patients out of bed; some operators let patients go about the day following a laparotomy.

If so many cases of embolism occur early it is obvious that phlebitis, particularly of the femoral vein, cannot often be a factor, as phlebitis comes at a later period.

Having taken up the main points of interest, what do we find? Practically only three factors stand out prominently.

First. The age of the patients—young individuals are more or less exempt, and if affected may perhaps recover presumably on account of the yielding elasticity of their vessels which may allow the blood to push its way beside a clot. The age from forty to sixty being most afflicted, we are probably dealing with conditions of vascular changes over which the operator has little or no control. He should, however, be more on the alert to recognize or anticipate such changes, and their existence should be considered in operations which are a matter of expediency rather than actual necessity.

Secondly. That practically all those cases of embolism follow interventions below the diaphragm and even lower "below the belt." Therefore we must study the local conditions more closely for further light.

Thirdly. That at the present time there is little or no justification in rushing patients out of bed as a routine measure, it being granted that in individual cases and conditions a preexistent or suspected tendency to stagnation or coagulation should be counteracted by this and other measures.

I may say that I have felt that this encouragement of a strenuous convalescence has sometimes originated in a desire for a speedier rotation of cases in overcrowded wards.

What, then, shall we do to prevent pulmonary embolism in the seemingly preventable cases? I think the matter must still be left open; but I feel very strongly that we ought to make it a subject for constant study, and the main object of this paper was to center attention on it. Personally I intend to continue this preliminary work, hoping that eventually data of a convincing character may be obtained for our guidance. I take the liberty hereby to invite my surgical colleagues to favor me with details of such cases which, if they attain a sufficient number, may lead to valuable information. For data so obtained must be much more reliable than indiscriminate statistical compilations.

As Dr. Willy Meyer will tell us this evening about the attempts of Trendelenburg to remove the clot from the pulmonary artery, the subject can be omitted from this paper. While according a full measure of admiration for the conception of this procedure it seems doubtful if it ever can be of great value and that, for the occasional success which may result, other individuals who might possibly have overcome the condition might find in the severity of this operation their *coup de grace*.

The operation is described in several of the literature references:

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A CASE OF ADDISON'S DISEASE, WITH AUTOPSY.*

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ALTHOUGH the clinical picture of the disease accurately described by Thomas Addison in 1855 and called by his name has undergone little change and no improvement, the pathological lesions underlying the picture are still undetermined and no more clearly defined than in his day.

Whether Addison's disease is due to organic or functional changes in the adrenals, in the sympathetic nervous system, to a combination of both, or to neither, but to some other unknown cause, is still dark ground in pathology, and cases have been reported exhibiting the clear-cut clinical picture of Addison's, with post-mortem findings, which might be classed under any one of the foregoing etiological heads. The spirit of agnosticism pervading an exhaustive article in "Ziemssen's Cyclopedia" by Merkel, in 1875, runs with equal or greater prominence through Reis's excellent résumé on the subject in 1907—a generation later.

A weak heart and pulse, discolorations of the skin and mucous surfaces, great muscular debility, gastric and intestinal irritation, and anemia appear in the clinical picture with constancy and strength, while the post-mortem findings of the reported cases reveal themselves in discouraging variety. Addison, himself, after the publication of his original article, on further study of the disease, switched from the adrenals to the sympathetic nervous system as the organic structure necessarily implicated.

The rarity of the disease and the scarce and scattered autopsy records are no doubt largely responsible for the lack of harmony between individual reports, and the resulting difficulty of drawing safe conclusions as to the true pathology of the disease. Osler has personally observed but seventeen cases. The records of St. Vincent's Hospital for the last seven years contain but two cases. The records of the New York City Board of Health show, in 1906, out of 76,203 deaths, but six from Addison's disease, and in 1907 but thirteen out of a total death

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record of 79,205. As Addison's disease is invariably fatal after an average course of two to three years, the number of deaths in two consecutive years would be a fair estimate of the number of cases. Of course, the number of autopsies is much less. Upon these grounds the following case, with autopsy, seems entitled to record:

Domenico F., Italian, entered St. Vincent's Hospital, January 15, 1907. His estimated age was 54 years. His occupation a hatter. He spoke no English and but little intelligible Italian. Had no friends, and the only history elicited was extracted from him after repeated questionings in all kinds of Italian. His reluctance to answer questions seemed partly due to his lack of understanding, but mainly to a desire to be let alone. He answered affirmatively or negatively, apparently according to which word came first and easiest and with no manifest interest or regard to the facts of his case. Under such circumstances the history was incomplete and unreliable.

When roused his mind was rational, and he impressed one as being not stupid but pertinaciously indisposed to make the slightest exertion of voice, nod of the head, or even wink of the eye. His very facial expression was a literal translation of "that tired feeling." His face, hands, and arms were rather deeply bronzed, of uniform hue, but not exceptionally dark for a native of Southern Italy. No other bronzed patches were present on the body, nor were pigmented spots seen on the skin or mucous surfaces. He denied pain and gave no evidence of local tenderness. The radial pulse was almost imperceptible. Taken from the brachial it was comparatively slow (84), extremely low tension but regular in force and frequency. There was no demonstrable thickening of the arterial wall, which had a soft and almost flabby feel.

Solid food he absolutely and strenuously (for him) refused, taking liquids sparingly and under persuasion. Whether this was due to the extra muscular exertion of mastication or swallowing, or to some prior ill effects of food on the stomach and the fear of a repetition of the disagreeable experiences, was unknown; but his constant and sole response of "non potet" (not able) when urged to take food, inclined us to the latter opinion. He was fairly well nourished. No abnormal nervous symptoms, objective or subjective, could be made out. His general appearance suggested a rather grave anemia, but the blood examination recorded later did not carry out the suggestion.

The meager history which was obtained embraced an illness of three weeks before admission, the dominant symptoms of which seemed to be a general and progressive weakness and a failing appetite. He admitted some vomiting and transient pains over the epigastrium. Little information could be gathered and nothing of importance about his family or personal history prior to this present illness. A careful examination revealed in addition to what has been stated a dull and apathetic expression, eyes slightly icteric, mouth, tongue, and teeth foul and coated, and an expired breath with an odor resembling that of putrid fish. No pigmented spots were to be seen on any mucous surface.

The heart's apex beat was made out with difficulty in the normal area. The sounds were weak. No murmur could be detected. The right lung was congested at the base, otherwise normal. The left lung presented some rales with dullness and signs of slight consolidation at the apex, also a congested area at the base. The spleen was hard and easily felt below the border of the ribs. Pulse 84. Temperature 99.4°. Respiration 18.

The next day, January 16, urine, quantity 21 oz. in 12 hours. Has trace of albumen and considerable indican. Few hyaline and granular casts, otherwise normal.

Blood.—White corpuscles, 12,000; erythrocytes, 3,900,000; hemoglobin, 80 per cent. Differential count; Polynuclear leucocytes, 73 per cent.; mononuclear, 4 per cent.; lymphocytes, 22 per cent.; eosinophile, 1 per cent.; basophile, 0 per cent.

In the six succeeding days no new symptoms appeared, but those already mentioned became more and more pronounced, particularly the failing heart, the mental apathy, and the physical weakness. Vomiting occurred a few times. The temperature ranged from 98° to 99.6°, and the pulse, while constantly fainter, never went above 98, nor so far as ascertained did it lose its uniformity in force or frequency. Stimulants in generous doses had not the slightest influence on its action. Adrenalin was given by the nedle, but with no appreciable effect.

The patient died January 22, seven days after admission.

Autopsy at St. Vincent's Hospital, January 27, 1907, by Dr. G. R. Satterlee, to whom I am indebted for the following notes:

Body is that of a well-developed male. The panniculus adiposus is well marked, but the skin shows some wrinkling caused by loss of flesh. The skin shows slight bronzing, particularly over the face; no patches of pigmentation are present.

Chest and lungs.—The left lung is bound down to the pleura by very extensive old adhesions. There are a few old healed tubercles at the apex and marked congestion at the base of the left lung. There is a moderate amount of interstitial fibrosis. Over the right lung there are a few old adhesions, especially at the right apex. There is a moderate degree of interstitial fibrosis and congestion at the base.

Heart and vessels.—The aortic arch shows a few fatty patches of atheroma. The right auriculoventricular orifice admits four plus fingers. The valves show patches of thickened intima but no actual ulcers. The walls of the right heart are extremely thin: the cavity contains a moderate amount of antemortem clot. The left auriculoventricular opening admits one and a half fingers; the valve shows a slight thickening. The walls of the left heart are very flabby; the muscle is very pale and fatty. The aortic valves are normal. The coronary arteries are apparently normal.

The spleen is enlarged to about one and a half times its normal size. The organ is bound down and firmly attached to the omentum by old adhesions. There is a marked amount of perisplenitis; the tissue is very firm, pale and shows a moderate amount of interstitial splenitis.

Kidneys.—The left kidneys is normal in size; the surface is smooth; the capsule non-adherent. The cortex is thin and shows a moderate amount of fatty change. The capsule of the right kidney is moderately adherent; the cortex and rest of the kidney is the same as that on the other side.

Adrenals.—Both adrenals are occupied by large irregular firm white tumors, nodular in character, and about 7 cm. long by 3 x 2 cm. in thickness. Cut surface shows small necrotic and apparently hemorrhagic areas. There does not seem to be any normal adrenal tissue left.

The ureters and bladder are normal. The prostate is normal except for a slight fibrosis.

The liver is small, the tissue firm and shows a considerable amount of perihepatitis. There are two small calcareous nodules about the size of peas underneath the capsule. The cut surface of the liver shows irregular patches of fatty infiltration. No secondary deposits of any kind can be seen.

The gall-bladder contains about 30 c. c. of dark green bile. The gall duct is patent.

The stomach is dilated, the muscular wall is thin, the rugæ are absent, and there is a small ecchymotic spot in the mucosa.

The small intestine shows a few ecchymotic patches about 12 inches from the duodenojejunal junction. The retroperitoneal lymph nodes in the region of the jejunum are considerably enlarged, hard and massed together, forming by their pressure a partial stricture of the gut. The sympathetic ganglia are surrounded by masses of these enlarged glands. Section of these glands shows them to be white fibrous in character. The abdominal aorta is normal, except for two small fatty plaques.

Cause of death.—New growths in both adrenals (tuberculosis). Fatty degeneration of the heart, liver, and kidneys, the disease commonly caused by these conditions being Addison's disease.

Microscopical Examination: Heart.—Section of the wall of the left ventricle. The heart cells stain faintly with eosin and show considerable vacuolization of their cytoplasm; the striations are faintly marked and there is a moderate amount of hematogenous pigment. There is no increase of the interstitial tissue. The blood vessels are normal. The endocardium is normal. Frozen sections stained with Scharlach show fatty vacuolization of the cardiac cells.

Liver.—The liver cells show fairly well marked vacuolization and fatty degeneration of their cytoplasm and the nuclei are faintly stained. There is no increase of the intracellular or periportal connective tissue. There is, however, a considerable infiltration of the capsule of Glisson with lymphocytes, and to a certain extent in the intralobular capillaries. The bile ducts in places show a moderate amount of proliferation. The blood vessels are normal. Section of a calcareous nodule on the surface of the liver shows it to be outside of the liver parenchyma in the external capsule, and around it a slight amount of perihepatitis.

Spleen.—Aside from a moderate amount of congestion of the blood vessels, the organ appears normal. There is a moderate amount of hematogenous pigment. The blood vessels are normal. The same can be said of the accessory spleen.

The abdominal aorta shows one large fatty degenerated area, involving the intima and about one-half the media.

Pancreas.—There is a marked degeneration of the epithelium of the acini, which is probably fatty in character. There is no abnormality of the interstitial tissues, ducts, blood vessels, nor of the islands of Langerhans.

Kidneys.—The epithelia of the convoluted tubules are very markedly degenerated and broken down, and in some places show destruction of both cytoplasm and nucleus. Stained with Scharlach and saffranin, the cytoplasm of the cells shows very marked fatty degeneration. The glomeruli are somewhat swollen; the cells of the capsule of Bowman show some fatty degeneration. The epithelia lining the collecting and straight tubules show also fatty changes. The capsule of Bowman is somewhat thickened and shows hyalin degeneration. Both large and small blood vessels are much congested, the walls of the larger ones showing slight hyalin degeneration. There is no increase in the interstitial connective tissue. There is a small collection of lymphocytes near one of the veins.

Renal artery shows a slight hyaline degeneration. The lymph nodes, mesenteric, and retroperitoneal show marked hyperplasia but no necrosis. The thyroid gland; normal. The large intestine; normal.

Sections of the tumor of the right adrenal.—The tumor consists almost entirely of a round-celled infiltration without the formation of distinct tubercles. Scattered throughout are areas of coagulation necrosis, on the edges of which are numerous large typical giant cells with multiple nuclei, situated peripherally, as many as fifty or more, deeply staining but often fragmented. The cells in the remainder of the tissue are chiefly lymphocytes with some polynuclear and plasma cells, and a few scattered epithelia, probably remnants of the epithelia belonging to the parenchyma of the adrenal body.

The right adrenal shows similar conditions, but modified by post-mortem changes.

Diagnosis.—Tuberculous inflammation of both adrenal bodies.

The sympathetic ganglia.—Many of the ganglia cells contain an excessive amount of brown pigment. All the ganglia cells show a fair amount of chromatolysis.

Pathological Diagnosis.—Tuberculous inflammation of the adrenal bodies, fatty degeneration of the heart and liver, chronic parenchymatous, and glomerular nephritis with fatty degeneration of the kidney cells, fatty degeneration of the pancreas, hyalin degeneration of the blood vessels, dissemination of the tubercular process into the retroperitoneal and mesenteric lymph nodes, and possibly commencing in the liver and kidneys. Degeneration of the ganglia cells of the sympathetic ganglia.

This case seems to come under that class of Addison's in which both the suprarenal capsules and the sympathetic system are affected, the former by tuberculosis, the latter through pressure on its large ganglia by the adjoining enlarged lymph nodes, causing degeneration of the ganglia cells. This is the pathology of the disease at present accepted by L. Reiss of Berlin.

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CONGENITAL ABNORMALITIES OF THE PENIS AND THEIR INFLUENCE UPON THE ACQUISITION AND COURSE OF GONORRHEA.*

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The penis, more than any other organ, member, or feature of the human body, is subject to the most various changes in development and in appearance. Its size may vary from less than nothing, being merely an invagination of the skin, to an enormous member of formidable dimensions. The prepuce may be altogether absent or reach a development entirely out of proportion to the size of the

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organ itself and the opening thereof may be contracted to the caliber of a fine needle, or it may even be imperforate. The meatus may be located at any point in a median line extending from the penoscrotal junction on the lower surface along the raphé and frenum to the apex of the glans and from this point along the dorsum to the pubis, while its size varies from a pin hole to a slit occupying the major portion of the glans. It may also be double or triple, or completely absent. The urethra also manifests the most amazing complexity of form and branching in various subjects.

Stranger still are the variations of development in so-called hermaphroditism, in which the outlines of the penis recede, as seen in a series of cases, losing more and more their distinctive character, until the walls of a hypospadiac urethra come to correspond to the labia majora and the rudimentary penis to a clitoris, and an almost perfect imitation of the external female genitals is produced. Certainly the penis is the most versatile member of the human anatomy in its variations from the regular type.

The first of these abnormalities which I shall consider and the most simple and frequent is the contracted meatus. The normal meatus, in an average sized penis, has a length of about three-eighths of an inch and should let pass a number 30 Fr. sound with ease. There are, however, many meatuses which are apparently contracted, *i.e.* their length is a third or more less than that above stated, which in reality are not functionally contracted, since they permit the passage of a large stream of urine without effort and admit a 30′ sound easily.

At the other extreme is the "pin-hole" meatus, sometimes not larger than a fine needle. Such a meatus has in gonorrhea a similar effect to that of an insufficient opening of an abscess. The secretion is dammed up and while the apparent discharge may be slight, there is an unusual amount of pus within the urethra and the gonococci are very much more likely to penetrate the mucous membrane deeply, to enter the urethral follicles, and to migrate to the posterior urethra and to the prostate and seminal vesicles. Of course such a case may recover promptly, but this is due to the greater resistance of the tissues, which, in my opinion, is not caused by their more perfect vitality, such as furnishes protection against infection by the tubercle bacillus in the lungs, but by their anatomical structure, the mucous membrane being less permeable and the mouths of the follicles and the ejaculatory and prostatic ducts smaller or at least less pervious for the germs than in the severer cases. That such an idiosyncrasy exists in these cases is demonstrated by the fact that patients who suffer from severe or obstinate complications or from gonorrheal rheumatism during their first attack of gonorrhea, generally are affected by the same complications at subsequent attacks. It is my custom, in a case of either acute or chronic gonorrhea, to enlarge such a meatus at once, if the individual will consent, although I have sometimes lost a patient by the suggestion.

Now as to the moderately contracted meatus. If the course of the disease is favorable, especially if it remains confined to the anterior urethra, I let it alone. In a good many cases of long standing, however, some instrumentation is necessary to a cure, in my practice at least, and a meatus which cannot be dilated above 25 Fr. will not admit an instrument large enough to be effective.

As to the relative frequency of contracted meatus I have no data, not, up to this time, having made or seen any notes upon the subject. One thing is certain, however, that circumcision in some manner causes this condition, for the majority of Hebrews present it to a greater or lesser degree.

Dr. E. S. Talbut gives statistics[1] obtained from three of the leading rabbis of Chicago. One of them who had circumcised 3,400 boys found the prepuce absent in about 3½ per cent. of the cases. Another, who had performed circumcision 10,000 times found the prepuce lacking in 500 cases, partially developed in 300 cases, slightly developed in 2,000 cases. The third had performed 4,400 circumcisions and found the prepuce absent in 15 cases, partly wanting in 200, and only slightly developed in 2,200 cases, *i.e.* over 50 per cent. of abnormal development. Absence of the prepuce does occur in other infants, but so rarely that I doubt if any one in the room has observed it.

In view of the above facts as to the hereditary transmission of an acquired mutilation, technically speaking (personally I am in favor of circumcising all infants whose prepuce covers the glans) it is evident that other parts of the male organ may also be influenced and a tendency to contracted meatus be transmitted. I formerly attributed it to injury of the meatus by cutting too near the glans, but the proportion of cases is too large to be in accord with this theory.

The contracted meatus (which, however, is often very dilatable) and, as a rule, narrowed urethra, which accompany hypospadias, are also obstacles to rapid recovery from gonorrhea, especially in cases where instrumentation becomes advisable.

A long prepuce with a narrow opening may act in the same manner as a contracted meatus in prolonging a case of gonorrhea, and I have seen a few such cases in which circumcision was necessary before a cure could be effected.

Another abnormality of the urethra which occasionally affects the prognosis of a gonorrhea is the presence of what are termed accessory or paraurethral canals. The Germans call them "paraurethrale Gänge," and the French "canaux accessoires." The earliest mention of this condition was made by Andrew Vesalius in 1543. In his work "De Humani Corporis Fabrica" he speaks of a law student who had two openings in the glans penis, one of which ejected semen and the other urine. The old surgeon Guilhelmus Fabricius Hildanus writes, in the year 1600, of a twelve year old boy whom Nature had provided with two urethræ through both of which he passed urine without difficulty. They were situated at the usual locality, one above the other and separated by a thin membrane, the lower being somewhat deflected so that the stream was directed downward. Similar cases have been occasionally reported since, but only in 1885 did Oedmansson of Stockholm call attention to their importance as regards gonorrhea. He speaks of an "urethritis externa" in which these passages are inflamed without any urethral infection. Already before this time, in the "Anatomical Nomenclature" published at Basel, there had been mentioned, as occurring in women, the "ductus paraurethrales," consisting of the openings of very narrow canals existing at the side of or posterior to the female meatus urinarius and communicating with microscopic urethral glands. These are said to be often the seats of gonorrheal infection, sometimes independently of the urethra.

Jadassohn[2] makes the first classification of these passages. His first class includes the preputial canals opening on the prepuce or at either side of the frenum, which he regards as displaced Tyson glands or crypts, *i. e.* gland-like invaginations of the epidermis. The second class includes the minute canals opening close to the meatus or on the mucous membrane just within the urethra. He considers it possible that these in reality consist only of abnormally placed openings of some of the Littré glands. The third class consists of canals on the under surface of the penis, near or crossing the raphé. He mentions a fourth group of canals upon the dorsum of the penis, but has observed no cases of this variety.

Strictly speaking, the term paraurethral canals, as Stieda[3] points out, should only be applied to the second class of cases. For the third class he suggests the term "ductus cutanei penis."

The most common form of these canals is the so-called "double urethra." The title is a misnomer, according to Le Fort,[4] who has published a report on the various fistulæ of the penis and who maintains that this double urethra is not a second urethra at all, but a pouch with a blind ending, generally a continuation of the lacuna magna to the meatus.

In spite of Le Fort's contention, however, there are in medical literature, three authentic cases of true double urethra, in which there existed two separate canals leading from the bladder to independent meatuses upon the penis, the upper canal in each case terminating in an epispadiac opening on the dorsum.

Pribram[5] reports one case. There was a moderate epispadias, the normal urethra opening upon the dorsum of the glans one-eighth of an inch behind the tip. At the border of the pubic hair, exactly in the middle line of the dorsum, was a second, funnel shaped opening, admitting a No. 28 Fr. sound, and easily dilatable to twice that size. The canal was one and two-fifths inches deep, ending apparently in a blind pouch where the two corpora cavernosa unite. The patient died later and at the autopsy it was found that a similar blind pouch emerged from the bladder above the vesical end of the urethra and almost joined the external one, the two being united by a short fibrous cord under the pubic bone where the canal had been obliterated. In this case two urethræ had evidently existed primarily, the upper one being later occluded for a certain distance.

Meissels[6] mentions a man 27 years old, who had since childhood an opening on the dorsum of the penis, two-fifths of an inch behind the glans. At ejaculation there was an outpour of fluid from both openings. Urination occurred promptly from the normal urethra, but there was a feeling as if it were trying to pass by the other also. A No. 15 Fr. sound could be passed to the distance of five inches. On injecting permanganate solution in the abnormal opening, most of it could be passed by urination through the normal urethra. No opening of this passage into the normal urethra could be found with an urethroscope.

Stockmann[7] relates an interesting case concerning the double urethra as to the existence of which there cannot be the slightest doubt. The young man, twenty-four years old, had had chronic gonorrhea for four months. On retracting the foreskin there was exposed a deep furrow, covered with mucous membrane, extending from the meatus along the dorsum of the glans and pendulous portion, nearly to the pubes. At the anterior extremity was the orifice of the normal urethra about in its usual position, but lying concealed at the bottom of the furrow. At its posterior extremity a fold of the prepuce bridged over the furrow, forming a funnel shaped opening through which a No. 10 Fr. catheter could be passed into the bladder without difficulty, and a free flow of urine followed. An 18' catheter was then passed through the normal urethra, when urine flowed freely from both catheters. On ordinary micturition the urine began to flow first from the upper opening and a few seconds later came from the normal urethra. During coitus no semen appeared at the time of the orgasm but somewhat later flowed from both orifices. On urethroscopy no opening connecting the two urethræ could be seen nor could a catheter lying in the upper urethra, but, on cystoscopy through the normal urethra, a catheter passed through the upper urethra could be seen projecting into the bladder.

The cause of all these anomalies is gone into thoroughly by Stieda, Rona, and others in studies on the development of the fetus, but it would take up too much space to enter upon the subject here.

A very few cases of triple urethra have been mentioned. Luxardo[8] describes a case of gonorrhea in which there were three openings at the site of the meatus, one of which gave exit to semen but not to urine. Of course this could not be termed a true urethra. The two lower passages appeared to communicate and both had gonorrhea.

Dr. E. B. Ward[9] reports a similar case of his own. "A young gentleman called at my office for treatment and on examination I found that the same anomaly occurred in this case (as above), *i.e.* the meatus presented three distinct openings. Nor was this anomaly confined to him but his two other brothers presented the same rare specimen of malformation."

Not infrequently we find blind canals of varying depth emptying within the urethra, at any point between the external sphincter and the meatus. Rarely or never are such canals found in the posterior urethra, as the glands of its mucous membrane are fewer and less developed. We occasionally meet a case in which the cause of the persistent or relapsing character of a gonorrhea is cleared up by the use of the urethroscope. We find a blind canal of greater or less depth, which presents pus containing gonococci at its opening, especially on being stripped by the finger from without, while the remainder of the urethra is nearly normal. If such a sinus is a quarter of an inch or more in depth it should be slit open with a narrow, probe-pointed knife, the urethroscope being inserted so that the opening of the sinus lies just beyond its distal extremity. Even after this is done the infection may persist in the portion of the canal which cannot be divided, owing to the probe point of the instrument. In such a case as well as in canals less than one-fourth inch in depth, a cure may be effected through adhesive inflammation, set up by the introduction into the sinus, by means of the urethroscope, of a fine silver or copper wire upon which lunar caustic has been fused. This is easily accomplished by holding a piece of the caustic near to an alcohol flame until it softens and then drawing the extremity of the wire through it.

In German medical literature one reads of a great many cases of relapsing gonorrhea, in which the patient, after being apparently cured, develops a reinfection, although denying any possible exposure,

and in which the gonococci are found in one of these minute pouches whether at the meatus or within the urethra. Their caliber may vary from the size of a fine cambric needle to that of a knitting-needle and larger.

These paraurethral passages also exert a certain influence upon the acquisition of gonorrhea. As is well known, intercourse with a gonorrheal woman, even when in the florid stage, is not certain to transmit the disease. I have known of numerous instances where two individuals performed coitus with the same woman in succession and only one was infected with gonorrhea. As a rule it is the first offender who becomes the victim, he seeming to absorb or mechanically remove all the discharge, but this is by no means always the case, and I had one patient who was the last of three; yet he acquired the disease while the others remained free. The two former took the precaution to urinate directly afterward, thus probably washing away whatever pus had entered the meatus, which the third neglected to do.

In the presence of a paraurethral passage, some of the virus may lodge therein, while the urethra itself is not primarily infected, owing to the cleansing effects of micturition. Some of the cases of apparently excessively long incubation have proved to be due to this cause, the infected follicle having caused no noticeable symptoms until the urethra itself was invaded by an overflow of germ-containing pus therefrom.

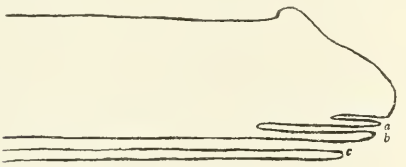

FIG. 1.—Illustrating a case of triple urethra; *a* and *b*, supernumerary urethræ; *c*, normal urethra.

I have seen quite a number of cases in my own practice (how many it is impossible to state, as all my records were destroyed by fire in 1904) of so-called double urethra and a very interesting case of triple urethra. I have been able to find but four such cases on record, those of Luxardo and Ward.

CASE I.—The patient, F. A., 26 years old, unmarried, was of good heredity and general health. He had suffered from one attack of gonorrhea, four years previously, which lasted two months. Six weeks before he consulted me (February 23, 1905) he had acquired gonorrhea. The acute symptoms had lasted but two weeks. Since that time he had had a slight, moderately thick, yellowish discharge on rising, but very little during the day. He had no pain on urinating, but some frequency during the day time only. He complained of pain in his loins and across the abdomen. He presented a moderate hypospadias, the urethra being only 1/16 inch from the lower edge of the glans, and of very small caliber as are all such urethræ. Above this, separated by a thin layer of tissue, was a second passage 1¼ inches in depth, and above this a third canal one-half inch in depth, both having about the caliber of a darning-needle, as shown in Figure 1.

There was a slight mucopurulent discharge, a few epithelial cells, and a moderate number of gonococci. The first glass of urine was cloudy and contained pus-shreds, the second glass was also cloudy. The treatment consisted of the injection of a solution of an organic silver salt in the anterior urethra, which he was instructed to continue three times daily at home, and instillations of a stronger solution in the posterior urethra, which I made every other day. On March 2 he no longer had any discharge even on milking the urethra but both portions of urine were still cloudy.

I did not see the patient again till April 22, he having continued the injections for three or four weeks after his last visit. At this date there was a very slight mucous discharge from the urethra on expression, containing principally epithelial cells, very little pus, and no gonococci. The first glass of urine was clear and contained a few small, floating shreds. The second glass was also clear. The middle urethra was normal but the superior contained a small amount of pus, with a few epithelial cells and a moderate number of intracellular gonococci. This passage was then treated with a 10 per cent. solution of silver nitrate by means of a blunt-pointed hypodermic needle and the case progressed favorably.

On October 3, he returned for a final examination, when there was no discharge from the urethra proper. The first glass of urine was clear and contained one shred consisting principally of epithelium with a few pus cells; second glass was also clear. In the upper urethra there was a very little moisture, containing mostly epithelium with some pus cells and what are termed secondary bacteria, but no gonococci. Had not this persistent gonorrheal infection of the supernumerary urethra been discovered and cured, this patient would have gone on reinfecting himself indefinitely as often as the true urethra was healed.

CASE II.—A very interesting case is that of J. H., 24 years old when first seen in 1899. At that time he had a very severe paraphymosis, which his physician had not tried to replace, following a gonorrhea of five days' duration. The urethritis proved obstinate until I discovered a paraurethral canal within the meatus at ⅛ inch distance. On slitting this open to a depth of ⅜ inch, apparently to the bottom, the gonorrhea healed promptly, leaving however a slight catarrhal urethritis which lasted several months, until he was treated for a chronic seminal vesiculitis, when the discharge entirely disappeared and the urine became perfectly clear with a very few minute shreds. His potency which had become almost nil was regained and he had good morning erections.

On October 27, 1906, twelve days after coitus, this patient came to me with a slight discharge, containing pus and gonococci. First glass of urine cloudy, second clear. Treatment for the first few days, organic silver injections six times a day, afterward three. Gonococci were present occasionally till November 30 when, on passing an acorn bougie No. 21, French, I found an obstruction at 3½ inches from the meatus which yielded rather easily. Directly afterward a large drop of pus appeared at the meatus. He had urinated just previously. His condition improved then steadily till on December 13 there was no discharge, the first glass was clear with very few shreds and the second glass was also clear. He took the beer test the next day and reported the evening of the 15. While waiting his turn he had to go out and urinate. I, of course, expected to find no discharge five minutes after urination, but on compressing the glans a thick drop of pus oozed out containing numerous gonococci. On urethroscopic examination I discovered a paraurethral canal ¼

inch from the meatus and about ⅛ inch left from the median line below, exactly at the site of the canal opened 6 years ago. A filiform bougie entered this to the distance of 1¼ inches. I immediately began injections of 10 per cent. argyrol solution to the bottom of this passage every other day and, as there was no improvement, a few days later entrusted the patient with self-treatment by means of a long, blunted hypodermic syringe twice daily, continuing the ordinary urethral injections.

No result appearing I changed the solution and subsequently used myself a 12 per cent. tincture of iodine, seeking to produce an adhesive inflammation from the bottom. This also proved futile and 10 per cent. nitrate of silver was resorted to. The urine cleared for three or four days, when again a drop of gonorrheal pus could be expressed. I then sounded the passage again with a filiform, and to my surprise, found a second passage 2⅛ inches deep, apparently a branch of the former, as I could find but one opening in the urethra. On introducing two filiforms of equal length, till they struck bottom, the one protruded nearly an inch beyond the other.

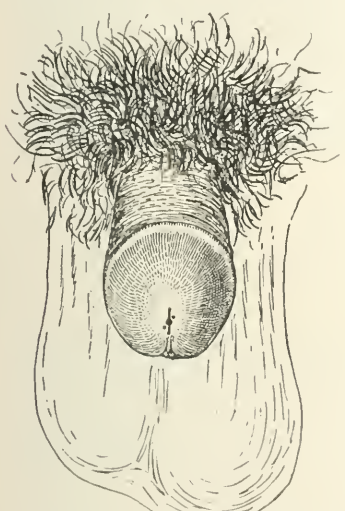

Fig. 2.—Illustrating Case V; the two dots alongside the meatus represent the follicular openings.

I believe this to be the explanation of the persistent infection, that the solution injected entered only one canal, probably generally the shorter. This was obviated by leaving the filiform in the shallower canal, when the needle could only enter the deeper one. Then the reverse tactics were employed. The urine cleared in a few days, but two or three days later pus with gonococci again appeared. With a two-bladed urethral speculum of my own design and Bierhoff's lacunar knife I then divided the canals nearly to the bottom, but the eighth-inch of canal left uncut, owing to the probe point, still give vent to pus with gonococci. This condition was overcome by treatment with lunar caustic fused upon a fine copper wire as described above. The patient then made a rapid recovery which has since proved permanent.

Case III.—Several months ago a third gonorrheal patient presented a similar canal ⅝ inch deep, just within the meatus and ⅛ inch left of the middle line below, but it was never invaded by the gonococci.

Case IV.—In February last an out-of-town dentist consulted me, ten days before his wedding, for a relapsing urethritis which appeared after every coitus. He had a slight hypospadias, the urethral opening being at the ordinary site of the frenum. At the usual position of the meatus there was a dimpling in of the epidermis about 3/16 inch deep and the caliber of a darning needle. Neither opening was infected. He passed the beer and nitrate of silver tests without showing gonococci and consummated his marriage. Up to date there has been no infection of his wife nor any recurrence of his former trouble. The latter fact supports the theory of Keyes that marriage "by allowing healthy, natural, unstimulated sexual relations" acts "as a curative agent in morbid conditions of the urethra, especially if there be any nervous element present in the case."

Case V.—G. T. C., February 11, 1908. First gonorrhea eight years ago; lasted several months. Ever since that time urination has occasionally been painful and the lips of the meatus are glued together. Present gonorrhea began in August, 1907, was apparently cured in one month, but ever since has had recurrence on drinking. He has slight pain on urination and tenderness in suprapubic region. Slight frequency. Mucopurulent discharge containing pus, epithelium and gonococci. First and second glasses a little cloudy. Prostate boggy and painful; expressed secretion contains pus. Treatment: Massage, injection and instillation of protargol. February 15: Mucous discharge containing pus, more epithelium and one pus cell with gonococci. February 17: Purulent discharge containing gonococci. On the patient's describing an uneasy feeling about the meatus I found, only after the most minute examination, an extremely fine follicular opening, into which the smallest probe-pointed epilation needle could be introduced with difficulty. This was located at the edge of the right lip of the meatus, about ⅛ inch from the lower commissure and was ¼ inch in depth. At the middle of the left lip there was a similar minute opening about 1/16 inch deep. The lower opening, on expression, exuded pus containing gonococci. Between these two openings, on each side, there was a furrow, much redder than the remainder of the urethra, extending inward about ½ inch. I expected to find on urethroscopic examination that these led into urethral follicles, but they proved to grow shallower till lost upon the surface. The appearance of the meatus is shown in the accompanying illustration, the two dots representing the follicular openings.

Both follicles were treated by electrolysis and on February 21 appeared to be healed. On February 23 the right follicle was again open and exuded pus containing gonococci on pressure and was again treated by electrolysis. On March 2 it still contained a little pus with gonococci, but the urethral discharge was mucopurulent and contained no gonococci. First glass a little cloudy, second practically clear. I then used a piece of fine wire instead of the needle and enlarged the opening by electrolysis so as to be able to introduce lunar caustic, fused upon a wire as described above.

On March 6 this obstinate little channel still contained gonococci and I again introduced the lunar caustic wire. After this treatment it healed definitely and the case then progressed rapidly to a cure which withstood the beer and nitrate of silver tests successfully.

Case VI.—P. I., twenty-six years old. First gon-

orrhea seven years ago; cured. Second gonorrhea two years ago. He had no symptoms since eighteen months ago, except a milky discharge after urination during the past year, until three months ago he suddenly acquired a thick discharge and painful urination, which have persisted until now. He has been married one year and his wife claims she is well, but will not submit to an examination. Examination shows a purulent discharge containing gonococci. Both glasses of urine cloudy. Seminal vesicles much dilated, prostate large and boggy, both very tender; expressed secretion is purulent. Just above the meatus there is a slight dimpling in, representing a rudimentary double urethra. On the right lateral wall of the urethra, three-eighths inch from the meatus, there is an inflamed urethral follicle, nine-sixteenths inch in depth, from which pus containing numerous gonococci can be expressed. The patient states that one month ago this portion of the penis swelled as large as an olive, so that the right lip of the meatus was doubled over the left. After two or three days there was a profuse discharge of pus and the tumor subsided. After incision of the inflamed follicle, followed by rectal massage and injection and instillation of an organic silver solution for one month the patient recovered. It is a problem whether this patient had had a latent gonorrheal prostratitis since his last infection or had been reinfected by his wife.

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METHODS AND RESULTS OF DRAINAGE IN 22 CASES OF ABSCESS OF THE APPENDIX.*

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MODERN surgery has put forth the dictum that pus in the appendix is one of those sequelæ that should never have occurred, for the patient must needs be operated on before the stage of suppuration. Be that as it may, cases of appendical abscess do occur. It is easily understood why many cases in the country either proceed to the formation of abscess or else develop into diffuse suppurative peritonitis, as immediate operation may be out of the question. I may say, incidentally, that fourteen out of the twenty-two cases herein reported were seen out of the city, in consultation.

It is rare that the average physician in the country fails to diagnose properly a case of appendicitis, but, not unlike the surgeon, he cannot always diagnose the different stages of the pathological process.

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In the absence of proper facilities, it is better to adopt the Ochsner régime, and the Fowler position, pending consultation. Of the nineteen cases seen in consultation, four proved to be advanced cases of diffuse suppurative peritonitis, exceeding forty-eight hours' duration, with a mortality of 100 per cent.; while in one case of my own, a diagnosis of perforation was made and the abdomen was drained eight hours later with recovery. Mortality rates increase in geometric proportion to the number of hours after perforation, and statistics of recoveries possess no value, when the date of perforation is not given. In the four cases referred to rupture was believed to be primary, and occurred in those who gave no history of previous attacks. The presence of exudative remains of a previous attack gives a certain degree of protection to the peritoneum from the débris of a sloughing appendix, for those fulminating types are usually found in primary attacks.

If we could trust the strength of the walls of adhesions set up by Nature, it would be wiser to defer drainage until the patient undergoes a sort of autoinoculation of bacterial vaccines, which offer a certain degree of protection against chance infection while opening the abdomen in these cases, and this rationale would explain the wisdom of Ochsner's procedure under certain conditions.

In primary rupture, the ill-prepared patient is drowned, so to speak, in a flood of infection. As a rule, we do not have diffuse or general peritonitis late in the attack of appendicitis, for the phagocytic elements will protect the patient, if the escape of infection is gradual enough. While the infection is thus being taken care of, it would be decidedly unwise to invade the peritoneum during this particular stage of the disease. The refinement of a diagnosis of such a condition is well nigh unattainable, and while we are waiting for the walling-off process, the case may be merged into one of diffuse peritonitis. As infection gravitates toward the right iliac fossa, the disease becomes more securely walled off, and may be temporarily trusted to Nature.

If the pulse and temperature decline, it may be presumed that Nature is taking care of the infection, notwithstanding the presence of an indurated mass.

Bier's method of treatment by artificial hyperemia would seem to explain the favorable effects of poultices, which I prefer to the use of the ice-bag.

The position of the incision is to be determined by the location of the indurated area, and should be made below this mass, toward the anterior superior spine of the ileum, somewhat parallel to Poupart's ligament; for the caput coli usually overrides the abscess. When the abscess has developed toward the middle line, it should be invaded behind the colon, if practicable.

Short incisions were the rule in these cases, and when the angles are tightly packed, sufficient space is left for a loose wick of gauze. It is not necessary that the exit of a pus cavity should be as large as its greatest diameter, and long incisions do undoubtedly favor the subsequent development of hernia.

It may happen that the parietal peritoneum becomes adherent to that of the colon or intestines; and if such be the case, entrance should be made nearer the anterior superior spine. Having opened the peritoneum and introduced a protective gauze packing, the finger should follow the abdominal wall until the indurated mass is reached, and then

with the finger a process of blunt dissection should be begun, hugging the posterior wall of the abdomen until the abscess is reached. If the abscess is larger, the patient should be turned on the right side, and the exit enlarged. The wound having been mopped out, a careful search should be made for concretions, most offensive condition ever seen in surgery. The outer wound should be mopped and cleaned with peroxide of hydrogen, as needed. There can be but little danger of spreading infection by changing the packing after the third day, where the direction of the sinus is well known, and drainage is facilitated.

Fig. 1.—The Ventral Decubitus.

remains of the appendix, etc. A piece of plain gauze, one and one-half to four inches wide, with a double layer, should be carried with the finger to the bottom of the cavity. If the surgeon has any respect for the olfactory sense, iodoform gauze will Rarely there may be circuitous tracts to drain, when it is better to leave the packing, and as a rule, in children it is better to leave the gauze undisturbed. After the first dressing, the removal of gauze need not be specially painful, and it should be changed

Fig. 2.—The Fowler Position.

not be used, for appendical pus and iodoform add a reciprocal intensity to the stench, and in two cases of children, marked toxic symptoms were noted.

Perhaps the most unsurgical custom prevails in allowing a soppy piece of gauze to remain in a wound for a period of several weeks, making the every two or three days. Changing the gauze furnishes a sort of mopping for the wound. The débris of a sloughing appendix, etc., cannot escape where the packing is not changed until a process of fermentation reduces such material to a liquid state. In one case of a child, a false passage pro-

duced a secondary abscess, where the first packing was attempted without anesthesia. In only two cases was it found necessary secondarily to enlarge the exit of the abscess cavity. Too much manipulation will spread infection, and may aggravate a condition we are trying to relieve; and to relieve one accumulation of pus only favors the development of another, for pus spontaneously proceeds in the line of least resistance. One of the most troublesome cases I have had was, in my opinion, due to too much manipulation.

Perhaps postural methods in aiding drainage are not utilized as often as their merits would warrant. I have found the lateroprone and ventral positions (Fig. 1) are of material assistance, for these facilitate other methods of drainage. In the management of these cases the patients were not allowed the left lateral position for the first three days, and even after that time it is unnecessary and may be unwise. For the first four hours the patient was placed in either a ventral decubitus or right lateral position, changing as the comfort dictated. Then later the dorsal or the lateral and intermediate positions were adopted. All of these positions at times were combined with the Fowler position (Fig. 2).

In using the semierect position it is necessary to have support under the buttocks, or a board at the foot of the bed for the feet. It proved unsatisfactory to instill normal salt solution, according to Murphey, for the patient was kept constantly wet, and the presence of a small catheter seemed to excite intolerance on the part of the rectum. In fact, using four ounces every three or four hours seemed to gain a greater amount of absorption while in the semierect position.

The amount of seropurulent discharge is directly proportionate to the chances of recovery, for it is desirable not only to give exit to pus in diffuse peritonitis, but to provoke a reverse flow of serum out of the wound—a form of autoirrigation. Morphine should be used if needed, for restlessness of the patient seriously interferes with the process of localizing infection.

Restricted quantities of liquid food may be allowed in ordinary cases, but when there is diffuse peritonitis nothing should be given by the stomach for twenty-four to forty-eight hours. The bowels should be kept in a passive state for forty-eight hours, after which time one or two grains of calomel may be given in sixth grain doses every hour, to be followed by a turpentine enema. The use of purgatives is frequently overdone.

Of the twenty-two cases reported, the youngest was four and the oldest fifty, the average 24.6 years. Eight cases gave a history of previous attacks. Of the six cases giving a history of trauma, only one gave history of a previous attack which was also traumatic. Nine attributed acute indigestion as a cause, and seven were negative. Of the nineteen frank abscess cases, the average date of operation was 7.9 days from the beginning, the earliest having been on the third and the latest on the nineteenth day of the attack.

Peculiar location of the abscess was noted in two cases. One was retroperitoneal, and burrowed through the muscles of the right lumbar region, at which point it was incised and drained. This case was reserved for another operation, but passed from observation. Case 18 developed a small abscess near the middle line, and there were adhesions to the bladder, which was inadvertently punctured during operation with no harm resulting. In case 13 the abscess burrowed through the anterior abdominal wall, and the sinus persisted for six months; the patient has since remained well. In Case 11 the sinus discharged intermittently for eight months and then remained well. Barring these exceptions, in no case has there been a recurrent abscess. Case 14, a young unmarried woman, aged twenty-five, ended fatally three weeks after operation, no relief from septic symptoms being gained by drainage.

Conclusions.—1.—Statistics of recoveries from drainage of cases of diffuse peritonitis are of no value unless the date of the perforation is known.

2.—In the absence of proper facilities, it is better to adopt the Ochsner procedure and the Fowler position, pending consultation.

3.—The doubtful propriety of waiting for the walling off process, may merge a certain number of cases into a diffuse form of peritonitis.

4.—Deferred operations, under favorable conditions, give the patient time to undergo a sort of autoinoculation with bacterial vaccines.

5.—The uncertain course of peritonitis argues for immediate operation.

6.—Infections low in the right iliac fossa can safely be trusted to nature.

7.—Short incisions and few manipulations should be the rule.

8.—As a rule, it is unsurgical to leave the same gauze in the wound over four or five days.

9.—The right lateral and ventral positions are of great value in supplementing other methods of drainage.

10.—Drainage in diffuse peritonitis should not only give exit to pus, but should provoke a reverse current of serum out the wound.

11.—Intermittent injection of normal salt solution seemed to gain a greater amount of absorption in the rectum than the instillation method.

12.—In well defined abscess cases there was a mortality rate of 4.5 per cent.

THE CONSERVATION OF HEARING IN THE RADICAL MASTOID OPERATION.

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In the simple mastoid operation where the antrum is exposed, pus and granulation tissue removed, and necrosed or carious bone in its vicinity eliminated, the relation of the operative procedure to the hearing power need not be considered, as the conducting mechanism is not in any way interfered with, and what changes occur in this respect are the result of the morbid process in the middle ear, which is corrected by the operation. In the so-called radical procedure, however, where diseased bone areas are removed and the natural cavities in the temporal bone are converted into one large single chamber, with the removal of the malleus, incus, and tympanic membrane, it has been the accepted habit of many operators to pay little or no attention to the preservation of hearing from the surgical aspect, and in a considerable number of cases where there was a possibility of retaining what hearing was left, or possibly even obtaining some improvement following operation, it has been sacrificed in the endeavor to remove all diseased or apparently diseased tissue and thus obtain a cessation of the purulent discharge.

The objects of the radical operation or its various modifications, which will only be considered in this

respect, are actually three in number, viz., the saving of life, the cure of suppuration, and the preservation of hearing. When the operation is performed with the first object solely in view, that of saving the life of the individual, the question of hearing in relation to the procedures employed must of necessity be relegated to the background, but when such a procedure is carried out in order to prevent later serious consequences affecting either the health or even the life of the patient, but with the main object at the time of obtaining a cessation of the chronic suppuration, it is not only justified, but under present advances essential, that the most careful attention be paid to the preservation of the hearing in every respect.

In many minds, the radical operation implies not only the removal of all diseased mastoid tissue, but the entire cleaning out of the tympanic cavity, so that all these parts will ultimately be covered with a dry layer of epithelial tissue; but it is undoubtedly becoming clearer that tissue in the tympanic cavity which has heretofore been removed in its entirety to accomplish this aim, might in some cases be allowed to remain after the focus of the suppuration higher up has been removed. With this end in view, a bit of epithelium here and there, or possibly an ossicle, can be allowed to remain with safety and be the means of preserving a considerable degree of auditory acuity that would otherwise be lost. Not that any markedly diseased tissue should be allowed to pass unchallenged, but such parts should be carefully investigated, and on account of the great recuperative power of the soft tissues of the tympanum, it is undoubtedly good surgery to save as much as possible to attain this aim. The object of the modern mastoid operation for the cure of chronic suppurative otitis media should not be to eliminate and obliterate all that is possible of the temporal bone in this particular region, but the aim should be, as far as is consistent with the safety of the patient, to restore the auditory organ to a condition as nearly perfect as possible and, with due respect towards this, with consideration of its function.

The effect of the radical operation on the hearing varies greatly in the hands of different operators; but in the majority of cases it can be safely stated that it becomes still more impaired following operation, while in a very small minority, more or less improvement takes place. Many cases, however, in this respect, are not properly tested previous to operation and sufficient stress is not laid on the proper selection of cases as regards this aspect of the question. If there are pathological alterations in the inner ear, it is very apparent that operative procedures will not improve the hearing in the slightest degree, while on the other hand, where there is extensive destruction of the tissue in the attic of the tympanum, with complete loss of the incus and the membrana tympani extensively destroyed, the same loss of hearing previous to operation must remain unchanged thereafter. It is essential, in order to obtain results of any value in this way, that care be exercised in selecting cases for operation from this point of view to take those in which some hearing power of sufficient utility to be of value remains and to see to it that none of the conditions previously stated are present, for as has been shown by Heath, individuals with deficient sensibility of the labyrinth do not hear when the membrana tympani has been destroyed and in such instances no improvement will follow operation.

When great care is exercised in preserving as much as possible of the tissues of the middle ear in relation to the conduction of sound, even if marked morbid changes have taken place here, it will be found that a considerable gain in the hearing may be accomplished, provided of course that tests previous to operation show that no alterations have taken place in the labyrinth. In the selection of cases where some beneficial result can be anticipated as regards the hearing function, the continuity of the ossicular chain must be carefully taken into consideration; and while in a constantly increasing number of cases where the ossicles have in greater part been destroyed, a considerable improvement of hearing can be obtained, yet when the malleus or incus, and especially the latter, has entirely disappeared, as is frequently the case, but little can be anticipated in the way of improving the hearing, whatever care be used in the operative procedure.

A distinct factor in the preservation of the hearing is the adoption of early operation in those cases where topical measures used for a reasonable period of time prove of no value. That this is so is made evident by the operative procedure anticipating the further destruction of tissue and thus conserving the hearing to that degree, while at the same time certain important structures may be saved that would undoubtedly later become involved in the morbid process and be in greater or lesser part destroyed.

The more perfected the technique of the mastoid operation, the more will the hearing be conserved, other things being equal; and the greater the experience of the operator, the greater will be the care exercised both in the selection of cases and in the discrimination of tissue to be saved during the course of the operative procedures. The perfection of the technique, which implies the utmost care both during operation and in the postoperative treatment, undoubtedly counts for much in this respect, and of the many aspects of this phase of the question, none is more important than that during any operative procedure here all parts should be absolutely visible, so that every move that is made can be clearly seen, and therefore that all bleeding be controlled, so that the relation of the various parts of the operative field may be constantly under the direct vision.

While the antrum is the most important point as regards the focus of the pathological changes, the tympanic cavity proper, with its contents, is the prominent factor concerned with audition so far as operative procedures are concerned, and it is essential, so far as is consistent with the morbid conditions present in the individual case, that all parts concerned in the conduction of sound waves be interfered with as little as possible. Should the usual hearing tests show that the ossicles, whether partially removed or remaining in their entirety, are of some value in the conduction of sound previous to operation, much will be gained by their retention, and even if superficial necrosis here exists in part, it will be found that after the original source of the pus supply has been removed, healing will take place and this tissue can thus be ultimately saved, instead of being uselessly sacrificed in every case that is operated upon.

As far as the membrana tympani is concerned, it is unnecessary to remove it in its entirety in many cases, and if adhesions are freed, should such be present, a small perforation is enlarged for free drainage, or if necessary, and this is not infrequently so, a large incision is made in other portions, so that drainage can be readily carried out, it will materially

aid in retaining much of the auditory acuity that would otherwise be lost. A matter of considerable importance in all operations in this region, in which care is exercised concerning the hearing, is the avoidance of the tympanic cavity so far as the indiscriminate use of probes and similar instruments is concerned, as much damage can be done with careless instrumentation here, and while careful probing in order to ascertain the condition of the osseous structures is perfectly proper, it should be performed as rarely as possible and with the utmost care.

While all granulation tissue in the antrum, aditus, and mastoid cells should undoubtedly be thoroughly removed, that in the tympanum itself should be dealt with most carefully and allowed to remain unless extensive tissue destruction involving the malleus and incus is present. In that case it should be removed, especially around the opening of the Eustachian tube and in the neighborhood of the posterior wall. As a rule, in this location granulation tissue presents a protective barrier against the further infection of the tissues, whether soft or osseous, which it covers and the removal of such a protection leaves the parts exposed to further infection and serious harm, while at the same time too forcible destruction of granulation tissue on the interior tympanic wall is attended with a serious risk of damage to the internal ear.

In addition to the careful preservation of all healthy tissue wherever found during the course of the operation, unless it becomes necessary to sacrifice it to some extent over limited areas in order to obtain necessary drainage, the mucous membrane lining the walls and covering the ossicular chain should be carefully preserved, not only when it appears to be healthy, but even when it is infiltrated and thickened, as these morbid changes disappear within a short time after operation and the mucosa then resumes its normal appearance. In practically every instance of chronic aural suppuration, the main focus of the pus-producing area is the antrum, and if all diseased tissue be eliminated here and in other portions of the mastoid structures, which are usually involved to a greater or lesser extent, it will undoubtedly follow that the drainage areas lying below these parts, which are constantly being irritated by the pus flowing over them, will heal rapidly when such a source of irritation has been removed.

The antrum is therefore the most important area in the temporal bone so far as these pathological changes are concerned, and is the primary objective point in all operative procedures. But while much has been gained by the removal of all diseased tissue at this point, it is essential to success that drainage be obtained from it while healing is taking place and the parts are undergoing resolution, and to accomplish this it is essential that there be no obstruction from this point, either in the aditus or tympanic cavity proper.

In some cases, in order to accomplish this object, it is absolutely necessary to remove entirely all the contents of the tympanum irrespective of the effect upon hearing, but in many other instances it will be found that with a little care as free drainage as is desired may be obtained and yet the tympanic contents can be preserved, so that there will be a gain in the hearing acuity following operation.

In those cases with the membrana perforated in relation to the attic space and the suppurative process apparently localized in this regian, especially if cholesteatomatous elements be present in the aural discharges, it will usually be found that this portion of the tympanum simply acts as a drainage deposit for the real pathological process higher up in the antrum.

When the important structures in the attic are, however, seriously compromised by the long continued suppuration, it seems the better policy to remove them and clean out this part of all diseased tissue, as in such cases the hearing is practically destroyed, or will become so, if the diseased tissue is allowed to remain here. In some few cases of so-called attic suppuration, however, sufficient drainage can be obtained, if the head of the malleus and the incus are not seriously necrosed, to allow of a restoration of the tissues to normal; and if these cases show even a small degree of hearing previous to operation it will be found that this has been greatly augmented later on after the source of the purulent discharge has been eliminated.

45 East Sixtieth Street.

MEDICAL EDUCATION IN RUSSIA.*

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After contemplating the matchless superiority of the famous medical centers of the Old World, it would be a difficult task, indeed, to arouse your interest in the topic that your chairman has given me the honor to present this evening. I shall endeavor to throw some light upon certain little understood phases of medical education in the Empire of the Czar. It is a giant's stride from Berlin to Moscow, and to many the journey would seem like a voyage from the enlightened present into a medieval past. But this is not so. To those who have kept in touch with the uplift of the world during the past few decades Russia has loomed large upon the intellectual horizon. The generally prevailing misconception of this advance is to be attributed to an unfamiliarity with the language of the Slavs. Yet the land that has given to literature a Tolstoi, to art a Verestchagin, to music a Rubinstein, to chemistry a Mendeleef, to neurology a Bechterew, and to experimental medicine a Metchnikoff and a Pavloff, certainly needs no apologist.

As an illustration of the prejudice that frequently distorts a correct appreciation of Russian enlightenment may be cited the following quotation from the little volume entitled "Glimpses of Medical Europe," by Ralph L. Thompson, Professor of Pathology in St. Louis University, School of Medicine: "From a medical point of view our visit to St. Petersburg is scarcely worth the writing, for we saw little that was medical. However, we will mention the journey to prevent others from going the same way." With apologies to the learned author, and with your kind indulgence, I shall try to delineate the present status of medical education in darkest Russia. I hope I may be pardoned for still cherishing a fond regard for this institution in my native land. Indeed, I shall always look back with pride to my Alma Mater, the historic Medical University of Moscow. It is particularly fortunate that the paternal attitude of the Russian Government, so sharply criticized and energetically resisted in other

*Read before the Section on Medicine, Medical Society of the County of Kings, October 12, 1908.

fields of activity, has successfully maintained itself in this most important field of medical education. This has always been supervised and controlled by the Government. Indeed, the Minister of Public Instruction has full charge of all schools, from the primary grades to the university. This insures a uniformity of educational practice throughout the Empire, and the curricula are identical in the University of Dorpat, the nearest neighbor of the illustrious models of German teaching, and in the University of Tomsk, thousands of miles away in Siberia. There are no private institutions of medical teaching, supported by the endowments of kind but frequently interested benefactors, nor are any of the schools established with professorial chairs auctioned off to the highest bidders or assigned to the largest investors. There are no postgraduate schools financed by the liberal friends of the professors.

Most of the Russian medical schools are not of recent origin, but are firmly rooted in the distant past. The medical department of the University of Moscow was founded as a school for surgeons as far back as 1706 by Peter the Great, and was established as a distinct medical faculty in 1755. Toward the western confines of the Empire the University of Dorpat was founded in 1802 as a Russian institution by the Emperor Alexander I, although it may trace its early history to the year 1632, when it was established by the Swedish conqueror, Gustavus Adolphus. On the eastern steppes of European Russia, in the land of the Tartar, the University of Kasan first saw the light in 1804. The following year the University of Charkoff was founded, while that of Kieff followed in 1834. The old Polish University of Warsaw, that had been suppressed in 1830, was reorganized under the Russian régime in 1869. In 1888 the University of Tomsk was reared on the distant plains of Siberia, while in the far north Helsingfors arose in the land of the Finns. The youngest in the family of medical faculties is the school at Odessa, founded in 1899. Last, but not least, may be mentioned the famous Military Medical Academy at St. Petersburg, founded in 1798, while within the past few years a medical school for women has been established in the Russian capital. To these must be added the Imperial Clinical Institute for postgraduate study, founded by the Princess Helène in 1885, and the Imperial Institute for Experimental Medicine, established in 1891.

The requirement for admission to any of the Russian medical schools is the possession of the certificate of maturity, granted by the Classical Gymnasium after eight years of study. This certificate is the equivalent of a little more than our high school diploma. In connection with this, it may be stated that no person younger than nine years of age is admitted to the gymnasium, while it takes no less than eight years for the completion of the course. In no manner can this period be curtailed by the skipping of classes or the election of easy subjects in the curriculum.

The preparation for study of medicine is a matter of vital importance to the Russian. He who would enter the guild of Æsculapius must needs be fitted for it by native aptitude and mental endowment. The medical career is determined upon early in the boy's life by his guardians, and he matriculates in the gymnasium with the medical school as his ultimate goal. The certificate of maturity is a guarantee of his fitness for the further pursuit of professional studies. The superiority of this demand for proper preliminary training, when compared with the practice now largely prevailing in this country, as evidenced by perfunctory regent's examinations, is too obvious to need further comment. America is only beginning to emerge from its anomalous system, and may well take a hint from the barbarous Russian.

At no time in the history of Russian medical education has the course been less than five years The first two of these are devoted to Botany, Zoology, Physics, Chemistry, Anatomy, Histology, and Physiology. This constitutes the semi-academic course, which must be successfully completed before the student can enter the final three years of his curriculum. This is devoted to the purely practical subjects, and constitutes a very elaborate course of studies, with unsurpassed laboratory and clinical facilities. All Russian medical faculties have their own large hospitals connected with them, while the doors of other city hospitals are open to the medical students. This is another practice from which America may well take example. The Russian hospitals are municipal institutions, and are under the control of the Ministry of the Interior, which cooperates with the Ministry of Public Instruction. Neither teachers nor students are at the mercy of lay governing boards or of their subordinates, the hospital superintendents. The management of the hospital is in the hands of the physician-in-chief, who alone is capable of appreciating the full value of the hospital material for didactic purposes.

After completing ten semesters, or five full years of study, and after passing academic examinations in the various subjects, the student is required to pass a State examination before he can receive his license to practise medicine. This is conducted by an examining board assigned to each of the medical faculties by the Minister of Public Instruction. The examining commission consists of five members, and the programme of the examination is divided into five main parts. Each member of the board selects from the medical faculty the professors who are to conduct the examinations in the respective subjects, he himself acting in a supervisory capacity. To illustrate the wide scope of the examinations, one need only consider the variety of subjects that enter into it. In the first part, examinations are held in Descriptive Anatomy, Histology, Pathological Anatomy, Pathological Histology, Topographical Anatomy, and Operative Surgery. Examinations in these subjects are practical, requiring of the candidate actual laboratory demonstrations and operations on the cadaver. The second part of the examination covers Physiology, General Pathology, Medical Chemistry, Pharmacy, Pharmacognosy, and Pharmacology, Prescription Writing and the use of mineral waters. The third group includes Special Pathology and Therapy, Nervous and Mental Diseases, Dermatology and Syphilis, Pediatrics, and Practical Demonstrations in the internal medical, skin, and children's clinics. The fourth group covers Surgical Pathology, Fractures, Luxations, and Bandaging, Ophthalmology, Obstetrics, Gynecology, and Practical Diagnosis in the surgical, ophthalmological, and gynecological clinics. The fifth group includes Hygiene and Medical Police, Legal Medicine, Toxicology, and Diseases of Domestic Animals. The examinations are oral, the candidate drawing by lot a number, and answering the questions corresponding to it on the examination paper. Having passed the State examinations, the candi-

date receives a diploma as physician, which entitles him to practise throughout the Empire. The title of Doctor of Medicine is not granted except after a special supplementary examination, and the presentation of a suitable thesis, representing a special line of independent research or experience. Such thesis must be defended at a public hearing, the opponents being assigned by the dean of the medical faculty among the teachers of the respective branches, and only the successful defender of his thesis is accorded the highly prized degree. This confers its special privileges, not only in private practice, but as a passport to governmental employment or academic appointments. Such academic appointments are numerous, and are prizes much sought after. They include the position of professor —emeritus, ordinary, and extraordinary, privatdocent, prosector, laboratory worker, and clinical assistant. In the Imperial Military Academy of St. Petersburg there are thirty-three professors, who are assisted by 189 of the above mentioned auxiliary workers. The honor students are eligible for the governmental scholarships, comprising two years of special study in foreign universities, to be followed by possible appointment as instructors or privatdocents.

The Government bears the burden of the maintenance of the medical schools, the students paying the nominal sum of $50 per year. In the Imperial Military Medical Academy of St. Petersburg instruction is absolutely free, but the student is bound to serve for four years after graduation in the army or navy.

In addition to her regular university medical schools, Russia provides a unique system of less elaborate institutions for the training of medical assistants. These fulfil an important need in the Empire, with its vast distances and its enormous and heterogeneous population, mainly rural. These medical assistants are termed "feldschers," and so peculiar is their rôle in the community, that this subject cannot be passed over without devoting a few moments to their consideration. The scarcity of physicians in Russia has necessitated the existence of this special class of medical men, for whom a distinct course of study has been provided in forty-one different schools, established throughout the vast territory of the Czar. For entrance into these schools a grammar school education is required. These subordinate medical schools, of which there are twenty-three for men and eighteen for women, are connected with hospitals, which are municipal institutions owned by the Government or established and supported by the Zemstvos or territorial assemblies, with the sanction of the national Government. The Zemstvos, which are local representative bodies existing in almost every province, provide for the medical needs of their constituents by employing physicians and feldschers and assigning them to districts the size of which depends upon the density of their population and the financial resources of the central body. Thus Russia provides an elaborate system of free medical visitation to the needy poor. On account of the sometimes enormous size of some of the districts it is impossible for the physicians to attend personally every patient who is not able to visit the district dispensary or hospital, so that the duty falls upon the feldschers to do this work. One can realize the importance of this task only when appreciating the fact that one-half of the population is still treated solely by the feldschers. This form of medical aid is by no means of a low order; it is rendered by men and women specially trained for the task by three or four years of theoretical and practical study in the hospital wards. These schools are somewhat analogous to our Training Schools for Nurses, with this difference, that, while we require from our nurses only an intelligent reporting of the patient's condition and the carrying out of our orders, the feldscher is trained to render medical aid independently, calling upon the district physician for counsel and assistance only in cases of grave severity.

Another branch of subordinate medical education comprises eight midwifery schools connected with the large lying-in hospitals in the chief cities of the Empire. The preliminary grammar school education required for matriculation, and the elaborate course of theoretical and practical obstetrics, serve to produce a body of intelligent accoucheuses. Although their training is confined mostly to this special branch of medicine, the practical experience received during their course of study makes them more efficient than many a physician, whose obstetric training consists of a perfunctory course of lectures and attendance upon one or two confinement cases. Their superiority and reliability in the lying-in room may be appreciated when contrasted with the ignorant ministrations of our American midwives, who easily obtain their license upon the payment of a small fee and the presentation of a testimonial of two friendly physicians.

In Russia the status of the physician is quite different from that which is generally recognized in most other nations, including America. His activities are not strictly confined to the purely technical duties of his calling, but have a far-reaching social and political influence. He, above all others, is fitted to bear the torch of progress. In the cosmopolitan atmosphere of the university he has come in contact with representatives from the most widely scattered provinces of the Empire; he has imbibed the spirit of liberalism, and his eyes have been opened to his own opportunities and those of his fellow townsmen. Little wonder, then, that when he returns to his birthplace these latter regard him with peculiar reverence. He is not only a healer of men, but also their liberator; he has returned to remove the shackles of ignorance that bind them and to become a powerful factor in the revolutionary movement. His counsels are sought in the local assemblies of the Zemstvos, and he frequently becomes the leader in the promulgation of local reforms. Is he not true to his calling who extends his professional skill from the diseased individual to the diagnosis of the ills that afflict the body politic, which is no more than a larger aggregation of biologic units? It is therefore not at all strange that in the awful tumult that is shaking the foundations of the Russian bureaucracy the disciples of Hippocrates are taking no insignificant part.

From the social viewpoint the physician is an important member of the Russian community, and more so than in most other countries. His calling is not prostituted to the level of a commercial pursuit, but is regarded as above the mere valuation of pieces of gold and silver. It is for this reason that there is no stated medical fee in Russia, for the physician is paid according to the value set upon his services by the patient, and this is small or large, depending on the means and gratitude of the latter. In addition to this, it is not uncommon for Russian physicians to receive gifts, amounting in many cases

to thousands of rubles per annum. In many instances physicians are employed by families at a definite annual salary.

As the Russian medical student looks forward to his future field of activities, he does so with full consciousness of the manifold opportunities of private and public service that are open to him. Aside from the private practice of medicine, there are the positions of public sanitary officer, of district visiting physician to the poor, and of physician to one of the numerous industrial establishments. The last position is one that factory owners are compelled by statute to maintain.

Although only a small portion of Russian medical literature reaches the outside world in the form of translations and abstracts, it is nevertheless quite extensive. A large army of medical writers find a suitable outlet for their literary efforts in sixty medical journals published in different languages throughout the Empire. These journals serve also as the mouthpieces of the sixty-seven medical societies established in the largest cities of the provinces. There is also a national body similar to our own organization, founded in 1883 in memory of the illustrious surgeon, Pirogoff. This society holds its meetings every two or three years, and the program is elaborate. In addition to those devoted to the usual medical topics, there are special sections assigned to military, to territorial, to industrial, and to mining medicine, a special section occupied exclusively with the important problem of infant mortality, and still another engaged in the discussion of the social status of physicians. Such a comprehensive and manifold programme reflects as a mirror the activity of Russian medical men. It clearly indicates that the Russian medical mind is not narrowly concentrated only on questions of clinical observation and medical research, but that the broad and important side of preventive and social medicine is fully appreciated and cultivated by the medical fraternity.

Without a further tax upon your kind patience I shall conclude, trusting that in my rather condensed sketch I have vindicated in your eyes Russian medical education, and have secured for the Russian medical diploma a merited and just appreciation.

249 Hewes Street.

THE HEMOLYTIC PROPERTIES OF CANCER SERUM.*

By A. S. BLUMGARTEN, M.D.,

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The following paper is intended as a contribution to the study of the diagnostic value of the hemolytic power of the blood serum in persons suffering from cancer. Crile has recently stated that the serum in cases of cancer yields a characteristic reaction in practically 100 per cent. of the early cases, and in 85 per cent. of the advanced cases. On the other hand, Weil asserts that the results are characteristic in only 40 per cent. of the early cases, and in only 50 per cent. of the late cases. The method used by both of the observers was in principle identical, though differing in minor details. It was with the object of investigating these discrepancies that the present study was undertaken.

The method employed was that first used by Weil in his experiments with the serum of tumor dogs, and subsequently applied by him, and then by Crile, to the study of human disease. It depends on the principle that the serum of carcinoma cases is hemolytic for the red cells of normal individuals, but distinctly less so for the red cells of the same individuals, or of other carcinomatous individuals. Inasmuch as it has never been adequately described, it is here given in detail.†

From a number of individuals, including preferably an equal number both of ascertained cases of cancer and of other cases, preferably normal and designated as controls, blood is withdrawn. A ten cubic centimeter aspirating syringe is used, the best for the purpose being those made entirely of glass or of glass with metal piston. The plunger should be lubricated with vaselin to prevent rapid clotting. The best needle to use is one made of platinum-iridium, inasmuch as it can easily be sterilized by heating to a white glow in the flame of an alcohol lamp. The arm of the patient is cleansed at the elbow, and a bandage is applied above. After sufficient blood has been aspirated from one of the veins, two cubic centimeters are expelled from the syringe into about six cubic centimeters of a solution composed of 0.4 grams each of sodium chloride and sodium citrate in one hundred cubic centimeters of distilled water. The remainder of the blood is rapidly expelled into one or two test tubes, which are then laid almost flat in order to give a clot with a large surface area. Within a few hours, the clot will have expelled from three to six cubic centimeters of serum, which may then be poured off for use in the tests. If the serum is mingled with corpuscles, it may be cleared by centrifugalization. The blood which has been drawn into the citrate solution does not clot, and is at once centrifugalized. The corpuscles are washed three times in 0.85 per cent. sodium chloride by successive centrifugalizations, in order to free them from serum. The centrifugalized cells are finally made up into a 20 per cent. suspension in 0.85 per cent. salt solution. This is most easily accomplished by centrifugalization in graduated tubes, with the addition of salt solution to the sediment to make up a suspension of the required strength. The corpuscles and the sera from various cases are then ready for use.

The tests are performed as follows: A series of small test tubes, six to eight millimeters in diameter, and six to eight centimeters in length, are arranged in racks bored to hold a dozen in line. Each serum is tested against all of the corpuscle emulsions, ordinarily three from cases of cancer and three from controls. In case sufficient blood has been withdrawn for all six patients, this will give thirty-six tubes. The mixtures are made as follows: To one-half cubic centimeter of each serum is added one-tenth cubic centimeter of each of the corpuscle emulsions. The object of making the mixtures in these proportions is to dilute the sera as little as possible, in order not to diminish their hemolytic power, which is rarely very strong. The corpuscles constitute approximately 3 per cent. of the serum-corpuscle mixture. One-tenth cubic centimeter of each of the corpuscle emulsions is similarly added to one-half cubic centimeter of 0.85 per cent. sodium chloride solution, as a control series. The racks are now placed in the incubator for two hours, and for twelve hours in the icebox, after which the results may be read off. Tubes in which hemolysis has occurred are at once evidenced by their "laked" or reddish color, as compared with

*From the Pathological Laboratory of the German Hospital.

†For the method I am indebted to Dr. Weil.

the salt solution controls of the corpuscles. Such tubes are designated as positive (+). Tubes in which the corpuscles have undergone no change are designated as negative (—). If in a series of tests with a given serum any of the cancer corpuscles are laked, such a serum is positive for cancer corpuscles; similarly of normal corpuscles. The results may be grouped into four categories, as follows:

1. Serum fails to hemolyze cancer corpuscles, but hemolyzes control corpuscles (— +).
2. Serum hemolyzes both cancer and control corpuscles (+ +).
3. Serum hemolyzes cancer corpuscles, but not control corpuscles (+ —).
4. Serum hemolyzes neither control nor cancer corpuscles (— —).

In case a serum falls into group 2, it may be further tested in a series of higher dilutions, in the attempt to weaken its lytic action sufficiently to eliminate it for one group of corpuscles, while retaining it for the other.

The sera and corpuscles tested in the manner above described included twenty-five advanced cases of cancer, forty of various other diseases, and ten normal cases. The results of the reactions may be summarized as follows:

	1 — +	2 + +	3 + —	4 — —
Cancer	18	0	0	7
Other diseases	4	0	2	34
Normal cases	1	0	0	9

Group 1 conforms to the type described by both Weil and Crile as a "positive" reaction, and contains all the sera which failed to hemolyze the cancer corpuscles, but hemolyzed some of the normal or control red cells. Of twenty-five cases falling into this group, eighteen, or 78 per cent. were derived from cases of cancer, while only 33 per cent. of the total number of sera tested came from cancer patients. Taking the cancer serum as a whole, 72 per cent. fall into this group. Of the sera from other diseases only 10 per cent. fall into group 1, and of normal sera 10 per cent. It is, therefore, evident that the type of result designated as group 1, in which a serum hemolyzes one or more of the control corpuscles, but fails to hemolyze any of the cancer corpuscles, is much more commonly found in sera derived from cases of cancer, than from any other condition of disease. The four other sera falling into this group were derived, one from a case of pneumonia, one from a case of sepsis, and two from cases of tuberculosis.

If these percentages be compared with those obtained by Weil in human disease, it will be found that there are certain differences. Group 1, in his cases of malignant tumors, contained 56 per cent. of the cases. The increase in group 1 of the present series is due to the addition of the cases included in group 2 (+ +) in his series, by means of the method of increased dilution of those sera originally falling into group 2. Moreover, group 4 has been diminished to the advantage of group 1, by the use of a larger number of control corpuscle emulsions, thus affording greater likelihood of a positive reaction in one of the controls.

In a large number of these tests, the agglutination of the corpuscles by the sera was also noted. It was not found that the agglutinative and the lytic powers of the sera were to any extent co-ordinated. In fact, they were entirely independent of one another. Furthermore, the resistance of the corpuscles was in each case tested against a graded series of anisotonic solutions of sodium chloride, varying from 0.1 per cent. to 0.8 per cent. Here, also, it was found that the degree of resistance to anisotonic solutions could not be correlated with the degree of resistance to lytic sera. At most, it could be said, as has been previously found (Lang and others) that the corpuscles of cases of advanced cancer are generally more resistant than other corpuscles.

The percentages obtained in the present series do not approach those obtained by Crile, nor is the author able to confirm his statement that cases of tuberculosis may be distinguished from cases of cancer by the presence of a "reverse" reaction. In the absence of detailed data it is impossible to enter into a further analysis of the differences.*

Finally, as regards the diagnostic value of the method, it seems advisable to the author to exercise great caution and reserve. Judging from the small series of cases herein reported, it would seem that a very large proportion of cancer cases fall into group 1, and that a comparatively small proportion of other conditions fall into this group. Such a result, however, seems hardly adequate for clinical purposes. The results are, nevertheless, promising, and it is possible that further application of the method may result in such improvement as to make it of considerable clinical value.

*After this article was written Crile published a later article, giving the details of his technique. It may be pointed out that he uses four control bloods as against only one cancer blood, which artificially triples the probability of obtaining a "positive" reaction. Further, he uses as the unit of dilution the whole blood, instead of the centrifuged corpuscles, which must yield emulsions five times as strong in some cases as in others, depending upon the degree of anemia. Sedimentation of the corpuscles, which he advises in place of centrifugation, has been condemned by as high an authority as Madsen. These errors of technique seem adequate to account for the high percentage of positive reactions which he has obtained.

A NEW APPARATUS FOR INTRATHORACIC OPERATIONS UNDER DIFFERENTIAL PRESSURE.

A PRELIMINARY COMMUNICATION.

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WHEN Dr. F. Sauerbruch of Marburg, Germany, sailed for home, after last summer's meeting of the American Medical Association, he had the great kindness to leave here for my use the small portable chamber, which he had demonstrated at Chicago and at the Rockefeller Institute in New York.

It is constructed on the general lines of the larger Sauerbruch chambers, but does not have their accessories, without which the features objected to by surgeons using the larger chambers become still more accentuated.

This obtruded itself upon me so strongly, when I began to use the portable chamber, that I determined to improve it.

The first specimen of the improved apparatus has now just been delivered to me. It was designed by and built for me by my brother, an engineer by profession, whom I had the good fortune to interest in the matter. I directed his attention to the neces-

sity of avoiding, above all things, this feature of the Sauerbruch chambers, viz., that the positions occupied by the surgeon and by the narcotizer, when operating under negative pressure, are reversed when positive pressure is employed. Such changing about, I believe, makes the obtaining of perfect asepsis more difficult and uncertain. Therefore I specified that in the improved apparatus it must be possible to perform the operation always in the same spot, irrespective of whether negative or positive pressure be used.

Two types of apparatus were developed: a "universal chamber" for both positive and negative pressure, and a "differential chamber" for positive pressure only.

The "universal chamber" consists of two chambers: a large one—the operating room, and a smaller one—the narcotizing room. A motor-driven air pump ventilates both. Negative and positive pressures are produced by varying the cross section respectively of the air inlet or air outlet pipes by means of valves. The latter are located in the large room at the side of the surgeon, who is thus enabled to call for whatever difference of pressure is required at the moment. He can also change, if he so desires, from negative to positive pressure, or vice versa; or he may have half negative and half positive pressure, or any other intermediate stage, without a change in his own position, that of his patient, or that of the narcotizer and without any interruption of the operation.

The possibility, thus given, to raise at any time the pressure in the larger chamber to atmospheric pressure, while still maintaining the necessary difference of pressure between the two chambers, does away with the necessity of having air-locks for access to the chamber during the operation.

The manipulation of the valves is exceedingly simple and can be readily grasped by the average hospital attendant.

The new apparatus introduces no complication into the operation itself further than that it envelops the narcotizer and the head of the patient, but the narcotizer has free, unimpeded and unencumbered access to the patient's head before him, exactly the same as ordinarily. Through the walls of the chamber, which consist of a skeleton framework and an air-tight covering, he can converse with the surgeon. The latter as well as his assistants have plenty of elbow room.

The head of the patient is adjustably suspended in a headbox which projects out from the narcotizing room, and the bulging rubber collar of old is replaced by guillotine-shutters which do not obstruct the field of operation and are vertically movable with the adjustment of the operating table. A large pane of glass in the headbox exposes the face of the patient to the view of the surgeon and his body to that of the narcotizer. The ventilation is so ample that no condensation of moisture occurs on the glass.

These chambers will cost less than the Sauerbruch chamber, in use abroad. They are of knock-down construction, which adapts them to the requirements of military surgery.

The smaller chamber is what I call the "differential chamber." It can be used independently of the larger one, but for operations under positive pressure only. This is the one which, as I stated above, has just been delivered to me. It is simple; there is nothing in it to get out of order. It is portable; it can be brought to the bedside of the patient, or to the operating table should it be found desirable in the course of an operation to continue the same under differential pressure. I have seen it subjected to and satisfactorily fulfilling the proper mechanical tests, and am now going to try it out surgically in intrathoracic operations on dogs in my work at the Rockefeller Institute for Medical Research.

With the consent of the Board of Directors of the German Hospital of New York, both the differential and the universal chambers, which are now building for me, will find a place in that institution. They are expected to be ready soon for operations on human beings.

New Method of Treating Detached Retina.—In a patient recently exhibited before the Vienna Medical Society, Sachs showed a woman of 49 years who had had several unsuccessful operations for retinal detachment. Sachs then resolved to bring about permanent adhesion of the retina to the sclera at a point where the retina was easily lifted off its base by a collection of fluid. The anatomical conditions were as follows: The retina was fixed to its base only at the papilla and along the ora serrata, nearly in the middle between the margin of the cornea and the æquator bulbi. Then if liquid was accumulating in the subretinal space it would push away the retina easiest in the middle of this distance at the equator. The usual place of puncture was next to the ora serrata or next to the usual place of fixation of the retina; puncture in this situation, however, did not promote fixation in detachment. Sachs, therefore, on the next occasion punctured behind the equator after dividing the conjunctiva and pulling the eyeball a little to the inner side. Twelve days later, as a slight accumulation of fluid appeared again and threatened to break down the adhesions set up by the last puncture, he repeated the operation, puncturing again behind the equator, this time on the inner side after temporarily detaching the rectus internus muscle. The ophthalmoscopic view was very satisfactory; white scars were visible, where the punctures had reached the retina; there was some hemorrhage into the vitreous, but the vision of the patient was excellent and remained so for the six weeks during which she was under observation. After having obtained this good result Sachs operated in the same way behind the equator on three more patients with high myopia and detachment of the retina. An improvement was immediately visible but the time that had elapsed since the operations was insufficient to show whether the result would be permanent or not. No relapse had, however, occurred as yet, although the patients formerly complained that every few days their sight failed them. The method was said to be good for recent cases or for such cases of longer standing as have not yet many folds.—*The Lancet.*

Treatment of Exophthalmic Goiter.—Gilbert Ballet and Louis Delherm tell us that all methods of treatment for exophthalmic goiter have their successes, balanced by their unsuccessful cases. This results from a too narrow conception of the pathogeny of the disease. Some forms of exophthalmic goiter develop from simple goiters or enlargements of the thyroid that are entirely local. In such cases the use of thyroid extract, of iodoform, and thyroidectomy are of value. The syndrome may be caused by affections of neighboring organs; pharyngitis, polypoids in the nasal cavities, etc., and here treatment of these troubles will cause disappearance of the symptoms. Sometimes the disease is dependent on lesions of the ninth sympathetic pair of nerves. Variations in the ovarian secretion and the menopause should be treated as factors in this disease. Whenever we can find a local or reflex cause we may make use of treatment addressed to these causes with success. A large number of these cases cannot be referred to any of these factors. There is simply a hereditary or acquired nervous predisposition, an irritability of the nervous system with a defect of secretion of the thyroid without the possibility of learning which of these factors is the primary one. The first indication is to quiet the nervous system by rest, hydrotherapy, and hygiene. Next to make use of hematotherapy by the use of the serum of animals. Electricity is of value by its calming, vasoconstricting effect and its influence of thyroid secretion.—*La Bulletin Médical.*

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TUBERCLE BACILLI IN A HUMAN OVUM.

BAUMGARTEN is one of the few authoritative workers in tuberculosis who has insisted upon the frequency of transmission of this disease from parents to children. Although the general opinion is that usually only the predisposition to infection is transmitted, yet a number of experimental data have of late been published which show that the possibility of direct transmission of the disease by the ova or the sperm in human beings cannot be denied. Thus Koch and Rabinowitsch have found various stages of tuberculous infection in the genital organs of birds dying of tuberculosis in the Berlin Zoölogical Gardens; later they succeeded in breeding tuberculous chickens from infected eggs and have shown thus that the presence of bacilli does not make the eggs incapable of developing as has been claimed by several workers. That tuberculous infection of the human ovary is not such a rare occurrence as was supposed has been shown by Wolff, who found three cases of such infection among seventeen bodies of persons dead of tuberculosis. These data have led several workers to look for evidence of tuberculous infection of the ovarian follicles in human subjects, and recently Sitzenfrey ("Die Lehre von kongenitalen Tuberculose," Berlin, 1908) has succeeded in finding typical bacilli in the follicles of an ovary removed for tuberculous disease. Of course these findings merely suggest the possibility of direct transmission of the disease by the ova in human beings, the conditions usually found in the tubes in the presence of tuberculosis of the ovaries making it highly improbable that fertilization could take place in such cases. The finding, however, is of interest in connection with the reported presence of *Spirochæta pallida* in large numbers in the ovaries and within the follicles of children dying of congenital syphilis within a few days of birth.

These facts throw a great deal of doubt upon the usual opinion that holds germinal elements as very resistant to infection. Baumgarten freely agreed that the rarity of congenital tuberculosis seemed to disprove of any importance of transmission of the infection by the germ or the sperm elements; however, he claimed that the actively growing tissues of the developing fetus may inhibit the growth of tubercle bacilli which may remain inactive for some period of time after the birth of the child. As soon, however, as this growth becomes less rapid or any favorable conditions affecting the resistance of the tissues appear, tuberculosis develops in these children, who are really the victims of latent infection from birth. Placental infection is, of course, the more usual course of transmission of tubercle bacilli from the mother to the fetus, infection of the placenta being not at all a rare event. Sitzenfrey's finding on the other hand must remain merely of pathological interest when all the circumstances attending the fertilization and development of the human ovum are considered. To decide whether an infected ovum can progress at all in development should be easy when we remember how frequently abortion is induced in tuberculous women because of advanced disease; careful examination of young ova obtained in such cases may give an idea of the relative frequency of direct transmission of infection by the germinal elements.

TRYPSIN IN THE TREATMENT OF SURGICAL TUBERCULOSIS.

THE experiments of Jochmann and Müller have shown that the introduction of ferments derived from polynuclear leucocytes into tuberculous abscesses leads to rapid resorption of the contents of these lesions; their explanation of this curative action is founded upon the proteolytic action of the leucocyte ferment which quickly changes the pus in the abscess into a form that can easily be absorbed. The presence in tuberculous lesions of lymphocytes that are poor in ferments to the exclusion of other leucocyte forms explains the chronicity of the processes of this character. Lately Jochmann has determined that the proteolytic action of leucocyte ferment could be easily produced by solutions of trypsin, and in the *Münchener medizinische Wochenschrift* for December 1, 1908, he and Baetzner report the success that the method met in practical application. The authors used a solution of 1 gm. of trypsin in 100 c.c. of sterile salt solution, injecting one to two cubic centimeters of this fluid at a time. The solution was introduced directly into the foci of disease, this procedure being only moderately painful. The contents of tuberculous abscesses very rapidly became serous in character and disappeared by resorption; at the same time the granulation tissue of the abscess walls seemed to be stimulated by the presence of the ferment and soon filled out the cavity of the abscess. Equally favorable results were obtained with the treatment of tuberculous fistulæ or sinuses as well as of tuberculous lesions of the skin.

Curiously enough the opposite procedure, that is, the introduction of substances rich in antiferments, seemed to have a very good action in causing more rapid healing of acute suppurative processes. The excess of ferment carried into such lesions by the polynuclear leucocytes seems to inhibit proper reparative response of the surrounding tissue, and the use of tampons soaked in hydrocele fluid, which has an antiferment power, led to the rapid victory of the processes of repair over the destructive action of the infecting agent. The results simply further corroborate the truth of the assumption that the phenomena of inflammation, while reparative

in quality, may prove harmful because of their quantitative excess over the needs of the local tissues in the struggle against injury.

Sea-Water Injections.

A new method of treatment of chronic diseases that has been much used recently in France is the injection of sea-water into the muscles. The use of sea-water in this way is founded upon the researches of Quinton, who found that the chemical composition of sea-water and that of the vital plasma are almost exactly the same. All cells react energetically to changes in the medium in which they exist; to produce better function we must remove intoxication products, and return the blood plasma to its original composition. G. le Mehauté, in a brochure entitled "l'Eau de mer en injections hypertoniques dans le traitement des maladies chroniques" (Maloine, Paris, 1908), explains the best method of availing ourselves of the active qualities of sea-water. There are two ways of using it: It may be diluted to make isotonic marine serum, which is injected in large amounts, or it may be used in its natural state as hypertonic marine serum, the latter being given in very small intramuscular injections. The disadvantages of the isotonic serum are that its injection raises the blood pressure, on account of the large amount that must be injected, and thus it cannot be used in cases in which there is weakness of the arteries from arteriosclerosis or other vascular disease. The small injections, on the other hand, are very well borne and have a marked tonic effect on the organism; they do not increase the volume of the blood and are absolutely harmless. This plasma may be rendered more active and valuable by the addition of other medicaments, such as mercury, phosphorus, or arsenic, during its preparation. The sea-water is obtained in sterile containers, from considerable depths of the sea, and at a distance from land. In the laboratory it is sterilized and is placed in small tubes, which are so made that a hypodermic needle can be attached at one end and a rubber bulb for expelling the fluid at the other. The dose is five cubic centimeters at each injection, and it can be repeated daily when thought best. When used for syphilitic treatment a course of two months' injections is interrupted for one month and then repeated. All the unpleasant effects of mercury are said to be thereby prevented and the treatment is rapidly effective. The phosphated plasma is asserted to be of great value in nervous diseases and in cases of acute mania. Arseniated plasma is used for the treatment of dyscrasias, and iodized plasma for scleroses. The intramuscular injections are painless and cause no soreness at all. Mercurial plasma is more active than calomel or gray oil. The preparation of these various "marine sera" seems at present to be confined to France, but if the method becomes popularized here in response to the missionary efforts now being made, it would hardly be necessary to cross the ocean to get sea-water. The Council on Pharmacy and Chemistry might be persuaded to endorse the home product, even if it was not "made in Germany" or in France.

Dr. Wiley Should Be Retained.

It is to be hoped that the rumors from Washington to the effect that Dr. Wiley, Chief of the Bureau of Chemistry of the Department of Agriculture, is about to retire are untrue, for the country could ill afford to lose his services at this time. He has, unfortunately, made many enemies, more than there was any necessity of making, and these enemies are bringing every possible influence to bear upon his superiors to force his resignation, or at least to limit his authority. In his fight for pure food and pure drink it was inevitable that he should antagonize powerful interests, not only the dishonest manufacturers and wilful adulterators, but many also who used preservatives believing them harmless. Among the latter are men of integrity, who would be ready and willing to change their methods if they could be convinced that they were wrong, but who are naturally averse to being coerced by the big stick unsupported by sound argument. In the discussion of the use of preservatives, Dr. Wiley's conclusions have at times been hasty, and the "poison-squad" experiments upon which these conclusions were based were somewhat lacking in scientific accuracy. This is particularly unfortunate, since it is on the results of these experiments that the argument is based, and where the financial interests affected are so great, none but the most convincing evidence can overcome them. If the benzoates, the sulphites, formaldehyde, and other preservatives are injurious in the quantities used, they should, of course, be forbidden, and in any case the users of foods containing them should know what they are getting; but the mere assertion that they are harmful when taken occasionally in minute quantities, is not sufficient, and Dr. Wiley has been unwise in insisting on prohibition before he has proved his case. But this is only a small part of the pure food crusade, and the immense good that Dr. Wiley has done and is doing should not be nullified by his mistaken zeal in one direction. The country is under a debt of gratitude to him for what he has accomplished, and it would be nothing short of a calamity were his services to be lost merely because he occasionally falls short of perfection.

News of the Week.

The Harvey Society.—The seventh lecture of the Harvey Society will be delivered on Saturday evening, January 9, at 8:30 o'clock, at the Academy of Medicine, New York, by Professor J. B. Leathes of the Lister Institute of Preventive Medicine, on the subject of "The Relation of the Liver to the Metabolism of Fat."

Condemn Antivivisection.—At the sixtieth annual convention of the American Association for the Advancement of Science, held at Johns Hopkins University during the week commencing December 28, the governing council adopted the following resolution, which is regarded as an excellent and comprehensive treatment of the subject:

From time to time, attempts, fostered largely by erroneous statements and accusations and false sentiment and prejudice, are made in some parts of the country to enact specific legislation, prescribing the conditions under which experiments on animals may or may not be performed.

Be it resolved by the Association for the Advancement of Science that animal experimentation has been of incalculable benefit to medical science and art, the progress of which is absolutely dependent on experimental methods, as are all the physical and natural sciences.

That no abuse of the practice of animal experimentation in the country has been shown to exist to warrant specific legislation relating to the general subject of prevention of cruelty to animals.

That the unrestricted performance by proper persons of scientific experiments on living animals is essential to the maintenance and progress of medicine and biology.

Vital Statistics of New York City.—For the week ending December 26 the death rate in the city was only 15.07 per thousand of population, the total number of deaths being 1,278. For the same week last year the total number was 1,691, and the rate 20.59. There was a decrease of almost 200 deaths in tenement houses. But two deaths were caused by influenza, which last year caused sixty-three deaths during the same time. For the year ending December 31, the death rate is the lowest on record. The rate has in fact been steadily decreasing for the last five years. The total number of deaths for 1908 was 73,171, that is, a rate of 16.52 per thousand, the lowest rate in the history of the city, and one of the lowest city records in the world. Deaths from several diseases were considerably below the average of the last five years. Some of the decreases are: Typhoid fever, 197; malarial fever, 42; smallpox, 7; whooping cough, 184; diphtheria and croup, 317; influenza, 77; phthisis, 573; spinal meningitis, 778; apoplexy, 1,116; acute bronchitis, 735; pneumonia, 2,823, and bronchial pneumonia, 149. The Health Department takes much pride in a decrease of 3,015 in the number of deaths among children under five years of age. The total decrease from the average of the past five years was 9,249. Only three diseases showed an increase. These were measles, 39; scarlet fever, 599; and cancer, 76. There were also more suicides, though the number of deaths from accidents was diminished. The total number of births for the year was 126,863, a rate of 28.68 per thousand, the highest in the city's history. The birthrate in New York has shown a steady increase for the past ten years.

Vital Statistics of Philadelphia.—The death-rate of Philadelphia for the year 1908 was the lowest in the history of the city, being 17.16 per thousand of the population, as compared with 26.10 in 1864, 26.19 in 1872, and 18.30 in 1907. There was a total of 26,304 deaths for the year, as against 27,462 in 1907, in the face of an increase in population. The improved results are ascribed to the adoption of better precautions against the spread of preventable diseases.

A Record-Breaking Exhibit.—An attendance of 350,000 in three weeks at the International Tuberculosis Exhibit of the Charity Organization Society, an exhibit which can scarcely be considered cheerful except to a person who sees progress in the treatment of the disease, is the record-breaking figure reached on December 21 in New York. Before the exhibition is closed it will probably have been viewed by half a million of people. This large attendance, however, has added to the expense beyond the original estimates, and an earnest appeal has been made for $16,000, in order that the exhibit may remain open until the middle of January. When the exhibit closes in New York, it is to be taken almost in its entirety to Philadelphia, where great preparations are being made to house it and to display it properly. Meanwhile, a most cordial invitation is extended to all interested in the prevention of tuberculosis to visit the exhibit in New York.

Vaccination: What It Is.—Under this title the New York State Department of Health has issued a pamphlet compiled by Dr. F. C. Curtis, consulting dermatologist to the department. Beginning with a history of smallpox, the pamphlet describes Jenner's discovery of the protective influence of vaccination and uses many striking photographs to illustrate this and the technique and care of vaccination. Attention is paid especially to the mild form of smallpox, which has for some years past been prevalent in the State, but which retains many of the characteristics of the more virulent type, and can be successfully met only by compulsory vaccination.

To Aid Medical Inspectors.—The Chicago Medical Society, through its Council, has inaugurated a movement to procure increased compensation for the public school medical inspectors. The Council's special committee has been at work for several months investigating the question of contract practice, with special reference to the doctors in the employ of the Health Department. This committee has reported that the salary of $50.00 a month received by each inspector is inadequate, and recommended the adoption of resolutions fixing a certain stipend to be paid to school doctors.

Pasadena Reports Infectious Diseases.—The Mayor and Council of Pasadena, Cal., have recently passed a resolution favoring a more rigid enforcement of the ordinance compelling the reporting of all infectious diseases, including tuberculosis, and have also made provision whereby the fumigation of all rooms and houses vacated by any infectious or tuberculous case shall at once be thoroughly disinfected by a city official at the city's expense. The Pasadena Medical Society is giving the Health Officer its unanimous support in the carrying out of the ordinance, and the women's clubs and real estate firms are also enthusiastic supporters of the movement.

Clean Cars.—Speaking at the Tuberculosis Exhibit on January 2, Mr. Frank H. Hedley, Vice-president of the Interborough Company, described the precautions taken by the company to keep the cars in a sanitary condition. He said that the thick matting which was at one time used in the cars had been done away with because it was recognized that the matting was a catchall for disease germs. The matting, Mr. Hedley said, had been replaced by hard maple strips three-quarters of an inch square and the same distance apart. Every night the floor of every one of the 2,500 subway and elevated cars is sprinkled with a five per cent. solution of carbolic acid. The floors are then swept clean, and after the dust is settled it is wiped up carefully with cheesecloth instead of being churned up with feather dusters. Every week, and oftener if necessary, the floors are scrubbed with a soft soap containing so strong a solution of alkali that it will remove the paint wherever it is allowed to come in contact with it. Every month the interior of each subway car is cleaned with an oil emulsion, which gathers up all of the fine particles of dust, and every year at least every car is painted, varnished, and oiled. Every night the straps are cleaned with an acid solution which will kill any germ.

Report of the Cook County Board.—The report from the Cook County (Ill.) Board gives prominence to several features, among which are the overcrowded conditions at the Dunning Institutions, preparation for the construction of the new

County Infirmary, and the beginning of the work on the new consumptive hospital.

To Investigate Occupational Diseases.—Dr. James W. Pettit of Ottawa and Dr. James A. Egan of Springfield, Ill., have been appointed by Governor Deneen as members of the States Commission to investigate occupational diseases.

Memorial Hospital.—The Delgado Memorial Charity Hospital, built as a memorial to Samuel and Virginia Delgado and presented to New Orleans by their nephew, was dedicated on December 19 with appropriate exercises. Addresses were made by the Governor of Louisiana, the Mayor of New Orleans, Dr. Matas, and others. The five-story building is strictly fireproof and thoroughly up to date in its equipment.

Report of Morris Plains State Hospital.—Dr. Britton D. Evans, in his annual report of the New Jersey State Hospital at Morris Plains, says that in the last thirty-two years 8,953 patients were admitted to the asylum, of whom 2,173 were discharged as cured, a percentage of about 24. During the last year, 26 per cent. of those admitted have been discharged as cured; and of the remainder 22 per cent. showed hereditary taints. A singular fact is that of the patients admitted last year 30 per cent. were housemaids. Dr. Evans is firm in his assertion that convicts should be kept out of such institutions, and says that the presence of seventy-one convicts in the hospital is a disgrace to the State.

Roosevelt Withdraws Its Ambulances.—Dr. James W. McLane, President of the Board of Trustees of the Roosevelt Hospital, New York, has announced that at a recent meeting of the Board it was decided to discontinue the ambulance service, probably on March 1. The trustees say that while they are perfectly willing to treat all cases brought to them, they consider that the city should support the ambulances, which service is distinctly a police duty. The hospital ambulances have covered the district from Twenty-seventh street to Eighty-sixth street, and from the Hudson River to Seventh and Eighth avenues. This action will be beneficial in calling attention to the recommendations for the establishment of emergency hospitals for accident cases already made by the State Charities Aid Association and by the Mayor's Hospital Commission, and in making some action by the city authorities imperative. As at present managed the ambulance service is entirely without system; and there can be no question that the burden of maintaining a properly organized service should rest upon the city and not upon the hospitals.

The Modern Woodmen's Sanatorium.—The Modern Woodmen of America have recently acquired some 1,300 acres of land near Colorado Springs, upon which they are establishing a sanatorium for the treatment of tuberculosis, the tent colony plan being employed. The first colony was opened the first of the year, and is equipped to care for sixty patients. A second colony will probably be opened about July, 1909. Members of the Society suffering from tuberculosis will be treated free of charge, as it is estimated that each life saved to the Society by this sanatorium will represent a saving of $1,700, at an expense for treatment of approximately one-twentieth of that sum. The plan is commended to fraternal organizations and life insurance companies generally.

Fire in Sydenham Hospital.—More than a score of women patients and as many babies were hurriedly removed from the maternity ward of the Sydenham Hospital in New York on the morning of December 24, because of a fire which started in a Christmas tree in the nurses' dining-room over the ward. The patients were carried into other parts of the hospital, and the work of removal and of fighting the fire was carried out so quietly that but few of the other patients knew of the blaze. The damage amounted to less than $300.

Chicago Pasteurizes Milk.—Beginning on January 1, Chicago put into effect an ordinance requiring the pasteurization of all milk except such as comes from cows which have been proved to be free from tuberculosis by the tuberculin test. The new ordinance was the result of a serious epidemic of scarlet fever in the city not long ago, when it was decided to resort to pasteurization both to prevent the recurrence of such outbreaks and to stop the spread of tuberculosis by the use of raw milk.

Annual Report of the Cook County Hospital.—During the fiscal year 1908, 28,142 patients were admitted to the County Hospital, Chicago. At the beginning of the year there were 1,145 patients there, and at the close, 1,322. The daily average number of patients in the hospital during the year was 1,274. The average cost for the care of each patient for one day in the County Hospital and the Detention Hospital, which are provided for in one appropriation, is 99 cents.

Charitable Gifts.—The Union Hospital of Fall River, Mass., has received a gift of $50,000 from Mrs. E. E. Stevens, and from the estate of the late Miss Elizabeth M. Borden a fund of $10,000 for the endowment of free beds for crippled children. Mr. Isaac Guggenheim of New York has offered to contribute to the funds of the Sydenham Hospital an amount equal to that contributed by all other subscribers during the year 1909. The expenses of this hospital have been largely increased through the purchase of four adjacent buildings as an addition to the present quarters. By the will of the late George M. Laughlin of Pittsburg, the Pittsburg Hospital for Children receives $25,000; the Southside Hospital for Children, $25,000; the Mercy Hospital, $25,000; the Protestant Home for Incurables, $25,000; and the Memorial Home for Crippled Children, $25,000.

Red Cross and San Francisco.—The Relief and Red Cross Society, which at the time of the earthquake and fire in San Francisco received donations amounting to nine and a half million dollars for distribution among the sufferers, has made a final report of its receipts and disbursements. The report shows a balance on hand of $397,267, which it had been planned to turn over to hospitals and charitable institutions in the city. It is now probable, however, that a part of this will be sent to the earthquake sufferers in Italy. The actual cost of distributing the nine and a half millions was only 2.03 per cent. of the entire sum disbursed. Much of the work done is of a permanent character. For instance, the society provided or assisted in providing for about 8,000 homes in San Francisco, at a cost of about $1,900,000. The Relief Home for the Aged and Infirm was also built and presented to the city. Besides these, large contributions made to hospitals and other charitable institutions have materially aided in their rehabilitation.

International Medical Congress.—Arrangements have been perfected for the American party which will attend the International Medical Congress at Budapest in August. Transportation arrangements are in the hands of Thomas Cook and Son, and rooms have been reserved at some of the best hotels in the city, but it is necessary for the committee to know at an early date approximately the number expecting to attend. All communications in regard to membership or scientific program should be addressed to Dr. J. H. Musser, Chairman of the American Committee, Philadelphia, while communications in regard to transportation and hotel accommodations should be addressed to Dr. Charles Wood Fassett, St. Joseph, Mo.

The Connecticut Society for Mental Hygiene.—At a meeting of the Board of Directors of this Society held in New Haven on December 11, the following officers were elected: *President,* George P. McLean; *Vice-Presidents,* R. H. Chittenden and J. H. Whittemore; *Treasurer,* Thomas Hooker. This Society, which it is hoped may be the forerunner of a National Association for Mental Hygiene, plans to accomplish in the field of nervous and mental disorders results comparable to those already accomplished in the fight against tuberculosis. The Connecticut Society is the first of its kind to be organized in this country for the work of attacking insanity along preventive lines.

The Eighth District of the South Dakota State Medical Society met in Yankton on December 17. The following officers were elected: *President,* Dr. S. M. Hohf, Yankton; *Vice-President,* Dr. J. L. Stewart, Irene; *Secretary-Treasurer,* Dr. F. L. Beal, Irene.

The Jefferson County (Ala.) Medical Society held its annual meeting at Birmingham on December 21, at which the following officers were elected: *President,* Dr. J. D. Heacock; *Vice-President,* Z. B. Chamblee; *Secretary-Treasurer,* Dr. A. F. Toole.

The Fall River (Mass.) Medical Society at its annual meeting on December 24 elected the following officers for the ensuing year: *President,* Dr. John Westall; *Vice-President,* Dr. J. A. Abbe; *Secretary,* Dr. J. E. Huard; *Treasurer,* Dr. D. R. Ryder; *Librarian,* Dr. G. L. Richards.

The Santa Clara County (Cal.) Medical Society at its annual meeting on December 16 elected the following officers for the ensuing year: *President,* Dr. William Simpson; *Vice-Presidents,* Dr. H. C. Brown, Dr. W. F. Snow, Dr. J. W. Thayer; *Secretary,* Dr. J. W. Kocher; *Treasurer,* Dr. H. J. B. Wright. In accordance with the by-laws of the Society, Dr. J. L. Asay, who has been a member of the medical profession for fifty years, was elected an honorary member for life.

The Knox County (Tenn.) Medical Society held its annual meeting on December 17 at Knoxville. The following officers were elected: *President,* Dr. S. D. Acuff; *Vice-President,* Dr. J. P. Tillery; *Secretary,* Dr. S. H. Hodge; *Treasurer,* Dr. C. W. Rain.

The Allen County (Kan.) Medical Society at its annual meeting on December 16 elected the following officers: *President,* Dr. C. J. Halm; *Vice-President,* Dr. R. O. Christian; *Secretary,* Dr. O. L. Cox; *Treasurer,* Dr. F. H. Martin; *Censor,* Dr. G. W. Moore.

The Faulkner County (Ark.) Medical Society held its annual meeting on December 17. The election of officers resulted as follows: *President,* Dr. G. L. Henderson; *Vice-President,* Dr. W. R. Greeson; *Secretary-Treasurer,* Dr. I. N. McCollum.

The Pacific Slope Health Association, at a meeting in Portland, Ore., on December 15, elected the following officers: *President,* Dr. N. K. Foster of Sacramento; *Vice-President,* Dr. R. C. Yenney of Portland; *Secretary,* Dr. E. E. Heg of Seattle. The meeting was called for the purpose of perfecting organization for a vigorous campaign to stamp out bubonic plague through the enforcement of strict quarantine at all customs ports of the Pacific Coast. The association adopted resolutions recognizing the value of the work already done in stamping out the disease among men and reducing it to a minimum among rodents, but asserting that the necessity for continuing the work for an indefinite period still exists, and that this work should include the extermination of rodents. The association further recommended the disinfection of all vessels at least once a month, the instituting of such sanitary improvements as will secure efficient collection, care, and destruction of garbage and stable offal, and the rendering of all buildings, docks, warehouses, markets, etc., rat-proof.

Dr. Archibald Church has resigned the editorship of the *Chicago Medical Recorder.* This journal was formerly the organ of the Chicago Medical Society, but latterly has been free from all entangling alliances.

Dr. Walter S. Reynolds of this city has been appointed Professor of Venereal Diseases in the Medical Department of Vermont University, Burlington, Vt.

Memorial to Dr. McCosh.—Active work has been begun to erect a memorial at the Presbyterian Hospital to the late Dr. Andrew J. McCosh, to take the form of a building for surgical cases in connection with the hospital. An appeal for funds has been made by a committee, of which Mr. John S. Kennedy is chairman. "We ask," says the letter, "contributions from those who were fortunate enough to have felt the skilled hand, as well as those who knew the generous, loving heart of the friend as well as the physician."

Obituary Notes. Dr. Samuel Hart of Marietta, Ohio, died at his home on December 20, after an illness of nine months. Dr. Hart was born in 1830, and studied medicine in his father's office in Marietta, until the outbreak of the Civil War, when he was commissioned surgeon and assigned to duty with the 63d Ohio Volunteer Infantry. At the close of the war he spent a year in study at Bellevue Hospital, New York. He was a member of the American Medical Association, the Ohio State Medical Society, and the Washington County and Marietta City Medical Societies.

Dr. Alice Boole Campbell of Brooklyn, N. Y., died on December 31, after several months' illness from angina pectoris. Dr. Campbell was graduated from the New York Homeopathic College and Hospital for Women in 1867, and was one of the founders of the Eastern District Homeopathic Hospital and Dispensary and of the Women's Memorial Hospital. She was the first woman to gain admission to the Kings County Medical Society.

Dr. Alfred Russell Goodrich of Vernon, Conn., died at his home on December 28, aged 92 years. Dr. Goodrich, who was the oldest physician in the county, was graduated from the Berkshire Medical College in 1846. He was at one time Secretary of State and State Controller of Connecticut.

Correspondence.

CLIMATIC TREATMENT OF NEPHRITIS.

To the Editor of the Medical Record:

Sir:—In an article published in the *Deutsche medizinische Wochenschrift*, No. 48, 1908, by Prof. H. Strauss of Berlin, dealing with "Climate and Kidney Diseases," the author approves of climatic cure only: (1) for the convalescence of acute affections; (2) for subacute or chronic diffuse nephritis; (3) for orthotic albuminuria, and (4) for chronic diseases of the urinary passages; whereas he disapproves of it for acute processes and for such phases and complications of kidney diseases which confine the patient to bed or which at least render him unable to be transported. He praises Egypt as an ideal winter resort, not only on account of the long continued irradiation of the sun and the dryness of the air in the desert, but also on account of the peculiar feature of the current of air which render high temperatures less disagreeable and oppressive. Thus the patient is enabled to enjoy the fresh air all day long the whole winter through and at the same time to evaporate through his lungs and skin much water, and with it a great deal of the products of final metabolism.*

As recent investigations have shown a parallelism in the vascular reaction of both skin and kidneys, there is room for the supposition that the solar rays cause an active cutaneous as well as renal hyperemia. But not to omit the one dark point in the bright picture, there is danger of taking cold in the sudden fall of temperature at sunrise and sunset, because of which a change of latitude is recommended, namely, Helouan for fall and spring, Assouan for January and February, and, if possible, Luxor for December and March. Whereas full recovery occurs only in a small percentage of cases of chronic parenchymatous nephritis, decided improvement is to be hoped for in nearly every case.

As I had the opportunity to observe and treat one of the first mentioned cases, I wish to call the attention of my confrères to the curative climate of Egypt which seems not to be so widely known as it deserves. In fact, at the time, I found there many Englishmen, but not one American suffering from nephritis.

My patient was a young man of 24, of athletic build, second lieutenant of cavalry, who contracted, by taking cold or by high living or by both, a parenchymatous nephritis a year or more before I saw him. At that time he was treated in a hospital by the first authorities for some months and suffered considerably from weakness, headache, vertigo, nausea, and anasarca. When the latter symptom had disappeared, in November, the patient was advised to go to Egypt for the winter, and as he was too weak and too sick to travel alone, I became his companion and physician. On the way to our destination from the center of Germany by railroad and steamer, all the mentioned symptoms did not leave him, but were even aggravated by a short sea sickness. Arrived in Africa we hurried from Alexandria to Cairo and then undertook a voyage on the Nile in a dahabiyeh (private sailing vessel). From that time on, I noted a daily improvement in his health and a decrease of the albumin and the granular and hyaline casts and other findings in his urine. When we arrived at Wadi-Halfa, the southernmost point of our trip, a month and a half after our departure from Cairo, his urine and his health were entirely normal, although he did not abstain from alcoholic beverages and, due to the hunger peculiar to this climate, ate quantities of meat.

In sailing north again a slight recurrence of albumin and casts was to be noticed, but disappeared after about two to three weeks. Returning to Cairo, just three months after setting out, he was as strong as before his illness. The completeness of his cure was demonstrated by the fact that a freshly acquired gonorrhea with epididymitis did not bring on a relapse of the nephritis, and healed in about six weeks during our stay at the sulphur-bath of Helouan. After crossing the Mediterranean in May we traveled slowly northward through Italy during five weeks and returned to Germany in June.

That the cure was a permanent one, I ascertained by occasionally visiting him during the last thirty-four years, always finding him in good health and his urine without any abnormity in spite of his good living and hard work on his large country estate.

Oswald Joerg, M. D.

12 Schermerhorn Street, Brooklyn, N. Y.

*He calculates the loss of liquid through perspiration in the desert climate 2½ to 3 liters (about 2½ to 3 quarts), and with this 2½ to 3 grams (38 to 45 grains) of nitrogen.

THE OPIUM HABITUE AND THE ORDINARY MAN.

To the Editor of the Medical Record:

Sir:—Though a clergyman, and not a practising physician, I read with interest Dr. Waugh's paper on "The Opiate Habit" in your issue of December 26. I was surprised at the eighth paragraph in that paper, in which occur the following words: "Some settle down to a certain dose and adhere to it for years; others devote their lives to the effort of absorbing all the opiate they can crowd into their systems. The life of the former runs on uneventfully. They live, perform a certain limited series of mental and physical evolutions, but their progress ceases. Their career culminates. They gradually retire from the activities of the community and grow yearly more contracted in their operations and their sympathies. Ambition is dead, incentive has perished—they just live and no more. The man collects his little rents, sees to his little kitchen garden, eats a trifle, wears his old clothes and sits alone at home reading a bit, meditating long, ruminating most of the time; producing nothing; a quiet, inoffensive, retiring hermit, of no use to himself or to anybody else, neither hated nor loved by any mortal man. Only the druggist knows the truth."

To my mind that is a strange description of the man who has acquired the opium habit. Is it not rather an excellent description of the average good citizen in any village or small city? How much ambition have most men of restricted means and limited education, who have seen little of the world, and are over sixty years of age? What could Dr. Waugh expect such men to produce? I should think the less they produced the better it would be for them and for others. Dr. Waugh seems to think "producing" is the great end of human life. Thousands of very good men produce little or nothing, and yet they are in their way of service to the human family. The consumer, if he pays well for what he consumes, is a very desirable member of the community in which he lives. Is the quiet and inoffensive life of the man producing little or nothing, who spends his time with books, and is a "retiring hermit," but a burden to no one, good evidence of the presence in the community of an "opium fiend"? I should be very sorry to think that such a life as has been described bears any close relation to the habitual use of opium.

I have known some eaters of opium who were very different men from those described in the paragraph under review. They were not humdrum, commonplace men, but men of unusual mental activity. In the end extravagant use of the dangerous drug destroys a very considerable per cent of them, but they were, none of them, such men as Dr. Waugh brings before us. I was personally acquainted with Capt. Frederick Lahrbush, who lived to be more than a hundred years old, and I thought that his length of days was in some measure due to the tranquility of more than half of his life, an absence of irritability, and a contented disposition. I have seen him drink at one time more laudanum than would kill ten men unused to the drug. There was a very correct picture of him when he was supposed to be one hundred and nine years old in an article on "The Curiosities of Longevity" in *Scribner's Monthly* for November, 1875. Surely Coleridge, De Quincey, Erskine, Dr. Hall, Kimball, John Randolph, Wilberforce, and the poet and artist Rossetti were not dull and stupid men whose lives were uneventful, whose ambition was dead, who produced nothing, and who were mainly of interest to the druggist. Not one of the persons named lived a stupid life. Not one of them confined his attention to "little rents" and "the kitchen garden." Not one of them died young.

I do not wish to be understood as approving an evil habit or as desiring to blunt the force of Dr. Waugh's attack upon wrongdoing. The warning he sounds is timely, but surely his description is inaccurate, and does injustice to a class of men who consume and do not produce, who live with their books, who are quiet and inoffensive hermits, but who do *not* use opium and should not be exposed to the suspicion of so doing.

Frederic Rowland Marvin.

Albany, N. Y.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

KING EDWARD'S HOSPITAL FUND—THE SUNDAY FUND, INTERRUPTION OF MEETING—MEDICAL PROVISION FOR SCHOOL CHILDREN—REMOVAL OF THYROID—STRANGE DEATHS ON A STEAMER—OBITUARY.

LONDON, December 18, 1908.

On Monday the grants of the King's Hospital Fund recommended by the committees were awarded at a meeting under the presidency of the Prince of Wales. The reports of the Distribution and Convalescent Homes Committees were adopted on the motion of the Prince President. They were elaborate statements, and touched on several points in hospital management. As the Prince's speech included most of these, and was very full and explicit, it will suffice to give an abstract of it. He hoped the reports would be satisfactory to all. The donations for the year included Lord Mount Stephen's munificent gifts of £100,000 and Lord Iveagh's of £10,000, both of which have been placed to capital account. One hundred and forty thousand pounds sterling was allocated for distribution among hospitals, convalescent homes, and country sanatoria, being £19,000 above last year's sum. King's College Hospital has another £5,000, making a total amount of £27,000, and the new building has begun "in a district," said the President, "where it has long been needed." The London Hospital is granted £12,000, including £2,000 toward reduction of debt. The fund adheres to the policy of aiding the extension of hospitals situated in the poorer districts remote from the larger general hospitals, and His Royal Highness expressed satisfaction that the committee had given such careful attention to a survey of the metropolis as to the abundance or scarcity of accommodation in different districts, and their report afforded enlightenment and guidance in forming a judgment on the question of unoccupied beds. He also held that convalescent homes, which complete the cures begun in the London hospitals, were in numerous cases essential and acknowledged the indebtedness to the Parochial Charities for their help in this matter. It was decided at last year's meeting to extend the operations of the Fund to consumption sanatoria in the country which received patients from London, but only a small number had applied so far. One step in this direction which the President thought deserved support and encouragement was the National Association of Sanatoria for Consumptive Workers established by workers themselves, Beninden Sanatorium being the first outcome of this movement. Though subscriptions had not increased so fast as was hoped, the President said those of the League of Mercy, to which he expressed his thanks, had steadily advanced. Sixty-six hospitals this year share in the distribution, and for the first time expenditure on in-and-out-patients has been separated. There was reason to hope that the new system of accounts would further assist in the control of expenditure. Over 100 members served as visitors or on committees, a fact which the president thought was a guarantee to subscribers and the public that the fund was well distributed. The plan adopted last year of not nominating any individual to more than one committee had been so satisfactory that it would be continued. To the honorary officials of the fund, as well as to those of the League of Mercy, the president offered his warmest thanks for their devoted, untiring, and most valued services. The arrangements for next year were considered and approved and other formal business disposed of. The president was accorded a hearty vote of thanks for the earnest way he had taken up the rather heavy work for the poor of London. In reply he mentioned that the King was pleased with the progress made and charged him to congratulate the Council on its management.

The League of Mercy has made grants, with the sanction of the Prince of Wales, to extra-Metropolitan hospitals amounting to £1,516 for the year now closing.

The Sunday Fund's meeting was held on Wednesday. The Lord Mayor opened the proceedings by expressing his gratification that the record sum of £80,000 had been received, though the sum collected in places of worship was £2,500 less than last year. The report recommended grants to 164 hospitals and institutions, 60 dispensaries and 29 nursing associations. On its being moved and seconded, an unusual division occurred. The Vicar of St. Mark's, Whitechapel, rose to move an amendment to protest that no grant had been allotted to the "anti-vivisection hospital." Considerable interruption and laughter followed, and the Lord Mayor ruled that the question was not for that meeting but for the Council. But the Vicar declared contributing congregations had a right to a voice, and he and another had been deputed at a vestry meeting to come and protest. Much confusion arose, amid which the Lord Mayor told the Vicar he had not brought the matter before the Council and it could not be discussed. The reverend gentleman still persisted amid constant interruption and cries of "Chair!" and "Sit down!" The Lord Mayor firmly held to his ruling that the amendment was out of order. The Vicar of St. Peter's, Brockley, then pointed out that the clergyman who was so enthusiastic for hospitals had a congregation which had contributed to the Fund the sum of 3 shillings and 3 pence. When the laughter and cries of shame had subsided Sir John Bell said he thought it a shame, indeed, that a clergyman whose congregation gave such a sum should come to interrupt the proceedings. He considered the reverend gentleman was not there in the interests of either hospitals or the public. This opinion was endorsed by the meeting's loud cheers, and the interruptor declared it was "a shame he should be bullied." The report was carried with three dissentients, other business was completed and next year's Hospital Sunday fixed for June 13.

The London County Council has taken up the subject of school clinics, and yesterday the debate came on respecting the reports of the majority and minority of the special subcommittee appointed in July, 1907. They bring out with clearness facts with which medical men are quite familiar, but which many of the newspapers pronounce shocking, although in a different guise these facts have often been brought to their notice. Numbers of children in the elementary schools are not only weakly, but suffering from disease—not a few the result of neglect. We are assured that 90 per cent. at one school were in need of dental treatment—a fact which might be parallelled in other classes, if a dentist inspected all the children in his neighborhood. The Council's medical officer reports that "12 schools taken at random in various parts of London lost 26,766 attendances from ringworm in 12 months." Further, we are told that a large number of scholars suffer from "general debility" and are therefore "prone to fall victims to zymotic diseases, and particularly tuberculosis." The specialists in education are urging that these facts prove the necessity of taking up the matter in order to help the children profit by their lessons. On one side it was proposed to establish school clinics under the control of the Council by their own medical officers. The minority report recommended that arrangements be made with existing hospitals and dispensaries, which are to be paid for the work out of the rates. To neither of these parties did it occur that there is in every locality a number of general practitioners who could do the work and would be glad to undertake it on very moderate terms. The discussion yesterday brought out sharp differences and ended in the adoption of the minority report—not without a vigorous effort on the part of the Socialists to go further.

One Councillor said dispensaries were only shops for the sale of dark colored stuff with a taste of peppermint, and in this twentieth century we had ceased to believe in medicine. If poor law infirmaries were utilized the "children would be pauperized." He did not seem to see that this "stigma of pauperism" was a mere pretence when the children were being fed out of the rates. Another speaker said they could not put pressure on the parents to join dispensaries. He could not see that they might bring to the notice of a parent that his child ought to go to his private doctor and put pressure on any one who neglected to do so. The poorer ratepayers are pressed enough by the "educationalists" and are being driven into the ranks of the Socialists, who promise to feed, clothe, and otherwise provide for their children, and so repudiate parental responsibility. This is diminishing the subscriptions of those better off, as the Mayor of Westminster recently stated, and added that for every penny drawn from the rates two would go to officials. The medical profession is too apathetic to look after its own interests or it would use its influence to prevent the opening of school clinics or the municipalization of existing hospitals and dispensaries, and insist that children suffering from diseases which unfit them for mixing with others should be sent to their family doctors. Some may suppose that the organization of yet another public medical service would provide good salaries for those who entered it. But they should remember these clinics would introduce into each district a salaried man who would inevitably deprive all others in the

neighborhood of their ready money patients. The competition of out-patient departments has already been ruinous enough to private practitioners.

The question of removing the thyroid gland in certain cases was raised at the Dublin Academy *à propos* of a specimen shown by Mr. Gunn. On cutting into it large areas of calcification were seen to have replaced almost all the gland tissue. Two months had passed and so far no signs of myxedema had appeared. Microscopic sections looked like carcinoma. Sir Christopher Nixon thought it was not considered justifiable to remove the whole thyroid, as myxedema was considered certain to follow. Perhaps in this case there was an accessory thyroid. Professor Scott said one section seemed normal and another patch might be anything. Another speaker considered that section looked suspicious, but he would not like to definitely pronounce it malignant. In reply to these and other remarks, Mr. Gunn said he did not think myxedema was certain to follow; that the calcification was not true bone, and Professor White had seemed to agree that the tumor looked ugly, and certainly the patient was better without it.

An inquest twice adjourned has been held on account of five deaths on a steamer coming from Antwerp to Grimsby. On arriving in the harbor a message for medical aid was sent, and the Medical Officer of Health, Dr. Simpson, boarded the vessel and found that the five victims were Russian Jews (two men, two women, and a boy), who had been taken ill at 10 o'clock A.M. and were dead at noon. They had eaten food they had brought with them. Ptomain poisoning was suspected, but in view of possibilities the contents of the stomachs and remains of food were sent for bacteriological examination. Another steerage passenger paid the difference of fare and traveled in the saloon. The jury thought she might give some important evidence, and so the inquest is again adjourned, as it was thought she had sailed for America. The bacteriologist has not yet completed his investigtaions.

The death is reported of Surgeon-General G. H. Day, at the age of 85. He served through the Punjaub campaign of 1848-'49, taking part in several battles and receiving medal and clasp. Later he was engaged on the Northwestern frontier and the Umbeyler expedition, for which he was awarded another medal and clasp. He retired in 1879.

OUR VIENNA LETTER.

(From Our Regular Correspondent.)

NEW HOSPITALS FOR THE DISEASES OF WOMEN—THE NEW INSTITUTE OF HYGIENE—PELVIC SHADOWS—X-RAYS IN EXOPHTHALMIC GOITER—CUTANEOUS REACTION IN MEASLES—SCLEROSIS OF THE SKIN SIMULATING A MASK—RELIEF OF ANGINA PECTORIS—SEA BATHING FOR THE DISEASES OF WOMEN—FLOATING HOSPITALS.

VIENNA, November 28, 1908.

Two new hospitals for the diseases of women were opened in Vienna on October 21, in the presence of high officials and of eminent representatives of the medical profession in Austria and in foreign countries. Professor Schauta delivered an address on "The Construction, the Organization and the Purposes of the New Hospitals for Women," and acquainted his hearers with the magnificent plans of the buildings and with many important details of their arrangement. The new buildings contain rooms for the reception of pregnant patients and several rows of separate apartments for women ready for delivery; the internes and students are housed in the central building, while the nurses are accommodated in the western wing; a dispensary for obstetrical and gynecological cases is run in connection with the hospital, being housed in the main building; much space has been given to laboratories; lying-in patients have almost the whole western wing and some rooms of the central building at their disposal. The gynecological service has been given very good accommodations, and the needs of students are provided for by a large auditorium, wardrobes, a small lecture hall, a library, and a room for the records of the institution. A laboratory is provided for experimental pathology and an *x*-ray cabinet is also housed in one of the wings. In a few eloquent words Schauta honored the memory of Semmelweiss, whose monument, the work of Charlemon, he and Professor Chrobak had recently presented to the university. The closing words of the speech were addressed to the assembled students: "With the construction of this magnificent building an opportunity has been given to the students of medicine in Vienna to perfect themselves in one department of medical work. But with this opportunity a number of duties have been also imposed upon the student body, for it should not ever be said that the great expenses incurred in establishing the new institute have been made without bringing worthy results in teaching and in research. The State should feel sure that its pecuniary sacrifice is going to bring proper return for humanity, and the duty of the student will consist in helping to bring on such results by diligent and thorough work in the new institute." After Schauta's speech the guests of honor were conducted through the hospitals.

On October 23 the new Institute of Hygiene was opened with similar exercises. This institute is a model establishment both in the character of the buildings constructed to accommodate it and in the interior arrangements. The building is planned according to the most modern ideas and contains the Hygienic Institute, the Institute for General Experimental Pathology, the Serotherapeutic Department, and the Department for the Examination of Food Products. Professors Schattenfroh and Paltauf delivered the principal speeches at the exercises that attended the opening of this institute.

Speaking before the Medical Society, J. Robinsohn considered the so-called "pelvic spots" in sciatica and their interpretation as calculi of the bursæ. The name "pelvic spots" has been applied in röntgenology to some shadows first noted by Albers-Schönberg; these shadows are usually found in the neighborhood of the inferior spine of the ilium and of the horizontal ramus of the pubic bone; they are usually round or oval, and seem to be some sort of calcified material or concretions. Many interpretations of these shadows have been proposed, some claiming that they are phleboliths, others taking them for calcified lymph nodes, intramuscular concretions, and even exostoses, the pedicles of which were hidden. Robinsohn is of the opinion that the same unknown process which produces these pelvic shadows, which must certainly be looked upon as pathological appearances, may sooner or later affect for a time or permanently other organs in the neighborhood, among them the ureters and the sciatic nerve. The speaker demonstrated a patient—a young man of 28—who had been suffering from gonorrhea for eight years and from bilateral sciatica for three years. All methods of treatment tried heretofore proved quite useless. An *x*-ray examination showed typical shadows on both sides; in their round form and in their compactness they resembled perfectly the pelvic spots mentioned above. According to Robinsohn, the patient was suffering from sciatica because of a gonorrheal affection of the pelvic tissues.

Dr. Schwarz has tried the effects of *x*-rays in 40 cases of exophthalmic goiter. The principle of the treatment consisted in the property of the rays to diminish glandular activity. In exophthalmic goiter exposure to the rays is followed by diminution in the amount of secretion of the gland. Schwarz's results showed diminution of nervous symptoms in all cases and decrease in the rate of the heart in almost all; two-thirds of the patients stopped losing weight, one-half showed diminution of the exophthalmos and one-fifth showed decrease in the size of the thyroid gland. Especially interesting was the influence of this treatment upon the action of the heart; favorable effects were uniformly obtained, and, of course, greatly modified the prognosis of the disease. Still more important is the fact that the effects of treatment seem to last for a long time, because the diminution in the size of the gland continues even after the use of the rays has been stopped. The principal point of the technique of the treatment is to obtain as deep a penetration of the rays as possible. Exact dosage must be provided because the skin of patients with exophthalmic goiter is extremely sensitive to the effect of *x*-rays. The treatment should be continued for many months, as the good effects are often seen only after prolonged use of the rays.

Clemens v. Pirquet has studied the behavior of the skin toward tuberculin during the course of measles. The cutaneous test with tuberculin may be used not only for the diagnosis of tuberculous infection but also for the estimation of the changes in the reaction of the skin. Repeated tests of this sort usually show a gradual diminution of reaction in miliary tuberculosis and quite a typical temporary diminution in measles; the phenomenon was observed by v. Pirquet in one case of measles, but later Dr. Preisich of Budapest has

shown that it occurs generally in that disease. This diminution in the reaction is very regular in its occurrence and is so characteristic that it can be used for diagnostic purposes. Scarlet fever, German measles, diphtheria, typhoid fever and cerebral meningitis do not show any such phenomenon, but it is quite evident in vaccination; it may be supposed to occur in smallpox as well. The cause of the diminution of the reaction is to be sought in the absorption of the antibodies which are required to produce the response to the cutaneous application of tuberculin; this decrease in amount of antibodies during measles explains the frequency with which patients are affected with tuberculosis after having gone through an attack of measles.

At the last meeting of the Society of Internal Medicine Prof. H. Schlesinger presented a Russian clergyman who was treated in his wards. This patient suffered from some hardening of the skin, and because of this appeared as if he wore a mask, the yellowish discoloration of the skin adding to the deception. The greater part of the skin elsewhere in the body had likewise assumed a board-like hardness, and Schlesinger thought that the condition present was a general sclerodermia and pigmentation. The disease began during the last year in a somewhat sudden manner after the patient had carelessly exposed himself to the effects of great changes in temperature. One day he went about from house to house, not being dressed very warmly; he was treated to some hot drinks while in the houses of his parishioners and then went out into the intense cold air of winter. The very next day he felt some swelling in the neck, and this swelling very rapidly spread over the back. At the time of demonstration the hardened skin surrounded almost the whole trunk and affected also the neck, the face, the arms, the forearms, and the thighs. The face presented all the appearances of a mask; the eyelids were so affected by the hardening of the skin that the patient could not lift them from the eyes; the mouth could be opened, but very slightly. The patient complained bitterly about the feeling of tightness and oppression, which may perhaps have been caused by the difficulty he had in breathing; it is possible, too, that the circulation had been affected by the skin changes. The lesion upon the arms was favorably affected by regular massage and the internal administration of arsenic.

Dr. Max Herz of Vienna has tried an interesting method of preventing attacks of angina pectoris and of paroxysmal tachycardia. He had frequently observed that the complaints of patients with heart disease were often much lessened, especially in an acute attack, if they succeeded in relieving their stomach of accumulated gas by inviting eructations. In order to assist this act Dr. Herz has his patients take some water into their mouths, then lean as far back as possible and swallow the water. The bending backward stretches the esophagus while the close attention which the patient pays to the act of swallowing produces a sensation in the pharynx that results in expulsion of gas from the stomach. The eructation usually occurs during the time of swallowing or immediately after the fluid has reached the stomach, the gas escaping slowly on some occasions and on others very quickly with explosive violence, though in small amounts. In the latter case Herz has the patient repeat the maneuver. The amount of water swallowed should not be too large, because its only use is to allow the act of swallowing to take place and not to fill up the stomach with the fluid. The method must be learned by frequent practice during the intervals free from the attacks of heart trouble. Little by little the patient learns to expel larger and larger amounts of gas. Herz lays stress upon the necessity of explaining the nature of the method to the patient because such knowledge seems to help in the production of the results aimed at; the will of the patient may inhibit the act of eructation or further it. Herz had as good results with this method in paroxysmal tachycardia as in angina pectoris, for in both conditions an acute attack can be brought about by the accumulation of gas in the stomach.

The Association of Physicians has addressed the public, especially the women, in a little pamphlet and has impressed them with the importance of early recognition of the first signs of cancer, especially that involving the uterus; in another popular brochure it has called the attention of the public to the dangers of venereal disease; finally it called attention to the harmful effects of phosphorus upon the workingmen compelled to handle it and has asked the government to put an end to this danger by a radical prohibition of the use of phosphorus in some of the arts and not by any halfway measures which were proposed in some quarters.

Dr. Kurz of Abbazia spoke at a congress at that place on "The Action of Abbazia Sea Baths Upon the Diseases of Women." He came to the following conclusions: Observation of over four hundred cases of gynecological diseases warrants the statement that the bathing in Abbazia is of very great use in the treatment of such disease. If careful selection of cases is carried out the results of sea bathing in Abbazia are in no way worse than the results of treatment elsewhere, especially when compared to resorts with saline and thermal baths. Sea bathing should be looked upon as an independent system of treatment for disease, and not merely an after-treatment for convalescents. The climate of Abbazia makes it very suitable for a resort where sea bathing could be used as a therapeutic measure; such bathing could be enjoyed throughout the year, which is not possible in other resorts.

Dr. Diehm of Vienna stated his attitude on the question of floating sanatoria in the following words: The question of floating sanatoria has become a very important one at the present time. The need of ships equipped for this purpose is evident, and the call for them will increase in the near future, as their great value in therapy of disease will be more widely recognized. The desired construction and arrangements of such ships have already been well worked out, and the indications for sending patients for treatment in such hospitals have also received a great deal of attention recently. Such indications increase in number almost from week to week, as the benefits of the treatment become better understood. It is important that proper waters should be selected for the cruises of these hospitals, so that the patients might enjoy the effects of the sea air without interruption by bad weather. The Adriatic and the Mediterranean seas seem to be best adapted for such cruises; they offer all the climatic and weather conditions desired; the topographical relations of these waters, too, are best suited for the requirements of the inhabitants of Europe, which will probably furnish the greater number of passengers for the floating hospitals of the near future.

Progress of Medical Science.

Boston Medical and Surgical Journal, December 24, 1908.

Tuberculosis of the Larynx.—A. G. Getchell presents a general description of the subject. He says that a clear voice may persist even in the presence of marked infiltration. As to prognosis, he says that lesions of the cords or ventricular bands are more likely to get well than those of the arytenoids and epiglottis. Marked involvment of the arytenoids with grayish infiltration, with or without ulceration, he has never seen recover. Treatment is primarily one of the patient and secondarily of the larynx. Rest alone is often the best plan, and complete silence must be enjoined. Cough calls for rest, open air, soothing inhalations and suggestion. Intratrochial injections of guaiacol and menthol in olive oil are serviceable. Cleansing sprays should be used several times daily if the patients are strong enough. Iodoform is better for the ulcerations than is lactic acid, but if the lesions in the larynx are localized, the surrounding areas not actively inflamed, the lung lesion inactive, and constitutional symptoms not marked, curettage and lactic acid are indicated. For destroying areas of infiltration the best agent is the electro-cautery. For the hopeless cases the author advises cleansing and orthoform powder to relieve pain. When at the last more powerful sedatives are required, he uses the following powder: Paraformaldehyde and orthoform, āā 5i; compound zinc stearate, gr. xlviii; morphine and cocaine, āā gr. x.

Chronic Gout.—One case is reported by D. E. Keefe, who adds some general observations on the effects of uratic deposits on bone and cartilage, the effects of opening or puncturing tophaceous masses, causes of deposition of urates in joints and other tissues, and the effect of the gouty poison on the kidneys. Concerning the general effect of puncturing or opening the deposits, the author says that the procedure is analogous to laparotomy in tuberculous peritonitis in that we cannot positively tell whether it be the admission of air or the manipulations that furnish the required stimulus. But we do know that frequently immediate benefit ensues. In this case of gout the opening gave vent to the pent-up serum and the more liquid portion of the uratic deposit, while the admission of

air set up an oxidation process, thus causing liquefaction and discharge of the more solid portion. Be this as it may, a profuse discharge followed and the edema was lessened and improvement marked. The openings were dressed with simple water dressings, but carbonate of sodium or lithium dressings are preferable. There was a degree of arteriosclerosis present; the anterior tibial artery and many of the veins were nearly or quite occluded.

New York Medical Journal, December 26, 1908.

The Influence of Alcohol Upon the Public Health.—F. Peterson dwells upon the disastrous effects produced on the public health by the present alcoholic excesses, and estimates the economic loss caused thereby. He considers the current notion that alcohol is a food as disastrous, for it is a poisoned food. He notes that the present view is that alcohol is a depressant rather than a stimulant. It perverts digestion, depresses heart action, lessens the capacity for muscular work, diminishes the intellectual functions, brings about slow, far-reaching anatomical changes, such as fatty heart, kidney lesions, disease of the blood vessels, muscular and nerve tissue changes, and weakens the normal defenses of the body against infections, especially tuberculosis. Physicians should be missionaries for reform in the use of alcoholic drinks. The walls of French hospital wards are placarded with wise rules in this respect, and the author has placed on his own prescription blanks the following temperate statements: Alcohol is a poison. It is claimed by some that alcohol is a food. If so, it is a poisoned food. The daily regular use of alcohol, even in moderation, often leads to chronic alcoholism. One is poisoned less rapidly by the use of beer than by drinking wines, gin, whisky and brandy. Alcohol is one of the most common causes of insanity, epilepsy, paralysis, diseases of the liver and stomach, dropsy, and tuberculosis. A father or mother who drinks poisons the children born to him or her, so that many die in infancy, while others grow up as idiots and epileptics.

The Diagnosis of Acute Miliary Tuberculosis.—The paper of S. von Ruck closes with a bibliography of recent literature. The points he makes with reference to the differential diagnosis of this particular variety of tuberculous disease are the following: (1) The rapid emaciation which is a striking feature in almost every case, and which is out of all proportion to the degree of fever, the state of the digestive organs, and the amount of food taken. (2) The bronchiolitis of acute miliary tuberculosis of the lung is characteristic in that the catarrhal signs appear first in the smaller and then extend to the larger bronchi, instead of in the reverse order as in ordinary bronchitis. In further contrast to ordinary bronchiolitis the lower posterior portions of the lung in acute miliary tuberculosis are often less involved than the upper. (3) Cases in which typhoid fever is minutely simulated by acute miliary tuberculosis or in which the two diseases coexist are rare, and a careful study of the pulse, temperature, and respiration will usually lead to a correct distinction. (4) Serum reactions are reliable when present in well marked degree, but tuberculous patients may show a modified Widal reaction and the Arloing-Courmont reaction is not always present in tuberculosis. (5) The ophthalmic test as applied by Calmette and the cutaneous application of tuberculin according to the method of Pirquet, while not yet established as thoroughly reliable, are safe, and one or both should be employed in all doubtful cases, especially if the subcutaneous injection of tuberculin is contraindicated. (6) Bacteriological examinations of the blood, fæces, and secretions may be of great aid in doubtful cases. (7) The appearance of choroid tubercle or miliary tubercle of visible mucous membranes in the course of the disease removes all doubt.

Severe Ivy Poisoning.—R. F. Ward offers the following suggestions regarding treatment: The bowels are thoroughly cleaned out with calomel and a saline, and copious draughts of cool water are given to flush out the kidneys. This plan sometimes aborts an attack if it is put in operation immediately after the poisoning. If vesicles are already formed, loose gauze saturated with acetate of aluminum solution is applied. Ointments should be avoided until after weeping ceases. Then a ten per cent. ichthyol-vaseline may be used. For internal medicine the tincture of cypripedium (two to five drops) may be given every three hours until the subsidence of acute symptoms. It should then be continued thrice daily for two weeks. It aids the kidneys and stimulates healthful repair of the skin, and very markedly lessens the tendency to post inflammatory itching and burning. Under no circumstances are the surfaces rubbed or the vesicles evacuated. Slight rubbing during dressings may set up violent burning and intolerable itching, requiring a hypodermic injection of morphine. When sleep is disturbed because of peripheral irritation codeine sulphate, gr. ss. may be given at bedtime and repeated during the night if necessary. The diet should consist of milk and vichy or some other carbonated water, equal parts, alternated with simple, salt seasoned broths, and a few light vegetables. For two weeks after the local manifestations have disappeared the patient should be kept on a strictly vegetable diet. Experience has taught that meat given before this may cause a disagreeable return of cutaneous irritation, which often is most manifest when the air strikes the skin upon removing the clothing before retiring, and may not subside enough to permit a good night's sleep. Sequelæ are often wanting entirely, but occasionally eczema or furunculosis may supervene. It is therefore wise to give a hematonic consisting of some form of iron, arsenic, and strychnine, beginning as soon as the patient is up and around.

Journal of the American Medical Association, December 26, 1908.

Yellow Fever and the Mosquito.—J. H. White says that the only way to avoid errors of diagnosis between yellow fever and certain diseases that are likely to be confounded with it, and all the possible consequences of such confusion, is to extirpate all mosquitos, all stegomyiæ, all anopheles, and all culices. This seems easier than it is; it calls for an infinity of detail and almost superhuman perseverance and patience. He gives minute details of the measures necessary for the destruction of infection-bearing mosquitos of each of the types mentioned, the destruction of their breeding places, etc. This *Stegomyia* is a sort of human parasite, increasing with civilization, and the *Culex pungens* which carries dengue is the same to a lesser extent, the *Anopheles* are less domesticated and tend to decrease and disappear with cultivation of the soil and civilization. Each has its own habits, which are more or less known to us, and we must modify our measures accordingly. We are protected from yellow fever at present by a sea quarantine, but railway communication will soon be complete from Central America to the United States, and an efficient land quarantine is an impossibility. At the last analysis the only rational preventive of yellow fever is sanitation, not quarantine. What we must do is summed up by White as follows: "1. Destroy within our borders all disease-bearing mosquitos. 2. Follow the advice of Surgeon-General Wyman given in his letter to the Secretary of the Treasury, strongly urging that Havana and all other then existing danger points should be compelled to clean themselves. 3. Educate all young physicians as profoundly as we can in entomology and in tropical medicine, remembering that it is no small part of the duty of the physician to educate his people in sanitation. The blind may not lead the blind."

Mosquito Destruction in the Tropics.—J. A. Le Prince describes the conditions and methods of mosquito destruction in the Canal Zone. The malaria-bearing species of anopheles are all shade-loving, and, though they will bite at any time, there is no record of their biting in full sunlight. Whether in a shaded area they will bite malarial persons and remain there long enough to transmit it to other persons in the same place has not been settled, but seems possible. Some anopheles breed throughout the year on the Isthmus, and the larvæ have been taken in brackish water containing up to 90 per cent. of sea water. The difficulties of mosquito destruction in the tropics, as compared with more northern latitudes, are enumerated. They are: 1. The continuous propagation throughout the year. 2. This is especially a difficulty during the dry season, when the streams become stagnant and alive with the larvæ. 3. The rapid growth of algæ, etc., in the ditches, sheltering the larvæ and preventing their destruction by fish. 4. Owing to the great extent of drainage required on account of the heavy rainfall, it is impracticable to keep the waters free from such growth with the available labor. 5. The difficulty of finding all the breeding places in a climate where the rainfall is so great and the ground so saturated during a larger part of the year. 6. The necessity of keeping down the rapid growth of jungle which prevents evaporation and conceals breeding places of the mosquito. The methods used to destroy mosquitos are: Fumigation, used for dwellings, cars, etc.; crude petroleum,

which has not been very successful; larvacides; open ditches, which are useful if shallow and quick to dry up after a rain; blind drains, used before tile drains were introduced; filling in of depressions and low ground, and tile drainage, which has been found the most economical and permanent method of destroying anopheles in the tropics. Clearing away the tropical vegetation, which hides the breeding places and shelters the mosquitos, is an essential in all cases. With the use of all these methods, which are described in detail, the results have been exceedingly good. The malaria situation in 1907 was a vast improvement over that of 1906, and that of 1908 up to the date of his report is even better.

Slight Joint Traumas.—S. Lange calls attention to the clinical and medicolegal importance of slight, often apparently insignificant, injuries to joints. The histologic elements of the joints are of comparatively low organization and scant vascularity, hence degenerative and chronic inflammatory fibroid or calcareous changes are the more likely to occur. New bone or fibrous tissues thus started may act as an irritant and give rise to a progressive aggravation of the trouble. Thus what was at first a conservative effort of Nature becomes, in the synovial regions, an irritant, and each new conservative effort gives rise to more irritation. Too often this vicious circle accomplishes the ruin of the joint, especially in such joints as the knee, subject to rather violent motion and strain. These chronic joint changes are usually slow in developing; one to ten years may elapse between their inception and marked functional impairment. The causal trauma is thus often overlooked or forgotten. The *x*-ray is often the only means of ascertaining the actual conditions. The changes being progressive, the ultimate picture may not be unlike that of arthritis deformans, but this may be ruled out if the other joints of the body are found normal. Constitutional tendencies, however, may play an important part; in a patient with a distinct gouty or arthritic habit, the chances for chronic joint changes following trauma are much increased. The possibility of such changes following trauma must always be borne in mind and a guarded prognosis given in many cases, especially in persons over forty, and of a gouty or arteriosclerotic habit. The medicolegal importance of these facts is obvious, as they show how an injury received years before may be the real cause of serious disability, though it may not be easy to prove the direct causal connection in a given case. There is another type of joint trouble following slight trauma in which conditions are reversed. In this type the joint changes precede the injury, but the symptoms are latent until called into notice by the trauma. In arthritis deformans, for example, the symptoms may not appear till after some slight injury, though the joint changes may have existed for some time. When they are once lighted up by the trauma, they rarely disappear completely, but run the characteristic course with exacerbations and remissions. The possibility of an underlying arthritis should always be borne in mind when a traumatic joint inflammation fails to subside under the usual treatment. Lange reports a case of this kind in which accident insurance was claimed and allowed, as he believes justly. Although the chronic joint changes preceded the injury, it lighted up the symptoms, which then refused to subside. If the injury had not occurred, it is probable that the patient would have had the full use of the joint, perhaps for years. The good function of the corresponding uninjured joint, which showed the same changes to *x*-ray examination, was evidence of this possibility. The patient had, therefore, a just claim for damages or insurance, although the pre-existence of the chronic joint disease should have modified somewhat the amount of the claim.

Hemorrhage in the Newborn.—H. E. Tuley says that hemorrhage is an accident to which the newborn are liable; its etiology is obscure, but since fever is a prominent symptom in most cases, it is generally believed that it is due to septic infection. Newborn infants develop sepsis easily and there are many ways in which the offending organisms may attack them. Among other causative factors have been mentioned prematurity, atelectasis, cardiac abnormality, gastric or intestinal ulcer, thinness of the blood-vessels, congenital portal obstruction, hemophilia, and the changes taking place in the circulation incident to birth. The hemorrhage may occur in any organ and before or after birth. If after, it usually occurs within the first three days. If from the gastrointestinal tract alone, it is called malena; Tuley reports a case. Various methods of treatment have been recommended. The different hemostatics, the cold coil, etc. In the case reported subcutaneous injection of gelatin was followed by prompt recovery and two other cases are mentioned in which like results were obtained. Special caution is needed as to sterilization of the gelatin on account of the common contamination with the tetanus bacillus.

The Lancet, December 19, 1908.

Treatment in a Case of Arthritis Deformans.—F. Booth considers it as proven that in the case of the woman of twenty-nine years reported by him the disease resulted from autointoxication from poison generated in the large bowel, and to a less extent in the small. In his patient the administration of B-naphthol lessened the offensiveness of the stools. Irrigation of the colon checked the neuralgia and lessened the emaciation. For the irrigations two tablespoonfuls of epsom salts were dissolved in three quarts of hot water. The joints gradually became less swollen and tender, while the swelling and effusion slowly subsided. Subcutaneous injections of fibrolysis seemed to assist in bringing the joints back to a normal condition.

Streptococcal ("Septic") Throats.—J. O. Hollick, an English health officer, reports two epidemics, one in an asylum and the other in a boys' school. A third epidemic of scarlet fever is mentioned. In all three, the main organism present was a streptococcus, producing respectively tonsillitis, erysipelas, and scarlet fever. In the sore throat epidemic, the local features were angry red inflammation with creamy-white secretion, swollen and edematous uvula. No cryptic plugs on the tonsils, general febrile condition. The exudation rarely extended either in front of or behind the definite region of the femoral pillars, but much mucopurulent secretion was observed to come from the lymphoid follicles over the vault of the pharynx, and there seemed to be a general engorgement of the lymphoid tissue around the posterior nares. The foregoing condition lasted from two to four days, while the glandular swelling and tenderness in the triangles of the neck remained for some days or weeks after the throat closed up. Two of the cases developed erysipelas with marked septic symptoms. Antistreptococcus serum was given with relief to the constitutional symptoms, but the local conditions abated but little. There was in several of the cases a marked tendency to relapse if the patients were allowed up too soon. The author says that in such outbreaks thorough sterilization of all utensils employed about the patients should be insisted on.

The Mercurial Reaction as an Element in the Diagnosis of Syphilis.—F. Curioni has examined the urine in a series of cases of syphilitics and non-syphilitics respectively, all of whom were given mercury, and then noted the amount of the drug excreted by the two classes. His chemical technics are described in full. He came to the following conclusions: (1) The mercurial reaction in the urine of the healthy is much more evident than in the syphilitic, in which sometimes there is no reaction at all. This means that the elimination of Hg. in the urine of the syphilitic is always much slower than in the healthy. (2) The mercurial reaction is nil or nearly so in cases of syphilis recently contracted, especially when symptoms are apparent. The reaction is only slightly evident and never so well as in normal cases, in the syphilitics in whom two or three years have elapsed since the appearance of the ulcer. (3) Finally, in cases of long standing, say ten or twelve years, the mercurial reaction is as evident as in normal cases (positive reaction). These facts are explained on the following theory: In the first place, in the subject of syphilis, the mercury introduced perhaps unites itself in a special organic combination with the virus, for which, being a specific remedy, it must have a special affinity, and in this condition it does not pass, or passes only with difficulty, the renal filter, and at the same time does not have any offensive action on the organism. Thus in this fashion it would be easy to understand the old empiric advice to wait before commencing the general cure until the secondary symptoms have appeared and remain in view for some time. Some contend that the morbid evolution is milder and more regular if the general treatment is commenced rather later and not before the secondary symptoms. On the other hand, the rapid elimination in the pseudo-syphilitic is probably due to a vital tendency of the organism to expel whatever is noxious to it. For whatever concerns the intolerance to mercury observed in the pseudo-syphilitic, at least in the beginning of the

treatment, it lasts only until the specific antibodies of the mercurial antigen have not come to paralyze its poisonous action. The author believes that it is most probable that the antitoxic reaction which proceeds in the organism against these special poisons neutralizes their therapeutic action.

Treatment of Gout by Thyminic Acid.—Further observations on this topic are made by R. Fenner, who submits epitomized histories of six cases of acute and thirteen of subacute gout. He has had prepared a sterilized solution of the remedy equivalent to two grains of the powder for intramuscular injection, and experiments on animals showed that it was well born and harmless. It was then used on patients. Taking into account the chemical affinity of the acid, it is logical to assume that its local action would greatly lessen the deposition of the biurate of sodium in the joint or tissues. It is in the prevention of attacks of acute gout, in the obesity so often allied with the gouty state, in gouty eczema, asthma, glycosuria, and stomachic derangements that thyminic acid attains its maximum of usefulness. A small dose (4 grains) taken daily after meals for a prolonged period, say of three months, and then every alternate week, will in most cases entirely avert the onset of acute symptoms, and the author has a record of many patients who for the past three or four years have entirely escaped attacks that were formerly of constant occurrence. The remedy will not always break up an attack of acute gout, but it is useful in the later stages of an attack. The greatest benefit has also accrued to that very large class of cases where the apparent trouble is of gastric, hepatic, or intestinal origin. In obesity, which so often accompanies and is often the only symptom of the gouty state, the results are most gratifying. A gradual reduction of weight occurs without loss of strength. Nor need the patient be starved or nauseated by incongruous foods. In acute cases where we have to deal with an inflamed joint and accompanying pyrexia it is as well to combine the thyminic acid with colchicum or aspirin until the acute stage is passed. The days or weeks of intense depression, irritability, and want of energy so often observed are shortened by its continued administration and a recurrence of the attack averted.

British Medical Journal, December 19, 1908.

The Value of Turpentine in Gallstones.—A woman of 54 years came under the care of G. Wright, who found she had fever and suppurative inflammation of the gall-bladder. Cholecystotomy was performed, and the viscus, which was full of stones, was cleaned out. A large mass of impacted stones was found lying apparently in the ductus choledochus, but, on account of the adhesions round the gall-bladder, etc., the duct could not be properly exposed. A spoon was passed three inches or so through the cystic duct, but the stones could not be removed, and they were so hard that it was impossible to break up the mass or to make any impression upon it. The author suddenly recollected the well-known solvent action of turpentine on gallstones, and determined to try it. A piece of india rubber tubing was fixed on a small glass syringe and one drachm of turpentine injected through the cystic duct on to the surface of the impaction. In a few minutes he was able to break up the impaction, and in about ten minutes all the stones were removed from the duct. The patient made an uninterrupted recovery, the opening in the gall-bladder healing up in about six weeks. From his experience in this case it seems to me that the habitual use of turpentine in connection with cases of choledochotomy in which there is the slightest difficulty in removing the bile concretions might materially lessen the risks of the operation.

Retardation of the Pulse Wave in Aortic Regurgitation.—This phenomenon has been carefully investigated by Walter Broadbent, who notes that when simultaneous tracings of the carotid and the pulse were taken in cases in which the pulse delay was considerable, it was found that the interval between the carotid and the pulse was only slightly greater than the normal, so that the main delay evidently took place between the apex beat and the aorta. It occurred to him then that this delay might be due to the increased size of the heart, so he measured the distance from the apex to the aortic cartilage in subsequent cases; but he found there is no relationship between the size of the heart and the time of arrival of the pulse at the wrist, some of the largest hearts showing no delay. The systolic blood-pressure also seems to have nothing to do with the amount of delay. There is a rough correspondence between the extent of the aortic regurgitation and the amount of the delay, the greater the one the greater the other, and he thinks there may be found to be some relation to the compensation of the valvular lesion, there being increased pulse delay with failing compensation in some of these cases; of the seven cases with delay of one-third of a second he knows that three are already dead. The tracings taken from other than aortic cases show that increased pulse delay is not peculiar to aortic regurgitation. There was delay in two cases, showing signs of adherent pericardium. Both had an apex beat hardly moving on rolling the patient from one side to the other, diminished respiratory movement in the epigastrium. Tabulated statements of his detailed findings are included in his paper. Examination of the facts and figures given therein shows that there is frequently considerable increase of the interval between the apex beat and the pulse wave in some aortic regurgitation, while in slight rheumatic cases and in the majority of the atheromatous and syphilitic cases the interval is the normal one-fifth or less. In these latter cases there is usually not much regurgitation.

Occurrence of Heart-Block in Man and Its Causation.—T. Lewis presents a study of 27 cases of heart-block in man, compiled from the literature of the last few years. Post mortems were held in all, so that the condition of the bundle of His was definitely known. Many other cases have been reported during the period named, but the positive evidence which is recorded in the cases collated by the author has been to a greater or lesser degree lacking. Of the 27 cases, histological evidence was obtained in 17 to the effect that the bundle of His was damaged. We are not thus far able to determine an exact accord between the degree of the lesion and the amount of the heart block, but the clinical evidence clearly supports the following propositions: (1) No case of complete heart-block has been reported in which there was not grave reason to suspect complete functional discontinuity of the bundle, and (2) with a single exception no case of incomplete heart-block has been reported in which the bundle was demonstrated as completely destroyed at any single point in its course. The conclusion from these facts seems irresistible, but the author admits that in man alone such a proposition is barely demonstrated. Yet he regards accumulated evidence as carrying the proposition almost, if not quite, beyond the limits of hypothesis. The paper is extremely interesting.

Münchener medizinische Wochenschrift, December 15, 1908.

Induction of Labor.—Ilerff warmly defends the induction of premature labor in cases of narrow pelvis in preference to operative procedures at term. The mortality of hebosteotomy, for instance, is 4. 9 per cent. for mothers and 9.6 per cent. for the children. On the other hand, early induction of labor leads to less than one death in a hundred, so far as the mother is concerned, though the mortality of the babies is about twice that of hebosteotomy. The simplest and best method of inducing labor is the tearing of the membranes; the danger of infection is much less in this method than in any introduction of elastic bags, bougies, etc. The pains that follow the rupture of the bag of waters are usually very good and the necessity of further interference with the labor process is little more frequent than in normal labors.

Absence of Patellar Reflex in Functional Disease.—Hoesslin says that the knee jerks may be absent completely and permanently in cases of functional nervous disease. This absence may be due to congenital anomaly of the reflexes, which in some cases may have been caused by syphilis in the parents; it may appear after exhausting condition or disease, such as mania; very seldom the reflex is absent in cases of hysteria and neurasthenia. The mere absence of the patellar reflexes cannot, therefore, be interpreted as a sure sign of organic disease of the nervous system; the exceptions, however, are so few that such absence should immediately lead to a search for further symptoms of such disease.

Examination of the Blood for Parasites.—Stäubli offers a new method for this purpose. It consists in mixing a drop of blood with about ten to fifteen times the amount of 3 per cent. acetic acid and centrifuging the mixture. The usual mixing pipette used in counting white blood cells is well adapted for this technique. The sediment may be examined in a fresh state or after being dried and stained. So far, the experience with the search of the blood for trichinæ, for

malarial crescents, for spirochetes of syphilis, and other organisms has shown the great advantage of the method over the examination of a dried smear of the blood. The staining is done by any of the chromatin stains, such as Jenner or May-Grünwald, the only elements taking the stain being parasites and the nuclei of white cells, the red cells having been completely dissolved by the acetic acid.

Deutsche medizinische Wochenschrift, December 3, 1908.

Treatment of Inoperable Carcinoma of the Uterus.—Freund says that even in cases of carcinoma of the uterus which cannot be removed radically surgical treatment remains the only one that gives some relief from symptoms and temporarily at least alleviates the sufferings of the patient. The loss of blood, the fetid discharge, the absorption of toxic material from the broken down cancer may all be put a stop to by a proper operation in the late stages when cure is impossible; it is also possible to prevent the rapid progress of the malignant process for months and even for over a year, as Freund's experience proves. The improvement is probably due to the removal of the peritoneal ascites, to the freeing of important organs from mechanical and chemical injuries caused by the growth, and especially to the great capacity of the healthy tissues to oppose the progress of the disease by encapsulating and limiting them for a time at least. One of his cases showed at the operation that the bladder wall was attacked by the growth, yet the viscus remained without perforation for two years after the operation. The important thing to remember is that cancer of the uterus may be very fast-growing in one case and very slow in another; operation may therefore relieve the latter case very much and for a considerable period of time. Operation by the abdominal route, with the removal of as much diseased tissue as is possible, is therefore indicated even in very advanced cases of uterine cancer.

Filariasis.—Zur Verth says that the *Filaria sanguinis hominis* is the larva of a much larger worm than usually lives in connective tissue and is only seldom found in the larger lymph or blood-vessels. The larva is much smaller than the adult worm and lives in the lymph or the blood. There are several species of this worm, among them the *Filaria loa*, with its larva, the *Filaria diurna*, that circulates in the blood in daytime. His case of *Filaria loa* was in a workingman who became infected in Africa. The symptoms consisted of initial fever and chills; several months later swellings began to appear in various parts of the body, the swellings not being permanent, but apparently wandering from place to place. Various subjective phenomena, such as pruritus and paresthesiæ, were associated with the swellings. On one occasion the patient caught sight of the adult worm appearing through the thin skin over a swelling. The blood showed the presence of the larvæ on one occasion only, though numerous searches were made; an eosinophilia of from 40 to 50 per cent was constantly present. The treatment should consist in the removal of the worm if possible. The patient should be instructed quickly to paint a ring of collodion about the worm if it appears under the skin and immediately call in a physician to remove the worm; possibly the use of a suction cup may be enough to keep the worm from escaping. *Filaria Bancrofti* with its larva *Filaria nocturana* leads to a different symptom-complex, the most striking feature of which is the development of elephantiasis. The case of zur Verth was observed in a woman who went to Africa as a school teacher, who suffered from several attacks of fever and finally developed elephantiasis of the ankle region. Her blood, too, showed a constant kosinophilia of 50 per cent. The third form of filariasis is due to *Filaria perstans*, the larvæ of which may be found in the blood both at daytime and in the night.

Proteid Metabolism in Obesity Cures.—Richter says that the important part of all obesity cures is to effect a loss of weight at the expense of the fat of the body while sparing tissue proteid. Loss of proteid beyond the amount introduced in the food is of serious moment, if constantly present during the cure. Such loss occurs in several systems of treatment recently proposed, as, for example, in the exclusive milk diet. He has performed complete metabolism experiments on several persons undergoing treatment for obesity according to the so-called "potato cure," the diet consisting of a cup of coffee, a roll, and forty grams of ham at eight o'clock, of one egg at ten, of six plums at twelve, of a plate of soup and 200 grams of potatoes, 100 grams of lean meat, of green salad, etc., at two, of a cup of coffee at four, of some fruit at six, and of another 200 grams of potatoes with some cold meat and cheese at eight o'clock in the evening. In all cases the nitrogen metabolism was either at equilibrium or showed a positive balance, while the weight showed gradual and steady diminution. As the protection of the muscle and organ proteid is of paramount importance, obesity treatment on the style of that sketched above may be safely used, even though the value of the diet in calories is only about one-half of that present in the amount of food usually taken.

French and Italian Journals.

Tuberculous Rheumatism and Inflammatory Tuberculosis.—Antonin Poncet claims to have discovered a form of tuberculosis that is similar to other infectious diseases, in giving the symptoms of articular rheumatism without the production of tuberculous deposits in connection with the joints. This is caused by the tuberculous toxin circulating in the blood and attacking serous membranes. It may attack the articulations, serous linings of cavities, etc. It simulates every manifestation of ordinary rheumatism, acute and chronic, and attacks the heart, skin, kidneys, meninges, nervous system, etc. It is of frequent occurrence, tuberculosis being so frequent. Inflammatory tuberculosis also exists, tuberculosis of the joints without tuberculous deposits. There are in these articulations neither alterations, nor exudate showing any tuberculous new formations. These lesions are exclusively inflammatory. The process affects the joints, serous cavities, and all the body structures. It causes passing and chronic inflammations and cirrhoses. It is an infectious and contagious process, caused by the bacillus of Koch. These conditions arise from the presence of attenuated nonvirulent tubercle bacilli. There are three forms of tuberculosis: Specific tuberculosis with tubercles; inflammatory tuberculosis with a mild reaction, as in intoxications, and tuberculous septicemia without appreciable lesions resulting.—*Gazette des Hôpitaux*, October 6, 1908.

Obstetric Operations in Dystocia from Deformities of the Pelvis.—Pinard gives the result of eighteen years' experience at the Baudeloque, during which period 46,249 cases have been delivered, with 141 symphyseotomies and 30 conservative cesarean sections. He believes that symphyseotomy is appropriate when dilatation is complete, in a healthy mother who is a primipara. No force should be applied in delivery of a deformed woman for fear of injury of the soft parts. In general, pregnancy should never be interrupted in deformed pelvis, when the child is alive; forceps or version should never be used in such cases; the cesarean section should be done or symphyseotomy. The Porro operation is appropriate only when infection has taken place or when osteomalacia is the cause of deformity. The indications for the conservative cesarean section are extreme deformity of the pelvis, or less marked deformity when labor has been very long and there is reason to believe that the life of mother or child has been endangered. No intervention should take place until labor has begun. In the last four months the author has done twelve conservative cesarean sections; all the mothers are alive and well and all but one of the children except one syphilitic child.—*Le Bulletin Médical*, November 18, 1908.

Hematological Formula and Significance of Leucopenia in Basedow's Disease.—Nicola di Giovine describes his examinations of the blood reactions in four cases of Basedow's disease, in which the diagnosis admitted of no mistake. He gives the histories of these four women in detail. He ends with his conclusions as a result of the examinations. There are constant blood alterations in those sufferings from Basedow's disease, especially morphological ones, which are most important. They are lessening of hemoglobin, diminished globular value of hemoglobin, alteration of the numerical relations between the red and white blood corpuscles, the white being notably diminished in number, diminished leucocytes, especially polynuclear neutrophiles, and in less degree of eosinophiles. This alteration of the blood is in relation with the alterations of the thyroid, being absent when the thyroid is not enlarged. The principal alteration, the leucopenia, is in relation with a diminished leucopoietic action of the bone marrow, probably produced by an inhibiting action of special retrogressive products of metabolism, which are not neutralized by the thyroid. Such hematological alteration is not serious nor permanent. It constitutes a valuable aid in diagnosis of this disease.—*Giornale Internazionale delle Scienze Mediche*, November 15, 1908.

Book Reviews.

THE BONE MARROW. A Cytological Study, Forming an Introduction to the Normal and Pathological Histology of the Tissue, More Especially with Regard to Blood Formation, Blood Destruction, Etc. Together with a Short Account of the Reactions and Degenerations of the Tissue in Disease. By W. E. CARNEGIE DICKSON, M.D., B.Sc. Edin., F.R.C.P. Edin. Lecturer on Pathological Bacteriology and Senior Assistant to the Professor of Pathology in the University of Edinburgh; Assistant Pathologist to the Edinburgh Royal Infirmary. With Colored Plates and Microscopical Photographs by RICHARD MUIR. London: Longmans, Green & Co., 1908.

THERE is no doubt that the bone marrow has been much neglected in the recent development of medical science when the study of the blood received so much attention. Yet these two tissues are so intimately dependent upon each other that ignorance of the conditions met with in one of them necessarily carries with it ignorance of many important facts in the structure of the other and the changes it undergoes in the normal life of the organism and in disease. Our hematological atlases and treatises leave little to be desired, yet Dr. Dickson's work is the only really important monograph on the subject of bone marrow. The difficulty of handling the material for a satisfactory study is one reason for this condition of affairs, the other being the few possibilities we have of studying the reactions of this tissue in the living person. The text of Dr. Dickson's volume consists of several chapters on the anatomy and histology of bone marrow, the reactions of this tissue in disease being especially considered. Then the cytology of the marrow receives attention, the morphology, and the sources of the various cells being treated at length. These chapters, beyond the interest they possess *per se*, throw a great deal of light upon the changes met with in the blood and broaden very much the conception of blood diseases as a class. The text is followed by a series of splendid plates giving a vivid picture of the phenomena that take place in this tissue which is so rarely considered in the usual discussions of the reactions of the organism to the abnormal conditions of disease. Among the most beautiful of the plates one shows serial sections of a giant cell, another gives the varieties of white cells met with in the marrow, and a third pictures cells modified by various injuries. Microphotographs illustrate the general appearance of bone marrow and photographs of cross-sections of the long bones give the gross pictures of this tissue in health and in disease. We cannot cite further examples among the plates and must simply express our admiration for the work of the author in preparing such valuable material and of the artist, Mr. Richard Muir, in picturing it by means of photographs and colored drawings. The monograph ought to occupy an honored place in the library of every physician who is interested in the modern study of the blood or simply appreciates the significance of the wonderfully varied cellular elements that compose the tissues of the body

GENERAL PATHOLOGY. By Dr. ERNST ZIEGLER, Professor of Pathological Anatomy and of General Pathology in the University of Freiburg in Breisgau. Translated from the Eleventh German Edition (Gustav Fischer, Jena, 1905). Edited and brought up to date by ALDRED SCOTT WARTHIN, Ph.D., M.D., Professor of Pathology and Director of the Pathological Laboratory in the University of Michigan, Ann Arbor, Mich. With 604 Illustrations in Black and Colors. New York: William Wood & Company, 1908.

LITTLE need be said about this volume because Ziegler's text-book has been for twenty-five years the most popular treatise on pathology among students and physicians of Europe and America. The eleventh edition is the last to be issued under the personal supervision of the author, who died in his fifty-seventh year, a few months after the book appeared. Dr. Warthin's translation, therefore, places the book before the English-speaking readers as the last word of a famous teacher, who devoted his life to perfecting this treatise by constant improvements in material and illustrations; although his pathological investigations led him into many scientific controversies, he possessed the highly judicious faculty which enabled him to keep his treatise always free from subjectivity and one-sidedness. Among the new matter of this edition we find noted researches on spirochetes and on the parasites of malaria; the relation of trypanosomata to disease; the new lore in regard to agglutinins, precipitins, cytolysins, and hemolysins; the more important researches in the histogenesis of tumors; recent developments in the interpretation of the phenomena of inflammation, etc., etc. Many sections of the original text have been completely recast to bring them in harmony with the latest developments in the science of pathology; Dr. Warthin has added such new facts as have been brought out since the issue of the German edition three years ago. The classified bibliography has likewise been brought up to date, American investigation having received due share of attention; this feature of the book forms a most valuable means of reference to the important pathological literature of the last quarter of a century. In short, this edition upholds the reputation of the work as the model text-book on the subject of pathology; its use as a class book will go far toward proper instruction of the medical student in the important subject it considers.

SUBCUTANEOUS HYDROCARBON PROTHESES. By F. STRAUSS KOLLE, M.D. New York: The Grafton Press, 1908.

THE author of this little volume has done a creditable piece of work in describing within small compass the details of various cosmetic operations about the face, neck, and shoulders. In spite of the scant esteem in which this branch of surgery is held, there is a real need for prothesis in certain unfortunate individuals whose personal appearance prevents them from earning a livelihood commensurate with their mental abilities. Dr. Kolle has searched the literature of his subject thoroughly, and the 120 references he furnishes are by no means the least valuable part of this work. There are chapters on methods, untoward results, instruments used, preparation of site of operation, indications for operation, and a classification of the various deformities to which prothesis is applicable.

DISEASES OF THE SKIN AND THE ERUPTIVE FEVERS. By JAY FRANK SCHAMBERG, A.B., M.D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine; Diagnostician to the Bureau of Health and Consulting Physician to the Municipal Hospital of Philadelphia; Fellow of the College of Physicians of Philadelphia; Member of the American Dermatological Association. Fully Illustrated. Philadelphia and London: W. B. Saunders Company, 1908.

THE scope of this book is somewhat broader than that of the usual dermatological treatises, for it considers all morbid processes that are characterized by cutaneous manifestations. The greater part of the volume is devoted, of course, to the diseases of the skin proper; these are considered under the headings of anemias, hyperemias, inflammations, hemorrhages, hypertrophies, atrophies, new growths, and neuroses. Most attention is paid to the symptoms and treatment, pathology being briefly stated. The lesions are illustrated by photographs, most of which are very good; a few, however, give no idea whatever of the natural appearances, because of the lack of colors. The exanthemata are then treated at length so far as the skin manifestations are concerned; differential diagnosis is fully considered. The final pages of the book are devoted to acute infectious diseases, such as typhoid, meningitis, etc., that are often accompanied by skin eruptions. A special chapter treats of actinotherapy and radiotherapy in dermatology. The book is a clear and concise account of the subject of dermatology and is especially adapted for use as a text-book.

L'ALIMENTATION À BON MARCHÉ par JEAN LAHOR et le Dr. LUCIEN-GRAUX. Paris: Felix Alcan, 1908

THIS volume concerns itself chiefly with the economic problem of cheap food. The authors believe along with nearly everyone else that we all eat too much meat. A list of eatables is furnished in an appendix stating how to nourish three persons during the winter season on soup, jelly, dry biscuit, onions, and the like.

LES TUMEURS DU SEIN. Par V. CORNIL, Professeur à la Faculté de Médecine de Paris; Membre de l'Academie de Médecine, Médecin de L'Hotel Dieu. Avec 160 figures dans le texte. Paris: Félix Alcan, 1908.

THE frequency of breast tumors and the difficulty of diagnosing some of them and especially of differentiating malignant growths from benign ones has led Professor Cornil to issue this volume devoted to the subject. He has collected representative neoplasms from his vast material and has given histological description of the findings and an illustration of the microscopical picture of them. Tumors of the mammary glands of animals are also represented by several specimens, so that the student of comparative pathology finds valuable material in this book. The monograph is a very welcome addition to the pathological literature of the day.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held December 4, 1908.

DR. CHARLES H. PECK IN THE CHAIR.

Intrascapulo-Thoracic Amputation for Sarcoma.—Dr. ASPINWALL JUDD presented a young woman, age twenty-six, who was operated upon twice for a tumor pronounced sarcoma. In September, 1907, she entered Dr. Judd's service at the Post-Graduate Hospital. Examination disclosed a mass incorporated in the outer shaft of the humerus, having all the characteristics of sarcoma. This mass was spindle-shaped, and increased the bulk of the bone about threefold. A second mass occupying the axilla and seemingly attached to the external border of the scapula and its glenoid projection was made out, about four by two inches in size. An atypical intrascapulo-thoracic amputation was accomplished, the axillary vessels being tied at their beginning, the plexus of nerves cut five minutes after blocking with a two per cent. solution of cocaine. The external border of the scapula, together with its anterior and posterior muscles, and the neck of the scapula were found involved. These muscles were cut away between two and three inches from the site of the growth and the scapula sawn through. The outer half of the clavicle was also removed. The recovery of the patient was uneventful. Within six weeks after the operation a small, very tender mass about the size of a bean was felt, occupying about the site of the cut plexus. This had not increased in size, and he was under the impression that it was a neuroma. The patient had gained nearly thirty pounds in weight, and remained in perfect health up to the present time. This case was one of a series of three resections of the shoulder girdle done by him during 1907. In the other two cases he found it more convenient to make an incision and tie the subclavian vessels and certain branches of the thyroid axis before proceeding with the operation. In all three cases the operation was practically bloodless. In the first case, that of a malignant enchondroma weighing twenty-seven pounds, the patient progressed very satisfactorily for four days and then suddenly died of embolism. The third case from last reports was quite as well as the one shown. In none of these cases was there any shock. This he attributes to the blocking of the nerves with cocaine. If care were taken to tie the axillary or subclavian vessels and such branches of the thyroid axis as supplied the affected part, the operation was practically a bloodless one, was not at all difficult of performance, and the results attained were comparatively satisfactory. The percentage of mortality was low for so grave an operation, according to latest statistics, including all cases about eleven per cent. The danger of recurrence in delayed cases was very considerable, about sixty per cent. dying of metastases within five years.

Resection of the Stomach for Carcinoma.—Dr. JUDD presented a woman, thirty-two years of age. This was one of a series of six cases operated upon by him for cancer of the stomach in September of this year. The physical examination before operation disclosed no tumor until after inflation of that organ with air, when a mass, freely movable, could readily be made out at the site of the pylorus. The patient was in fair condition, though anemic, and entered the hospital on account of gastric hemorrhage. After an initial incision along the left border of the rectus muscle, the stomach and duodenum, both unusually freely movable, were brought out, and an examination showed a carcinomatous mass occupying the pylorus and about one-quarter of the lesser curvature of the stomach. A Hartman-Mikulicz excision, as done by the Mayos, was then performed, escape of stomach and duodenal contents being prevented by means of properly protected Kocher clamps. The glands along the lesser curvature near the pylorus were found involved and resected, and a gland lying immediately behind the duodenum, also involved, was enucleated. As the duodenum was so freely movable, he attempted to join the open end of the duodenum to a portion of the open end of the stomach by means of the early Billroth method. No leakage occurred. The wound healed by first intention. The patient made an uneventful recovery, gained twelve pounds in weight, at the present time had ninety per cent. hemoglobin, and appeared in perfect health. Owing to the early stage and comparatively non-malignant character of the growth, adenocarcinoma, and the fact that he was enabled to enucleate all of the apparently affected glands, this seemed a rather favorable case. The joining of the cut ends of the stomach and duodenum was contraindicated in most cases, owing to the danger of leakage, as, unless the duodenum was very freely movable, the tension upon the stitches was apt to prove disastrous. This occurred in the second case of this series and death resulted.

Resection of the Colon for Tuberculosis Primary in the Appendix.—Dr. JUDD presented a young woman of twenty-six, who was referred to him with the diagnosis of recurrent appendicitis. Pulse and temperature were only slightly elevated. The attack was the fourth in three years and had lasted for twenty-four hours. The diagnosis seemed clear enough. A modified Kammerer incision disclosed the appendix almost completely replaced by tubercular material. The ascending and most of the transverse colon were also degenerated and studded with tubercles, and the mesenteric glands were found involved in the process. The Kammerer incision was extended upward for a distance of three inches, and after isolating, Kocher clamps were applied to the ileum and transverse colon about three inches from the splenic flexure. The cut was then resected in the usual manner, and the ileum united by lateral anastomosis to the stump of the transverse colon after loosening its mesenteric attachment. No difficulty whatsoever was found in bringing the ends of the intestine together. In fact, in all the cases that he had had or seen this had proved no obstacle to the accomplishment of a satisfactory anastomosis. The patient had an uneventful convalescence, had gained forty pounds in weight, and was the picture of health. This was one of five cases of primary tuberculosis of the appendix operated upon by him during 1907-8. In the second and third the tubercular process was confined almost entirely to the appendix. In the fourth the caput coli was also involved. In the fifth and last case the patient was referred to him for secondary operation for fecal fistula following operation for appendicitis five months previously. The fistula was so large that the patient was rapidly starving to death, weighing one hundred and seven pounds when referred to him. On operation, much the same condition was found as in the case reported, and the operation performed was a similar one. Primary union and rapid convalescence occurred, but unfortunately the patient had died within the last month from tubercular pneumonia following an attack of influenza.

Double Amputation of the Breast for Carcinoma.—Dr. JUDD presented a young woman, twenty-nine years of age, who was operated upon by him five weeks ago. Her physical examination before operation showed a mass, irregular in outline, about 3 x 1½ inches in diameter, typically carcinomatous, occupying the upper and outer quadrant of the left breast. The axillary glands were palpable and apparently slightly involved in the malignant process. The right breast was apparently somewhat larger than normal, but taken by itself would not have excited suspicion; the glands in the right axilla were aglutinated, considerably enlarged, and, in view of the findings in the left breast, extremely suspicious. The left breast and axillary contents were removed, the Myers-Halsted operation being per-

formed. An incision was then made in the right axilla, and a frozen section, examined by Dr. Henry Brooks, was returned with the report of undoubted carcinoma. The right breast and axillary contents were then removed in the same manner as the left, in this case it being necessary to remove the infraclavicular glands, as they were also involved. Primary union resulted. The patient left the hospital at the end of ten days. The interesting point in this case was the double involvement, together with the absence of apparent primary lesion in the right breast. Subsequent examination of the right breast showed a very small beginning carcinoma.

Formation of New Tibia Following Complete Loss of the Diaphysis from Osteomyelitis.—Dr. Joseph B. Bissell presented a boy, whose weight was ten pounds and three ounces, of healthy parentage. Last July, while at the seashore, a small abscess developed over the mental prominence to the right of the middle line. This was opened and it healed rapidly. Following this the baby developed an acute attack of colitis, which subsided in about seventy-two hours. Immediately following this intestinal infection, a point of inflammation appeared at the junction of the upper and middle fourth of the tibia anteriorly. This grew rapidly worse and developed into an abscess which was open and discharged pus. A new point of infection developed over the lower portion of the tibia at its crest; within forty-eight hours another point of infection appeared low down in the calf muscle. As the cavity of the upper abscess seemed to be very deep, a drain was pushed through near the lower part of the popliteal space. In a few days these lower abscesses were opened and a drain connecting them was inserted. The upper and lower part of the tibial infection were then connected and drainage was carried through these openings. During the following two weeks of treatment an abscess developed over the left sternoclavicular junction. Later two small abscesses developed in the periosteum of the skull posteriorly. These were opened, drained, and healing took place without incident. In the meantime, the sinuses of the tibia were treated by free drainage, constant irrigation, and Bier's cups. On August 19, on removing some pieces of dead bone from the upper sinus, he discovered that the main portion of the bone seemed to be gently rotating in the forceps. All of the tibia from the epiphysis above to the epiphysis below, *i.e.* the entire shaft of the bone, came away without any difficulty. Daily irrigations were continued until, by September 25, the openings closed. In order to prevent fracture of the fibula, which did not seem to be infected, and to prevent deformity of the leg, a plaster of Paris splint was applied. The present solidity of the bone could be shown by contrasting the bones of the leg with the fingers, as shown in the *x*-ray plate. The baby now weighed fourteen pounds. Dr. Bissel said he presented this case because of its rarity, the early age of the subject, and the extensive involvement of the disease. There was a complete and rapid recovery. Reduplication of bone from the periosteum and the epiphysial centers was not rare theoretically; practically, however, they met with few cases showing such marked results. The extensive metastases which took place added to the difficulty, and made the case still more unique and worth more than a passing notice.

Primary Carcinoma of the Liver.—Dr. Frank C. Yeomans presented this case. The patient was a woman, thirty-seven years old, a housewife by occupation. The family history was good. Five years ago she had a double salpingitis and local peritonitis, accompanied by a severe gastritis. She made a good recovery under local treatment. Prior to the time she had peritonitis, she suffered from occasional bilious attacks, but subsequent to that they became frequent, occurring two or three times a week. These attacks consisted of nausea, vomiting of food and bile, headache, and general prostration. These attacks persisted intermittently for one year; then she noticed some gaseous distension of the abdomen, and had pain in the right hypochondrium. The pressure of her clothing was distressing and often excited vomiting. During 1905 and 1906 she had frequent "sinking" spells when reclining. There were no chills, rarely did she have any fever, and jaundice was never present. The distension increased slowly and she became progressively weakened. The physical examination on September 15, 1906, showed a marked prominence in the right hypochondrium. On palpation a firm, oval tumor was felt extending from the right costal margin downward an inch below the navel and slightly beyond the midline, and moving with respiration. On percussion flatness was present over the entire area occupied by the tumor. A tentative diagnosis of tumor of the kidney or liver was made. Operation was performed on September 17, 1906. Upon opening the abdomen it was evident that the tumor was in the right lobe of the liver. The fundus of the gall-bladder felt normal, but the size of the tumor precluded palpation of the bile ducts. The surface of the tumor was markedly congested and was traversed by a network of large veins. When the tumor was incised, about twelve ounces of bloody, odorless fluid escaped. Many trabeculæ were broken down with the hand, and great quantities of soft, degenerated tissue were removed from the walls of the cavity, which was about the size of a grape-fruit. Rubber drainage tubes were inserted and the cavity loosely packed with gauze. The time of operation was forty minutes. The discharge from the wound was very large in amount, dark and offensive, containing much detritus; it soon assumed the offensive odor characteristic of cancer. After the tenth day the discharge slackened quite abruptly, and the patient was removed to her home on the eighteenth day. The sinus closed four weeks later. Since the operation, now over two years ago, the patient had enjoyed excellent health. Primary carcinoma of the liver was a rare affection; according to Eggels, it occurred once in two thousand fatal ailments coming to autopsy.

A Reversed Form of Madelung's Deformity of the Wrist.—Dr. DeWitt Stetten presented this patient. She was twelve years of age, and had never had rickets or sustained serious injury. About ten months before her mother had observed that there was a deformity of the left wrist, which gradually progressed, and about five months afterward a similar condition developed on the right side, but in a lesser degree. The case showed all the features which at present were more or less generally recognized as being characteristic of a Madelung deformity, with the following exceptions: (1) There was present an apparent posterior dislocation of the wrist. (2) The lower surface of the radius was turned backward instead of forward. (3) An anterior dislocation of the lower end of the ulna existed instead of a posterior one. (4) There was an increase in extension and a limitation of flexion instead of the reverse, as in the regular cases. The lateral bowing of the radius and deviation of the articular surface toward the ulna with the typical arrangement of the carpal bones and the limitation in abduction with increased adduction were present, as in the usual cases. But one other case of this backward form of a Madelung deformity had been recorded in literature. This was described by Kirmisson in 1902, and was almost an exact duplicate of the case presented. Dr. Stetten said that he had made a careful study of literature and had collected the reports of sixty-three cases of Madelung's disease, of which sixty-two were of the forward variety, and from the mass of contradictory evidence on this subject he had unravelled the following conclusions: 1. The so-called Madelung's deformity of the wrist was due to a bowing of the radius, usually of the shaft proper, occasionally of the epiphysis, and sometimes of both. This produced a deviation of the articular sur-

face and an apparent subluxation of the wrist. The deformity was usually bilateral. It bore a striking analogy to the genu valgum and genu varum of adolescence. 2. Heredity, the female sex, and youth (about eleven years) were predisposing factors, and the exciting cause was an irregular ossification of the distal extremity of the diaphysis, or of the proximal portion of the epiphysis, or both. Rickets, trauma, or inflammatory conditions seemed to be in no causative relation to the disease. 3. There were two distinct types, a forward or common one, and a backward or rare one, in both of which, however, there was generally an exaggeration of the normal curvature of the radius toward the ulna. A correspondingly increased inclination of the joint surface toward the ulna resulted with adduction of the hand and an angulation of the first row of carpal bones. 4. The disease was one of the growth period, developing spontaneously, with pain, and progressing gradually (two or three years), with limitation of motion against, and increase of motion in, the direction of the deformity. Numerous conditions simulated the lesion, but the history and the *x*-ray would establish the diagnosis. 5. The prognosis was good and treatment consisted in osteotomy of the radius after the disease had run its course and the symptoms or deformity justified surgical intervention. Linear osteotomy should be performed in mild, and cuneiform in severe cases. 6. Dr. Stetten said that he could suggest the terms forward and backward idiopathic progressive curvature of the radius for the condition, or the orthopedic names of carpus varus or carpus valgus.

Foreign Body Cyst of the Palm.—Dr. EUGENE H. POOL presented a man, forty-two years old. Twenty-five years ago, while attempting to remove a cartridge that was embedded in the chamber of a gun, he hammered it; this caused an explosion and resulted in a small, punctured wound. A two-inch incision was made, and the surgeon looked for a foreign body, but none was found. Later a small movable body, about the size of a bean, was noted in the palm, and this increased in size. The only functional impairment caused by this was that, as the patient stated, "his hand gave out." Fluctuation could be obtained over the swelling. A cyst was diagnosed. Under general anesthesia the cyst was removed, and in the center of this cyst was a piece of the brass shell of the cartridge. It was impossible to state definitely whether or not this was an implantation cyst.

Carcinoma of the Tonsil.—Dr. ALBERT A. BERG presented this case. The patient was a Hungarian, who gave a history, showing that during the past year he had had trouble with his throat, and during the last few months he had developed a large tumor mass and swellings in the neck, with characteristic radiating pains and difficulty in swallowing. There was not much difficulty in breathing. An examination revealed a large mass of adherent glands in the submaxillary and occipital triangles. Examination by mouth showed a large fixed tumor which corresponded to the right tonsil. This was found to be an ulcerating carcinoma. After temporarily ligating the common carotid artery on the right side, an incision was made which extended upward to the angle of the mouth, the jaw was sawn through in an oblique direction, the mucous membrane of the mouth was divided, and the tonsil and surrounding tissues excised. There was practically no bleeding. An uninterrupted convalescence took place. There was at present a small fistula resulting from a piece of necrosed bone.

Horseshoe Kidney.—Dr. BERG presented a patient who gave the following history: He was supposed to have had tuberculosis of the kidney and had been under medical treatment for some time, but without improvement. The cystoscopic examination was not successful. One year ago he became very much emaciated. There was a continuous desire to pass urine. The urine was purulent and contained some blood, pus cells and a few hyaline cylinders. The bladder was so contracted that it held but one ounce of urine. He catheterized what he supposed was the right kidney, and later he exposed what he believed to be the right kidney. He found a perinephritis and a horseshoe kidney. It was impossible in this case to determine the relations of the ureters; in fact, he could not tell whether there was one or whether there were two ureters. The kidneys were studded with tubercles. There were no other evidences of tuberculosis. The capsule of the kidney was split, and, after three weeks, the patient was sent home in the country. Two urinary fistulæ appeared, which remained open eleven months. The patient showed good results from simply a climatic treatment. Prior to this experience Dr. Berg said he was inclined to operate in cases of horseshoe kidneys; but in view of his experience with this case of tuberculous horseshoe kidney, he would be inclined to consider the climatic treatment in some cases with as much favor as the surgical treatment.

Case of Resection of the Rectum by the Combined Method.—Dr. WILLIAM C. LUSK presented a patient, male, fifty-five years old. He had complained of pain over the sacrum and lower abdomen for about eight months. Last August blood and pus were noticed in the stools. An examination showed a movable tumor at the upper part of the rectum, presenting the appearance of cancer. The microscopical diagnosis was malignant adenoma. The red cell count was 5,238,000; the hemoglobin was 90 per cent. On September 30, 1908, a resection of the rectum by the combined method was done. Through a median abdominal incision, the internal iliac arteries were ligated, the upper portion of the rectum and sigmoid loop were freed, and the peritoneal wound in the pelvis narrowed by sutures placed from above downward so as to draw the peritoneum as closely as possible around the descended piece of bowel. In liberating the sigmoid its meso-attachment was freed at its base, care being taken to cut the peritoneal folds first and then isolate the entering vessels and tie them without including any of the peritoneum in the ligatures. The left leaf of the peritoneum was cut higher in the iliac fossa than the right to allow stripping up of the bowel and securing the little additional descent which could thus be gained. The superior hemorrhoidal artery and one main sigmoid artery supplying the arterial arches were divided. The nutrition of the freed segment of bowel was fully preserved, so that it seemed that it would have been a perfectly feasible proposition to have interrupted the operation at this juncture and completed it at a second sitting, perhaps in this event taking the precaution to suture a fold of the splenic flexure to a small abdominal opening at the tip of the eleventh rib, which could be opened in case obstruction should supervene from kinking of the freed loop. No enlarged iliac glands could be felt. The abdominal wound was then closed. Thus far there had been no loss of blood. The patient was then turned on the left side and the rectum reached from behind through an approach designed by Dr. Lusk. A median incision was made over the lower extremity of the sacrum, crossed the right side of the coccyx, into the ischiorectal fossa to alongside the anus. The right inferior hemorrhoidal nerve was dissected. The coccyx was turned to the left. He severed the levator ani to the right of the median line and cut the attachments of the right gluteus maximus and underlying lesser sacrosciatic ligament from the side of the projecting lower extremity of the sacrum below the inferior lateral angles. He then cut across the tissues which had lain in front of the coccyx, containing the terminations of the sacral vessels. He next divided the median septum between the levatores ani and fascia propria recti, and cut the skin and muscular tissue to the left on a line with the sacrococcygeal joint. The right gluteus

maximus was split outward from the lateral sacral angle. With an osteotome he knocked off the extremity of the sacrum which projected below the level of the lateral sacral angles, and shelled off the sacral vessels from in front of their ligature. The left gluteus maximus was not split laterally, as sufficient room was gained without it. The detached fragment of the sacrum was removed at the end of the operation. Through this approach the lateral attachments of the rectum were hooked down over the finger and severed, and the whole freed segment of bowel was brought out through the posterior wound. There was some hemorrhage in constructing the approach, and considerable in stripping up a few remaining posterior median attachments of the fascia propria recti to the sacrum, which, however, soon became arrested. Before resecting the bowel a strip of plain and a strip of iodoform gauze was passed upward into the pelvis along either side of the descended bowel to shut off the peritoneal cavity. The technique of anastomosis of the bowel ends was in all essentials that method employed by Kraske. In suturing the bowel ends together he used a technique similar to that practised by Dr. George D. Stewart in suturing a skin wound. In the case shown, where the triangular space at the attachment of the mesosigmoid to the bowel came into the line of anastomosis, which was at the posterior median line, it was closed by a Maunsell stitch. All of the inside stitches were of stout iron-dyed silk. About two cm. of the stitch line posteriorly was closed from the outside by two rows of No. 1 chromic gut. A strip of iodoform gauze was placed on the right side a little above the suture line and on the left side along the suture line. Also a gauze pack was placed behind the bowel from the suture line above, to a little above the divided extremity of the sacrum. A tube drain was placed in the anal canal. The subsequent course was uneventful, excepting for the formation of a small fistula. Primary union occurred in the abdominal wound. All of the posterior wound that now remained unhealed was a small central granulating area. During a recent two weeks the patient gained nine pounds. On microscopical examination of the specimen a section of the bowel at its upper limit and at its lower limit, and lateral sections of the perirectal tissues, all showed no evidences of invasion. Also a section through the tumor where it was in relation with the bladder showed healthy tissue beyond the limit of the growth. The following observations were made: (1) No preliminary colostomy was made. (2) There was no impairment of sphincter function. (3) There was no appreciable stricture at the seat of the anastomosis. (4) The ability to methodically liberate through the abdominal route the sigmoid flexure together with its accompanying vascular arches should be another accepted argument in favor of the combined method.

Pulmonary Embolism Following Operation.—Dr. C. L. Gibson read this paper. (See page 45.)

Dr. Willy Meyer said this was a very important subject and any one who had had any experience with pulmonary embolism following operation would never forget it. Such patients might appear to be entirely well, get up from bed, and then drop dead. The principal question that confronted them at present was, How could the surgeon prevent the formation of thrombi? It was now his habit in every case in which he operated below the umbilicus to have the lower end of the bed raised and the patient instructed to move the left leg frequently. Since following this method he had not seen a case of thrombosus of the left femoral vein after aseptic operations. Dr. Meyer then exhibited Trendelenburg's instruments, which were devised for operating upon pulmonary embolism. It was to be hoped that with their use many patients will be saved who otherwise would have been lost.

Dr. Elsworth Elior said that this accident occurred more frequently after laparotomies than after any operation upon the lower extremity. He thought that the coagulation of the blood was due to the same cause as existed in the infectious fevers, such as pneumonia, typhoid fever and analogous conditions, and, therefore, he supposed it was quite possible that the coagulation of the blood might be of toxic character.

Dr. John F. Erdmann, Dr. Charles H. Peck, Dr. Aspinwall Judd and others recalled cases of pulmonary embolism following operation.

Election of Officers.— *Chairman*, Dr. Ellsworth Eliot, Jr.; *Secretary*, Dr. H. H. M. Lyle.

SECTION ON MEDICINE.

Stated Meeting, Held December 15, 1908.

Dr. Herbert S. Carter in the Chair.

Report of a Case of Addison's Disease with Autopsy.—Dr. Charles H. Lewis made this report. (See page 47.)

Dr. Rosenberg reported a case of tuberculosis in which the suprarenal glands were affected. The involvement of these glands was not suspected because there was no bronzing of the skin. At autopsy the adrenal glands were sent to Dr. Brooks for examination and he reported the case to be a typical one of Addison's disease.

Dr. Harlow Brooks said that there now was no doubt regarding the true pathology of Addison's disease; there was a slow destruction of the adrenals which might be tuberculous, syphilitic, or neoplastic. He believed that too much importance was attached to the presence of pigmentation in these cases.

Dr. Sidney V. Haas reported the case of a young man, twenty-six years old, who was very dark in color. His father had cancer of the stomach. A brother died at the age of six years from lymphosarcoma. Because of the man's color and because of the newspaper notoriety regarding bronze-skin disease at the time he saw the case, the patient was taken to Bellevue Hospital for examination. The young man was found on examination to be deeply bronzed. A careful examination of his organs revealed nothing abnormal. Several well known men in the city were consulted. One said he had Addison's disease. It was decided to watch the young man. He was placed under a tonic treatment for a time. Then prepared suprarenal capsules were given, but without any effect whatever. Then a fresh preparation was given, and in forty-eight hours he began to vomit. From this time on until his death occurred he continued to have gastrointestinal symptoms. The chief point of interest in this case was apparent onset of the symptoms of Addison's disease after the administration of the freshly prepared suprarenal extract. The patient then became asthenic and died with the characteristic symptoms of the disease.

Dr. J. Ramsey Hunt reported a case of tuberculosis of the adrenals he had had under observation a few years ago, and which was particularly interesting because it coexisted with myxedema. This patient died of a pulmonary complication, not tuberculous, but probably pneumonic. The thyroid was found to be much atrophied and, in addition, both adrenals presented an advanced degree of tuberculosis. This patient presented none of the symptoms of Addison's disease that could be recognized. There was no pigmentation and no gastrointestinal symptoms.

Dr. Wiener reported the case of a patient who died of tuberculosis, and the post-mortem revealed the characteristic changes of Addison's disease in the adrenals.

Dr. Charles H. Lewis reported another case of tuberculosis of the adrenals with very extensive involvement. Adrenalin was used for a time with marked improvement, but this was only transient. After three weeks the patient rapidly failed and died.

Toxemia of Gastrointestinal Origin; from the Labora-

tory Standpoint.—Dr. Wm. R. Williams read this paper. He said there were many persons in whom more or less obvious gastrointestinal symptoms were associated with disturbances of the general health. In the absence of other discoverable causes it was hard to escape the conviction that the primary trouble was in the alimentary canal, and that the other symptoms were merely the effect of this perversion of digestion. The gastrointestinal symptoms were those of ordinary indigestion, flatulence, feces that were too hard or too soft, that had an unusually foul odor, or were changed in color. Not infrequently there was a tendency to diarrhea. The general symptoms were headache, lack of mental vigor, vertigo, muscular weakness, anemia, loss of weight, and presumably a distinct shortening of the duration of life. Such manifestations as asthma, tetany, and even epilepsy, as well as the lesions associated with arteriosclerosis and nephritis, had been included. There was no doubt that many of these patients had excessive fermentation and putrefaction in the alimentary canal in which foodstuffs of all classes might be implicated. This association had led to diligent search for a chemical poison in the intestinal contents that could experimentally reproduce such symptoms. In this process of decomposition many substances were formed, and the question arose, were any of these substances toxic enough after absorption to justify one to regard them as the causes of the clinical conditions referred to? Also did their occurrence in excess coincide closely enough with the incidence of clinical symptoms to establish a reasonable probability of a direct causal relation? In the mouth microorganisms always abounded, and as a rule seemed to cause surprisingly little disturbance of digestion. Even in pyorrhea, where they were unusually abundant, toxic symptoms from them were hard to find. The interference with mastication was more serious, as it insured the swallowing of large masses of unchewed food. In the stomach with a normal secretion of hydrochloric acid there was little bacterial activity. If the hydrochloric acid was deficient, putrefaction might take place. Fermentation of carbohydrates sometimes occurred here even with hyperchlorhydria, although it was more common with a deficiency of the acid. Decomposition in the upper part of the small intestine was slight, with adequate secretion of the digestive juices that acted in the stomach and intestine, but with a failure of this decomposition might take place. In the lower part of the small intestine normally the lactic acid bacilli dominated and held in check the putrefactive organisms. With disturbances of secretion, or the swallowing of large pieces or excessive quantities of food, or with food of improper quality, the cultural conditions became less favorable for the lactic acid formers and more favorable for putrefactive organisms of the colon group and for the anaerobes. In the colon, putrefaction was present in the average healthy individual, but no one could affirm that harm resulted from it. With the conditions of digestion or ingestion outlined above, it might become excessive and the strict anaerobes might share more largely in its production than was the case in health. The known products of decomposition of the carbohydrates, proteins, and fats had not been proven toxic enough to explain the symptoms of gastrointestinal intoxication. Notwithstanding this the conviction could not be escaped from that in this clinical condition the primary cause did originate in the digestive tube. There might be undiscovered poisons that acted directly on the various tissues of the body, or else that first broke down the body's defense, more particularly in the liver, and then reached the other tissues and exerted their toxic action.

Toxemia of Gastrointestinal Origin; from the Clinical Standpoint.—Dr. Jacob Kaufmann read this paper. He said there was a general tendency at present to greatly overestimate the rôle which gastrointestinal toxemia played in the development of certain diseases. The fashion of the day, following the teachings of the French school, attributed to gastrointestinal intoxication various diseases of the nervous system, the circulatory system, the blood, the muscles, the skin, etc. When, however, the arguments which were usually cited to prove the intestinal autotoxic origin of most of these diseases were given it was astonishing to find how very few reliable facts gained by experimental research, by exact chemical investigation, or even by accurate clinical observation, had so far been advanced to support this theory for each case. Under the heading of toxemias of gastrointestinal origin were commonly included all intoxications which could be ascribed to the absorption of toxic substances formed in the alimentary canal by the action of digestive ferments or of bacteria. These endogenous intestinal intoxications were distinguished from the so-called exogenous intoxications, which were principally caused by the taking in of decomposed food. Together with decomposed food, products of protein putrefaction, especially of the ptomaine life, were usually ingested and thus acted as severe poisons. It seemed, however, that in a number of cases of apparent ptomaine poisoning, the severe symptoms were not caused by the action of poisons formed in the food before it was eaten, but by the effect of intestinal infection of this food by bacteria mostly of the paratyphoid type; so that these cases of apparent endogenous autointoxication were actually cases of endogenous autointoxication. Whether these and other severe pathogenic intestinal infections led to the formation within the intestinal canal of such bodies as ptomaines had not yet been definitely proven. There could be no doubt, however, that intestinal infections of this kind produced toxic substances, the absorption of which caused more or less severe systemic disturbances, although as yet no such substances had been isolated. Gastric tetany was often pointed out as one of the most striking illustrations of toxemia, caused by the absorption of toxic substances from the dilated stomach. Some years ago Dr. Kaufmann argued that gastric tetany was caused by an impoverishment of chlorides in the system, which was brought on through the constant loss by vomiting and lavage of great quantities of chloride with the highly acid secretion. This theory, that the attacks were caused by a loss of a constituent necessary to the intermediary metabolism, and not by the toxic effect of a substance absorbed from the stomach, was well corroborated by experiments. In some conditions it was the resemblance of the symptoms to those brought on by the known effect of poisons which justified the assumption of intestinal intoxication. In no disease had this been demonstrated with more clearness than in certain cases of pernicious anemia. In other conditions which were usually attributed to intestinal intoxication, the characteristic symptoms were not such as to suggest intestinal intoxication as the most probable cause for their development. In asthma dyspepticum, for instance, the direct mechanical effect of the gas-distended viscera, usually found in these cases, and the effect of nervous relaxation offered a much more plausible explanation. The fact that the attacks occurred in connection with digestive disturbances and disappeared with their improvement did not throw any light upon their assumed toxic character, and the same might be said of numerous other conditions looked upon as intestinal toxemias, particularly diseases of the nervous and circulatory system, the skin, etc. He said he was far from underestimating the importance of digestive disturbances in the development of diseases of other organs. For some diseases there was a rational explanation other than the autotoxic which made one understand the causal connection between digestive and other systemic diseases. The present tendency to consider these diseases as principally caused by intestinal intoxication was not justified. The products of fermentation of carbohydrates, the acids in the alimentary canal, were

on the whole harmless; but if increased in quantity they formed a local irritant, causing vomiting or diarrhea. Lactic acid with bacterial gastric fermentation seemed to be well tolerated even when produced in large quantities. Much weight was attributed to the products of intestinal putrefaction of proteins, which were chiefly held responsible for intestinal toxemia. Dr. Kaufmann then considered the following questions: (1) What information did one obtain from the finding of increased intestinal putrefaction in regard to intestinal intoxication? (2) How far was one justified in interpreting an excess of indican in the urine as a sign of intestinal intoxication? The different possibilities were considered. Increased intestinal putrefaction might cause an increase of the known normal products of putrefaction, and it might lead to the formation of other new products of toxic character. It was often assumed that with increased intestinal putrefaction, new substances were formed, which might possibly act as toxins. As long as such hypothetical substances had been demonstrated, it was of questionable value to estimate their presence and quantity by measuring the degree of intestinal putrefaction in general. The mere presence of such substances in the feces would not mean anything in regard to their toxic effect upon the system, because they might be detoxicated after absorption. All efforts, however, to find such enterotoxins in the urine had so far failed. Especially the determination of the so-called urotoxic coefficient could not be considered a reliable method of diagnosing the presence of enterotoxins in the urine and still less of measuring their quantity. With regard to the known products of gastrointestinal putrefaction, it must be said that, according to present knowledge, only few were toxic to any considerable degree, and these were produced in too small quantities to cause any appreciable effect. Only one product of protein putrefaction in the intestine, hydrogen sulphide, had been demonstrated that might cause symptoms of intoxication. An excess of indican in the urine was not sufficient to diagnose intestinal toxemia. In neurasthenia there was an increased susceptibility to exogenous toxins like alcohol and tobacco. It was assumed that a like increased susceptibility existed for the toxic effect of products of intestinal putrefaction, which under ordinary circumstances were well tolerated by the system. Taking this for the correct view, it would only show that the toxic effect of intestinal products might aggravate the neurasthenic condition. But it could not be taken as an argument for the claim of some writers, that intestinal intoxication was an important primary cause of neurasthenia. Heredity, worry, overwork, etc., he considered primary causes of neurasthenia. Since digestive disturbances were often associated with neurasthenia, the effect of increased intestinal putrefaction might prove deleterious in creating a vicious circle. Among the symptoms often quoted as characteristic of intestinal intoxication he mentioned albuminuria. The kidneys were very susceptible to poisons and albuminuria occurred regularly when poisons were passed through the kidneys. From his own observations he said he had come to the conclusion that in one distinct group of digestive disturbances, albuminuria was caused by increased acidity of the urine, with and without uric acid or oxalic acid sediment. When in these cases alkalis, especially preparations of magnesia, were administered in such quantities that the urine became slightly alkaline, the albumin disappeared, to recover again with renewed, increased acidity. In these cases, therefore, albuminuria was not caused by the direct action of enterotoxins on the kidney, but by the effect of the products of disturbed metabolism. This led to a different aspect of toxemias connected with diseases of the digestive tract. Gastrointestinal disorders often interfered with the activity of the liver, thereby disturbing the normal process of metabolism. The results of disturbed metabolism, symptoms of the uric acid diathesis, the development of diseases of the kidneys, the arteries, heart, etc., were often described as caused by the action of toxins of intestinal origin. If by the term gastrointestinal toxemia was meant the intoxication caused by the action of substances absorbed from the alimentary canal, then these were not cases of gastrointestinal, but of metabolic toxemia. It was necessary to distinguish strictly between gastrointestinal and metabolic toxemias, especially at present, when Metchnikoff's ideas had taken such a hold on the laity and profession, and when it was almost taken for granted that the so-called antifermentative treatment of digestive disorders was the most important and the most effective way of dealing with chronic systemic diseases. Effective treatment of gastrointestinal disturbances was certainly of great importance in systemic diseases; but he doubted very much whether this difficult task could be accomplished when the plan of treatment was based on the theory that the action of enterotoxins was at the bottom of it all. The fascinating theory of gastrointestinal toxemia was, in most instances, still very much in need of support by objective facts. If they wished to gain more evidence and to clear up the many questions connected with this theory, he said they must show a more critical attitude than was generally displayed at present.

Dr. T. W. Hastings said that the blood changes which might occur in intestinal intoxication were those which occurred, as a rule, in long continued or chronic intestinal intoxications. Sulphhemoglobinuria resulted from disturbances in absorption. So far as the changes in the blood serum were concerned he was not familiar with them; but the changes in the corpuscular elements had been described by many writers. The changes occurred mainly in the red cells. Clinically these changes could be separated into two classes of cases which could be substantiated by a blood analysis. The rarest cases were the most interesting, where there were no marked disturbances in the blood, the red cells, or the blood as a total mass, but the change occurred in the blood pigment producing sulphhemoglobinuria. He drew attention to the distinguishing of sulphhemoglobinuria from cyanosis and to the work West and Clark had done on this. Another set of changes was to be found in the anemias, particularly in pernicious anemia, and Hunter had already described intestinal intoxication as a cause of pernicious anemia in 1888. These changes were not due to the absorption of putrefactive products in the intestines, but to infection of the intestinal wall. Addison in 1855 said that this disease was an infectious one, in which there was an excessive hemolysis. Herter had thrown considerable light upon this subject. Clinically the main reason for thinking this disease was toxic in origin was based upon finding so many neurotoxic disturbances in certain types of pernicious anemia. Secondary chlorotic anemias were produced. The one blood change which was commonly met with was the occurrence of mild secondary chlorotic anemia. In the acute cases of intestinal intoxication the diagnosis was so uncertain that it was difficult to state just what the blood changes were.

Dr. J. C. Roper said the old values that were placed upon the changes in the urine had been destroyed by the discoveries of Follin, and especially in regard to the nitrogen ratios. Dr. Conner and he had done much work recently in a study of the excretion of urobilin; he had found that in pneumonia cases, when it was liable to demonstrate the presence of urobilin in the blood, at autopsy considerable changes were found in the liver. It seemed to them possible that the excretion of urobilin with bile in the blood might be due to a diminished power on the part of the liver and might in fact be an exhibition of failing power.

Dr. J. Ramsey Hunt said that gastrointestinal intoxications among neurologists were considered as playing a definite rôle, or a causative rôle, in the production of a

large group of functional nervous diseases, both the psychoses and the neuroses. But they, in turn, might cause gastrointestinal disturbances, thus producing a vicious circle. Dr. Kaufmann had mentioned a very important point, that there was a group of cases abnormally susceptible to intoxications of any kind. With regard to epilepsy it was a common experience to see fits bearing a certain relation to intestinal disturbances and especially constipation. It was also a common observation that the pains of locomotor ataxia bore a certain relationship to the accumulation of feces in constipation. But in these cases, as well as in epilepsy, the causal factor might be mechanical as well as toxic. There was, however, one affection of the nervous system which always impressed him forcibly as bearing a close relation to intestinal intoxication, *i.e.* disturbances of the spinal cord, the so-called combined scleroses of the spinal cord. These might be associated with the anemias. They were regarded as toxic in origin, and he had seen cases in which degenerative changes in the spinal cord preceded the signs of anemia by a definite period of time. He was very hopeful regarding this group of organic nervous diseases which had a relation to intestinal intoxication. In poliomyelitis occurring in children, some had sought for microorganisms in the gastrointestinal tract, but nothing was found there to support any theory that the microorganism had any casual bearing on the disease.

Dr. L. F. Bishop believed that a practical clinical aid came to the general practitioner in his estimation of indican in the urine, giving him information as to the amount of gastrointestinal disturbance present. Dr. Bishop said he had studied over ten thousand specimens of urine and he was struck by the frequent association of indicanuria and albuminuria. When there was a marked indicanuria there often appeared a persistent albuminuria, and very often there was associated the presence of hyaline and sometimes granular casts. Cardiac symptoms were associated as a rule. It was necessary to revise the ancient theory that the cardiac neuroses or disturbances associated with gastrointestinal symptoms were reflex in origin through the nervous system. One thing that had impressed him very much was the chemical connection between the stomach and the heart in these cases; a patient with gastroenteric symptoms would have a weak and intermittent heart, palpitation, etc., and it would appear to be a real cardiac condition, but the cardiac condition was the result of the intestinal intoxication and the absorption of the chemical products.

Officers Elected.—*Chairman*, Dr. Fred P. Solley; *Secretary*, Dr. C. N. B. Camac.

College of Physicians of Philadelphia.

At a stated meeting held December 2, Dr. Charles Lester Leonard presented a communication entitled "Röntgenographic Studies of Peristalsis: The Relation of Waveform to Function." He demonstrated by means of lantern pictures the course of bismuth-emulsions through the esophagus, the stomach, and the bowel. Dr. Wm. C. Spiller read a paper entitled "Circumscribed Serous Spinal Meningitis: A Little-Recognized Disorder Amenable to Surgical Treatment." He referred to the rarity of this disorder, which occurs as a cystic collection of fluid within the spinal dura and gives rise to symptoms of tumor. But few cases of the affection have been put on record, and only one in which successful operation was performed. This case was reported more than six years ago by Drs. Musser, Martin, and Spiller, and the patient has survived the removal of the cyst until the present time. Drs. John Speese and Edward H. Goodman presented a paper entitled "Experimental Studies of the Pancreatic Reaction of Cammidge." They were able to demonstrate this reaction in the urine from dogs in which pancreatitis was excited by injection of olive oil in the pancreatic duct.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending January 2, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	361	172
Diphtheria	392	36
Measles	363	16
Scarlet Fever	296	19
Smallpox	—	—
Varicella	105	—
Typhoid Fever	48	12
Whooping Cough	24	3
Cerebrospinal Meningitis	6	4
Malarial Fever	—	—
Totals	1595	262

Suppurative Lesions Developed Within the Fetal Membranes.—A. Fruhinsholz describes a case of abortion in which the immediate cause of the detachment of the ovum was a collection of pus containing pneumococci that was found between the amnion and the chorion. The possible origins of this purulent infection are these: Infection of the uterine cavity before conception; infection from the vagina before the union of the layers of membranes; infection resulting from attempts at abortion; localization in the uterus of matastatic deposits arising from a grippal contamination, and reaching the uterus by way of the blood. The author ends with an account of ten similar cases found in literature.—*Annales de Gynécologie et d'Obstetrique.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending January 1, 1909:

		Cases.	Deaths.
SMALLPOX—UNITED STATES.			
Arkansas, Texarkana	Nov. 22–28	3	..
California, Los Angeles	Dec.	1	..
San Francisco	Dec 12–19	1	..
Illinois, Belleville	Dec. 13–20	3	..
Indiana, La Fayette	Dec. 19–21	1	..
Kansas, Topeka	Dec. 5–12	7	..
Maine, Canadian Border	Dec. 12	..	Present
Mississippi, De Soto	Nov.' 1–Dec. 22	135	..
Montana	Nov. 24–Dec. 15	9	..
New Hampshire, Hinsdale	Dec. 23	6	..
West Chesterfield	Dec. 23	1	..
Westmoreland	Dec. 23	1	..
Ohio, Cincinnati	Dec. 11–18	5	..
Texas, Gonzales County	Oct. 1–19	..	Present
Laredo	Dec. 26	2	..
San Antonio	Nov. 28–Dec. 19	6	..
Washington, Spokane	Dec. 5–12	1	..
Wisconsin, La Crosse	Dec. 5–19	4	..
Manitowoc	Dec. 12–19	4	..
Milwaukee	Nov. 21–28	3	..
SMALLPOX—FOREIGN.			
Algeria, Algiers	Nov. 1–30	..	20
Brazil, Bahia	Oct. 31–Nov. 14	51	2
Santos	Oct. 1–31	26	11
Canada, Kingston	Dec. 5–12	2	..
Ceylon, Colombo	Nov. 1–7	25	4
China, Shanghai	Nov. 14–21	..	Present
France, Marseilles	Nov. 1–30	..	1
Nantes	Nov. 22–29	2	..
Paris	Nov. 21–Dec. 5	6	1
Italy, Florence	Nov. 23–30	2	..
Java, Batavia	Oct. 3–10	2	..
Batavia	Nov. 1–14	2	..
Malta	Nov. 21–28	1	On ship
Portugal, Lisbon	Nov. 28–Dec. 25	1	..
Russia, Riga	Nov. 28–Dec. 5	3	..
St. Petersburg	Nov. 14	6	4
Servia, Belgrade	Nov. 18–25	1	..
Spain, Barcelona	Nov. 27–Dec. 5	..	3
YELLOW FEVER.			
Barbados	Dec. 29	2	2
Brazil, Bahia	Oct. 31–Nov. 6	.	1
Manaos	Nov. 21–28	..	2
Ecuador, Guayaquil	Nov. 21–28	.	2
Martinique, Fort de France	Nov. 21–28	2	1
Mexico, Itzincal	Dec. 6–12	2	2
Maxcenu	Dec. 6–12	2	1
Merida	Dec. 6–12	3	1
Veracruz	Dec. 6–12	3	..
CHOLERA.			
India, Rangoon	Nov. 7–14	..	6
Russia, general	Nov. 7–14	419	189
PLAGUE.			
Australia, Brisbane	Nov. 1–7	1	..
Brazil, Bahia	Oct. 30–Nov. 14	3	7
Rio de Janeiro	Nov. 8–15	7	3
Ecuador, Guayaquil	Nov. 21–28	.	1
Egypt, general	Nov. 1–21	7,416	5,659
Bombay	Nov. 18–24	..	5
Indo-China, Cholen	Oct. 18–24	5	5
Turkey, Bagdad	Nov. 7–14	4	1

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Original Articles.

DARWINISM AND MALARIA.

By R. G. ECCLES, M.D.,
BROOKLYN, N. Y.

Malaria and Darwinism—historically considered are quite closely interlinked. Most Darwinians forget that it was not Darwin, but an American physician, who first gave to the world what we call Darwinism—Natural Selection as a means of explaining biological adaptations. The principle itself was announced by Empedocles, 2,000 years ago, but not used in the modern way—as Darwin used it. Professor Darwin himself tells us that the honor of having first used it as he did belongs to Dr. W. C. Wells of Charleston, S. C., who, in 1813, communicated a paper to the Royal Society of Great Britain entitled "An Account of a White Female, part of whose skin resembles a Negro," in which such a use was made of it.[1] In this paper he sought to explain how the negro came by a black skin as a survival in the struggle with malaria and other tropical diseases. Had he worked his theory out as completely as Darwin did, America would have won the prestige which Britain secured by the publication of the "Origin of Species." Darwin tells us that Wells, "after remarking that negroes and mulattoes enjoy an immunity from certain tropical diseases, he observes, firstly, that all animals tend to vary in some degree, and, secondly, that agriculturists improve their domestic animals by selection; and then, he adds, but what is done in this latter case by art seems to be done with equal efficacy, though more slowly by Nature, in the formation of varieties of mankind, fitted for the country which they inhabit. Of the accidental varieties of man, which would occur among the first few and scattered inhabitants of the middle region of Africa, some would be better fitted than others to bear the diseases of the country. This race would consequently multiply while the others would decrease—not only from their inability to sustain the attacks of disease, but from their incapacity of contending with their more vigorous neighbors. The color of this vigorous race, I take for granted, from what has been already said, would be dark. But, the same disposition to form varieties still existing, a darker and a darker race would in the course of time occur."[2] The tropical diseases familiar to Wells and toward which he had observed the negro's relative immunity were no doubt malaria and yellow fever. The harvest gathered by death through each is great, but that from malaria is much the greater. The article "Malaria" in the "Encyclopedia Britannica," tells us that this disease "has been estimated to produce one-half of the entire mortality of the human race; and, inasmuch as it is the most frequent cause of sickness and death in those parts of the globe that are most densely populated, the estimate may be taken as at least rhetorically correct."[3] So deep an impression did the havoc that malaria wrought have upon some of the older writers that it was declared to be "a destroying angel" sent to earth to keep man within proper bounds.[4] A few years ago Dr. Patrick Manson stated that no less than five million British subjects annually die of it,[5] while Professor Celli asserted that in Italy, two million persons are attacked and fifteen thousand killed by it each year.[6] If we include the world as a whole malaria seems to be, for the human race, the chief instrument of Natural Selection. In some parts of the earth it has no influence and in others its influence is but slight. Until quite recently the universal belief of medical men was that it was due to bad air, and hence the title malaria. A similar belief was entertained regarding yellow fever and it is not many years since a special committee of the New York Medical Society reported that yellow fever may be produced in any country by "pestilential effluvia."[7] This old theory is thoroughly non-Darwinian, inasmuch as, if true, there could have been no survival of any fitness. A condition of bad air or swamp effluvia could be no modern thing if our geological record is reliable. We ought to have become entirely indifferent to it long ago, through the deaths of the unadapted. The fact that we are not is evidence that no sooner are we immune than it checkmates our immunity by some change in itself. But this indicates that it is alive and struggling for existence. The first theory of malaria that agreed with Darwinian principles was the mosquito one. It presented to our understanding a struggle of living thing with living thing even when the Laveran parasite was unknown and the mosquito was only part of the correct explanation. The first presentation of this theory was made in 1807—six years before Dr. Wells propounded his theory of Natural Selection. It is now, however, over a century since Dr. John Crawford of Baltimore, Md., gave to the world his mosquito theory of malaria. Instead of meeting with enthusiastic acceptance, as a new clue worth testing, it was allowed to go to slumber in unmerited neglect. No harm could have come from its discussion and trial other than that it would have upset the inherited, factless conception of a malaria. It is easy to understand why Dr. Wells' theory was allowed to go to slumber for close on forty years. On it hung no such issues of life and death. Against it was the whole influence of nineteenth century theology. There was no body of men directly interested, for the sake of themselves, their families, and their suffering patients, in getting the proof of its truth. Not so Crawford's theory. Its neglect is astonishing. Nothing more was heard of it till 1848 when Dr. Josiah Nott of Mobile, Ala., took it up again after it had slept forty-one years. Out of an entire generation of medical men only one single soul showed any interest in it. It does seem as if

after so long a slumber a host of interested reasoners should have arisen to give it a trial. It was neither a chimera of insanity nor a mystic mouthing of ignorance but a rational hypothesis capable of putting life into a lot of otherwise unexplainable facts. That Nott's efforts met the same chilling neglect as did those of Crawford proves that there is something radically wrong in modern methods of education. For another thirty-five years no one paid the slightest heed to this priceless theory. In 1883 Dr. A. F. A. King of Washington, D. C., came like a third John the Baptist, crying in the wilderness of medical nonappreciation. Through the *Popular Science Monthly* he sought a hearing.[8] The time seemed opportune. Just three years before Dr. A. Laveran, in the Military Hospital at Constantine, Algeria, Africa, had discovered the malarial parasite in the blood of malarial patients. His discovery had been confirmed at Rome and in other places.[9] Everything seemed ripe for the adoption of so promising a working hypothesis—everything but the deathly indifference of medical men. Suggestive as the situation was, King's efforts proved as unavailing as did those of Crawford and Nott. The theory touched no sympathetic chord in the minds of those who read the gathered evidences of its truth. It did not occur to any of them to ask how Laveran's parasite could get into the blood of malarial patients from the swampy regions in which malaria had long been known to make its home. That would have been theorizing and most of our teachers were opposed to theories. Old and popular theories could be tolerated but no new ones were wanted. The Encyclopedia Britannica, in an edition that followed the publication of King's article in the *Popular Science Monthly,* describes the popular theories of malaria but makes no mention of the mosquito one.

Eleven more years passed, after the third attempt to stir up interest, when Dr. Patrick Manson, while making a study of Laveran's organism, discovered in its structure evidence that it must be insect borne. In a succinct statement of Manson's reasons for his belief, written by Major Ronald Ross for the *International Medical Annual,* we read that "fixing his attention on the gametocytes (the form assumed by the organism before it develops males and females) and on the fact that they emit the motile filaments only after the blood is taken from the host, he concluded that the emission of the filaments is a natural, organic process in the history of the parasite, meant for its further development within some suctorial insect. The sporocytes (*i. e.* the spores that end the cycle in the mosquito and begin the non-sexual cycle in man), he said, continue the life of the parasites within the first host (men, birds, and so on); the gametocytes continue it within a second host, the suctorial insect. He thought that the motile filaments are merely flagellated spores which are produced from the gametocytes just as the ordinary spores are produced from the sporocytes, the former attacking and living in the tissue-cells of the second host just as the latter attack and live in the fresh blood-corpuscles of the first host. It was evident at once that the suctorial insect could be no other than the mosquito."[10] When Manson drew this conclusion it was fortunate for him, and for medical science, that he found in Major Ronald Ross a willing listener, a man of proper training, and one that took interest in the practical testing of such an idea. It was likewise part of the fortunate combination that Ross was situated in an environment—India—where the theory could be put to a proper test. But for such a favorable combination we fear that the theory might still be awaiting someone to prove its truthfulness. Major Ross's work ended in perfect success and in 1898 the medical world was startled by his report. Great Britain, through him, had won an honor that ought to have come to the United States. To my mind the facts collected by Dr. King are unexplainable on any other conceivable theory than the mosquito one. They are, of course, of a wholly different character from those given by Dr. Manson. It has been said that King's facts "afford no more than a weak probability in favor of the great theory" and that "it is certainly to Manson that we owe the real mosquito theory of malaria."[11] We surmise that the entire array of facts submitted by King had not been read by the writer of the words here quoted. To be told that Manson's "was not the weak hypothesis founded on doubtful coincidences and analogies which had hitherto held the field, but a true scientific induction,"[12] is far from fair to the American writer. Without intending, in the slightest degree, to detract from the honorably won glory of Sir Patrick Manson, nor from the brilliancy of the triumph of Major Ronald Ross, we would like to have every fair-minded reader of this article try to bring King's facts into any other interpretation than that which he gave them. Manson has been honored with knighthood, with medals, with degrees, and with other honors. He deserves every one of them. King, the American, is treated with neglect notwithstanding Ross's proof that the theory so ably presented, in 1883, was the right one. The facts then collected pointed out that both mosquitos and malaria (*a*) occupy the same regions, (*b*) are hindered from reaching their victims by screens, coverings, or nettings, (*c*) develop at a common temperature (about 60° F.), (*d*) disappear at a common temperature (about 32° F.), (*e*) increase their ravages progressively toward the equator, (*f*) are caught by dense foliage when the wind blows from swamps toward such foliage, (*g*) are carried to the same distances by the wind, (*h*) cling to low, damp regions in calm weather, (*i*) keep near the ground save exceptionally, (*j*) steadily disappear as a region gets thickly settled, (*k*) appear in the freshly dug or excavated ground of wet regions, (*l*) are most pronouncedly active after sundown, (*m*) attack out-of-door sleepers more frequently than in-door sleepers, (*n*) penetrate but short distances into large cities, (*o*) are at their worst in summer and autumn, (*p*) are checked in their distribution by high walls, (*q*) are rendered more pernicious by cutting marsh shrubbery, (*r*) travel only with the wind, (*s*) attack those lying down more than those up and moving, (*t*) travel but short distances from swamps except on rare occasions, (*u*) are inhibited by smoky fires, and (*v*) are bred by tanks, millponds, and reservoirs.[13] This simply means that the habits of the mosquito parallel the peculiarities of malarial attacks down to the most minute details obtainable by ordinary observation. Was this a weak hypothesis? Are these doubtful coincidences and analogies? Either this complex parallelism is proof of a miracle or it means that mosquito and malaria were necessary parts of one another. It is far too complex and too perfect to be explainable on any theory of coincidence. Why was it ignored? Let the reader pause and ask himself what would have been the result if the far weaker and less coherent mosquito theory of yellow fever had continued to be ignored in the same way. Where would have been our triumphs in

Cuba and Panama? Had Americans been ready to do for Nott and King what Low and Sambon did for Manson and Ross—simply give the theory an honest test—the glory of the proof would have been ours instead of Britain's.[14] But, alas, so many of our doctors have no use for theories.

In the writings of both King and Nott yellow fever was coupled with malaria as being mosquito borne. In this phase of their theory they had an enthusiastic supporter in Dr. Charles Finlay, of Havana, Cuba. For twenty years the latter gentleman had striven to convince his stubborn, or indifferent fellow practitioners that if they would get rid of their swamps and mosquitos they would get rid of their yellow fever. His efforts were unavailing. Not until Ross made his discovery was there sufficient faith on the American continent to give the matter a fair trial. On learning of his work and its success the instinct of imitation, combined with the fact that his triumph as a theory chaser had severely scotched antitheory sentiment, brought us to our senses. The members of the American Yellow Fever Commission, composed of Drs. Reed, Carroll, Agramonte, and Lazear, after having obeyed instructions in trying to run down Sanarelli's *Bacillus icteroides*, grasped at the Nott-Finlay theory and won the proudest success that has ever come to American medicine.[15] Well has Tyndall said: "A perfect theory gives dominion over natural facts; and even an assumption which can only partially stand the test of comparison with facts may be of eminent use in enabling us to connect and classify groups of phenomena."[16] Haeckel, too, is of the same way of thinking for he tells us that "A weak hypothesis is always better than none. We must therefore protest against the foolish dread of hypotheses which is urged against our phylogenetic methods by the representatives of the exact and descriptive sciences. This shrinking from hypotheses often hides a defective knowledge of other sciences, an incapacity for synthetic thought, and a feeble sense of causality."[17] One of the most recent statements of scientific men regarding the benefit of theory is that of Prof. H. A. Bumstead of Yale, who declares that "A marked characteristic of modern physics is the free and fearless use of hypotheses—a use which would have been regarded as dangerous, or at least unscrupulous, in the days before we had been taught by the example of great masters like Faraday, Kelvin, and Maxwell, that hypotheses were the most useful of all instruments of research."[18] How long is it going to take some of our medical teachers to learn that it is a duty they owe to the world to stop denouncing and take to searching for all the newest theories they can find in order to promote instead of hindering discovery? The sooner they do so the better, for there can be little doubt of the fact that we are now facing a vista in the deep forest of medical research that promises greater wonders than the past has dreamt of. Now it is theory, but soon it will be fact, if these men can be made to hold back their discouraging efforts. Sir Patrick Manson recently took a medical audience into this new wonderland of protozoological development. He said: "One can readily understand how an animal, originally free, can adapt itself to parasitic life on another animal, but it is very difficult at first sight to explain how it can accustom itself to life in two absolutely different hosts so far removed from each other, zoologically, as man and a mosquito; and, further, that both man and mosquito are essential for its welfare; and, moreover, that in one host —in this case the vertebrate—the parasite has an asexual life and in the other host—the insect—a sexual life. How by any recognized principle of evolution can a life so complicated be attained or explained? I would with great diffidence and without entering on detail submit the following hypothesis. Vertebrates, arthropods, molluscs, helminths, protozoa, have all of them sprung from a common ancestor, or, if not from one common ancestor, from similar ancestors. Very early in the growth of the family tree a certain originally free organism became at first intermittingly, then finally and permanently, parasitic on another organism. In time a definite host and parasite relationship was established between the two. From the original host varieties, species, genera, and so on were gradually evolved. Concurrently with this evolution in the host-parasite, just as its host had done, adapting itself to its changing environment, evolved new varieties, species, genera, etc. In the course of these concurring evolutionary processes there came a time when, say, the insect and vertebrate strains began to diverge. A certain organism was parasitic on the common insect-vertebrate ancestor. The process of evolution in this host ancestor being necessarily very gradual, the parasite—as is the case with many existing parasites—was capable of adapting itself to the closely related varieties of the host, among others to the insect-resulting strain and to the vertebrate-resulting strain. Divergence in these host-strains continuing, varieties became species, species genera, and so on, until insect and vertebrate, as they exist at the present day, were evolved. In the early stages of the evolutionary process the parasite could live in either vertebrate strain or insect strain of host indifferently, but there came a time when it was often more to the advantage of the parasite to pass its sexual life in the ancestral insect strain. In the process of evolution this at first more or less accidental habit—I can hardly apply the expression 'optional habit' to a parasite—became fixed and has been transmitted so that now the sexual life of the malaria parasite is passed in the mosquito, its asexual life in man. This is my explanation of the double life, if I may so describe it, of so many and so widely separated parasites, including protozoa, nematodes, trematodes, and cestodes. I can explain it in no other way; the explanation I offer seems to harmonize the facts and to conform to the doctrine of evolution."[19]

According to the view which Manson has here expressed every step in evolution from invertebrate creatures to vertebrate fish, beasts, birds, and men—their phylogeny—has been paralleled by an evolution within them of different kinds of infesting parasites. Through myriads of ages these permanent parasites have injured and sickened, killed and maimed every form of host that nature has developed, while adhering to their parasitic proclivities with as much persistence as the higher forms adhered to life. They have, according to this, never ceased from being parasites and descendants of parasites through the countless millenniums that intervene between us and our remote jelly-fish ancestors. While we know that, at present, some of the parasites are apparently but slightly if at all harmful, yet the supposition will not down that given other conditions they might become quite dangerous and there is the possibility that before the balanced condition came they may have been seriously dangerous. While some zoologists might demur at the extension of the malarial type of para-

sitism back to the beginnings of metazoic life most of them agree with Manson as to the very great antiquity of parasitism. Indeed so thoroughly fixed in the minds of scientific men is this belief that some of them use it as a means of estimating the relative antiquities of mammalian species and genera. Of two species of wild animals, the relative antiquities of which cannot be settled by their structures, von Jhering has used the permanent parasites which they carry as his guide.[20] But it is more with malarial parasitism than parasitism in general that this paper has to deal. The problem which Manson raises, in connection with the former, is an exceedingly important one. It is also one which is likely to cause a good deal of lively discussion before a consensus of opinion can be reached concerning it. We are now quite certain that three, and perhaps four, species of plasmodium have succeeded in getting into human blood to be swung shuttle-like from man to mosquito and from mosquito to man in what appears to be an unending rhythm. The old question in Froude's fable of the wise owl, regarding which was the first, the owl or the egg, here again confronts us in a slightly altered form. As the owl came out of the egg and the egg came out of the owl, in never ending succession, so each parasite of malaria shuttles from mosquito to man and from man to mosquito, unendingly. The query in John Hay's poem of "Little Breeches," when the little chap was found among the lambs, is quite appropriate as regards the malarial organism. "How did it get there?" We might reply, interrogatively, "Angels?" but the answer would be as unsatisfactory in the one instance as in the other. So far as can be seen this shuttle game has been going on everlastingly. If we pause to earnestly ask ourselves how it could possibly have begun we are overwhelmed with the difficulties of the question. It is apparently insoluble. Some of us will be content to pronounce it a mystery and let it rest at that. A few may look upon the raising of such a question as a piece of impious impertinence. The Darwinian will not hesitate to attack it as a survival of conditions of fitness and hope in the record of evolution to find evidences of his deduction. It is too important a problem for us to play the philosophic coward with. Attached to its solution there is too much of weal or woe to human-kind for us to let it alone. Viewed as a result of natural law there is no reason why, by induction, we should not be able to get at its cause and meaning. If we must accept it as a prearranged plan of creation we will have to revise our ethical conceptions in order to reconcile ourselves to what surely looks quite like malevolence toward man. Man seems to have been made for the plasmodium and not the plasmodium for man. No matter how we view it, however, the conviction is sure to grow, if we think of it at all, that this condition is one of great antiquity. To men not hemmed in by known scientific facts numerous plausible explanations might arise that would make it appear as if, possibly, recent. The less one knows about a subject the less imagination is restricted in conjuring up theories as explanations. Child and savage have minds so blank regarding biological facts that either might be led to believe that frogs could develop on dry land without a tadpole stage or human ova grow into babies by being deposited in a mudpuddle. To know the facts about the plasmodia of malaria is to lose the pleasure of indulging in child-like theories concerning them. These facts will not allow us, for instance, to conceive that at some recent period an infected mosquito from a swamp brought the plasmodium from there and, for a first time, injected it into man where it developed. The life of the organism is known to be such that that would be a miracle. We could as reasonably think of babies growing out of mud or evolving from a cabbage. The inherent nature of the parasite is such that it is bound as closely to its conditions of life—under the penalty of death for deviating therefrom—as we are.

We are told by Prof. E. A. Minchin, Protozoologist of the University of London, that "the life cycle of the malarial parasite is now thoroughly known in all its features" and, likewise, that it is "sufficiently well established that mosquitos neither come into the world infected with these parasites, nor acquire them in any other way but from the blood of their prey."[21] Years of careful search have failed to discover the slightest sign of any other way in which these organisms could reach man than through a mosquito and, what is still more to the point, their natures are such that they give no hint of any possibility of their being able to live outside one or other of their two hosts. The sexually produced spores that reach man from the mosquito—the sporozoites—are never produced in man or any other known animal than the mosquito. The asexually produced forms that reach the mosquito from man—the gametocytes or sporonts—are never produced in the mosquito. After malarial blood is drawn "formation of gametes (*i.e.* male and female forms that are produced by the gametocytes) commences immediately, the chief stimulus to this development being apparently the lowering of temperature, since the whole process can be observed under the microscope in blood drawn fresh from the body."[22] These plasmodium gametes conjugate only within the body of the mosquito. There they produce, by such conjugation, motile, worm-like forms—the oökinetes—and these are not found in the blood of man or other creature than the mosquito. When formed "the oökinete by its own activity bores through the epithelial lining of the stomach of the mosquito"[23] in order to reach its resting place for further development. It is so much at home within the mosquito that it does not fail in guiding itself to the proper part of the body of this host. Each round in the life of the parasite in man ends up by forming a rosette-like cluster of small bodies that breaks up into what are known as merozoites. Such clusters never appear in the mosquito. Each merozoite starts once more the human cycle which goes on through its successive stages until the rosette-like clusters again appear to once more break up into merozoites. These merozoites once more start new generations within man so that in this way the round of multiplication goes on at a rapid rate. This round has received the name schizogony because of the increase in the number of the organisms being due to a cleaving or dividing-up process. In the course of time this method of multiplying by cleavage slows down and finally comes to an end so that "we know unless it is again passed through a mosquito that it dies out spontaneously in every instance and in a space of time something less than three years."[24] The propogative process, which occurs only in the mosquito, is due to the conjugating of males and females and ends up in a supply of what are called sporozoites. It is technically known as sporogony. The essential fact in connection with our argument is the irreversibility of these so far as hots. Sporogony cannot

take place in man nor schizogony in the mosquito. For the parasite to miss either would mean certain extirpation. As well expect the region of a pond to be stocked with frogs after all tadpoles had been killed or to produce tadpoles after all the frogs had been destroyed. If men could be kept out of the way of mosquitos or mosquitos out of the way of men the earthly existence of all malarial parasites, of the kinds that infect men, would abruptly terminate. They cannot maintain their existence without both hosts. We and the mosquitos seem as if created for the express benefit of these parasites. The combination is a wonderful one and—for the plasmodium—all that could be desired. If evolution is true, there ought to be some footprints showing how so remarkable an adaptation came into being. Before going in search of such facts let us diverge a moment in order to clear up a point that might be somewhat foggy.

In modern zoological and botanical classification all organisms are listed, as nearly as possible, in relation to structural affinities. In consulting such classifications we are prone to forget that wherever we find the name of a given organism placed we are able from there to trace its phylogenetic geneology. Its race relationship, through the geological ages of the past, is told by the place in which we find the name. Why this is so can be seen from the following statement of Darwin: "All organic beings have been formed on two great laws—Unity of Type, and Conditions of Existence. By unity of type is meant that fundamental agreement in structure which we see in organic beings of the same class, and which is quite independent of their habits of life. On my theory unity of type is explained by unity of descent."[25] Prof. H. E. Crampton of Columbia University, commenting upon Linnæus' view of classification, and comparing it with the modern—Darwinian—one, says: "But classification was to Linnæus an end in itself, he could not see that it was but a means to the larger end of understanding and expressing evolutionary relationships—that resemblance means consanguinity."[26] Every classified animal is thus taken to be, through direct, lineal descent, a more or less remote blood relative. The animal kingdom is like a tree with diverging branches. The largest branches are known as phyla, branches of these are called classes, and subsequent smaller and smaller branches are orders, families, genera, species, and varieties, respectively. Animals of the same variety are very near of kin. Animals of the same species are likewise near of kin but not so near as when of the same variety. Animals of the same genera but of a different species may be quite remote from each other in kinship but not so remote as if of different genera. When we find all dogs classified as *Canis familiaris*, all wolves as *Canis lupus*, and all jackals as *Canis aureus* it means that we have here three species of the genus Canis. While not as near to each other in blood relationship as the varieties of dogs known as setters, hounds, or Newfoundlands, they are still quite near of kin. The fox belongs to the genus Vulpus and both Vulpus and Canis are genera of the family Canidæ. While, then, fox and dog are genealogical kin their degree of consanguinity, according to this classification, must be less than that of wolf and dog. The family Canidæ belongs within the order Feræ—an order that includes all ferocious animals or carnivora. Felidæ, Ursidæ, and other families belong in this order with Canidæ. In the family Felidæ is the genus Felis, the best known species of which is *Felis domesticus*—the common cat. In the family Ursidæ is the genus Ursus with its well known species—*Ursus horribilis*—the grizzly bear. In this way we find the relationship separating wider and wider apart. The order Feræ belongs in the class Mammalia, which embraces every kind of animal that suckles its young. To this class man, himself—*Homo sapiens*—belongs. Next comes the phylum Vertebrata which includes every animal having a backbone. To this immense branch upon the tree of life there are attached many classes, orders, families, etc. Until very recently medical science had little or nothing to do with the phylum Protozoa. Now it begins to loom up before us as if about to be of superlative importance. Its branches, subbranches, sub-subbranches, etc., are likely to very soon become common knowledge among physicians. To-day few know anything about them. Its divisions are made upon the same general plan as that just outlined of the Vertebrata, and kinship within them is determined in the same manner. It is to this that the reader will now have his attention directed. On it hangs the truth or nontruth of Sir Patrick Manson's words which we have quoted. On it hangs—so far as my limited vision can now see—the means of acquiring information regarding the origin of our present powers of resisting disease. One class of the phylum—the Sporozoa—is, probably, the most remarkable and the one likely to attract medical men most. We must know the kinship existing among the organisms which it contains in order, if possible, to discover how the mosquito-human shuttling began.

In Allbutt's "System of Medicine" we are told by Prof. Minchin that "*Plasmodium* Marchiafava and Celli . . . comprises the various malarial parasites of mammals and birds, the agent of transmission being in all known cases a gnat or mosquito of the dipterous family *Culicidæ*. The trophozoite is always of amœboid form, and is intracorpuscular during the whole trophic phase. A characteristic feature of all malarial parasites is the production of an excreted pigment termed *melanin*, derived from the hemoglobin of the blood."[27] From this we learn that the genus Plasmodium was first named by Professors Marchiafava and Celli, that all of its species are carried by mosquitos, that in the form in which it is actively engaged in absorbing nourishment (the trophozoite form) it is always amœboid as distinct from some related organisms that are not amœboid in this stage, that it makes its home during the nourishment absorbing phase within the red blood cell, and that no other genus of the order to which Plasmodium belongs so distinctively produces melanin. The generally recognized and named species of Plasmodium are:

1. *Plasmodium vivax*, found in all cases of tertian malaria.

2. *Plasmodium malariæ*, found only in cases of quartan malaria.

3. *Plasmodium immaculatum*, found only in pernicious malaria.

4. *Plasmodium kochi*, found in malaria-infected monkeys.

5. *Plasmodium præcox*, found in malaria-infected birds.[28]

Besides these are a number of unnamed species found in bats, other mammals, and even reptiles. There is still considerable dispute concerning the naming of malarial parasites. *Plasmodium immaculatum* is placed by some authorities in a genus named *Laverania* while still others place *Plasmodium præ-*

cox in the genus *Hæmoproteus*. The distinguishing features of the various species are given by Prof. Minchin in these words: "The schizonts are distinguished by trifling differences of pigmentation in the three (human) species, and also by variations in the process of sporulation. In the quartan parasites the rosettes have a form that has been compared to that of a daisy, and are relatively few, from nine to twelve in number. In the tertian species the merozoites are more numerous, usually from twelve to twenty-four in number, and the corresponding stage has more the form of a mulberry. In *Laverania* (*i.e. P. immaculatum*) the forms of the rosettes, and the numbers of the merozoites in each, are very variable. Most characteristic, however, is the length of time required by each species to complete a generative cycle. In *P. malariæ* a schizogonous generation (*i.e.* a fission generation in the warm-blooded host), from a sporozoite (or merozoite) to merozoite, occupies seventy-two hours; in *P. vivax*, forty-eight; while in *Laverania* it is twenty-four hours or of irregular duration."[29] The paroxysms of fever, suffered by malarial patients, coincide with these fission periods of the various species. In the estivoautumnal form the irregularity of fission in *P. immaculatum* parallels the irregularity of the paroxysms. The gametocytes, or male and female producing cells of this species, are easily distinguished by their crescentic shape. They are usually referred to in literature as "the crescents." In other species the gametocytes are roundish and not at all like these.

The genus of next greatest importance to American pathologists, that is close of kin to Plasmodium, is Piroplasma. In this the carrier, instead of being a mosquito, is a tick. The infected host, in all severe cases, is attacked with hemoglobinuria because of the great ravages of the invading organisms upon the blood-corpuscles. The different species are confined in their depredations to some single genus of vertebrate host or to several genera of a common family. This peculiarity is not uncommon among protozoan parasites many of which have even a closer selective power in that they confine themselves to some particular tissue of the host. The best known species of *Piroplasma* are:

1. *Piroplasma bigeminum*, of American cattle.
2. *Piroplasma bovis*, of British cattle.
3. *Piroplasma parvum*, of African cattle.
4. *Piroplasma ovis*, of sheep.
5. *Piroplasma equi*, of horses.
6. *Piroplasma canis*, of dogs.
7. *Piroplasma muris*, of mice.
8. *Piroplasma hominis*, of man.[30]

The discovery of *Piroplasma bigeminum* opened up a new epoch in protozoan parasitology, the honor of which came to America. The work was done by Prof. Theobald Smith now of Harvard University, in association with F. L. Kilborne. The published report of "Investigations into the Nature, Causation, and Prevention of Southern Cattle Fever" gave us our first knowledge of this kind of organism and of the cause of Texas fever. The name bigeminum was given to the species because of the parasites being linked in pairs at their pointed ends by a thread of protoplasm. The genus gets its name from the resemblance of the organisms to a pear. The species that causes African cattle fever is linked in groups of four, and in the form of a Maltese cross where the viewpoint is favorable. *Piroplasma hominis* is the cause of Rocky Mountain spotted fever of which Dr. L. W. Sambon, the well known authority on tropical diseases, says: "It is impossible to distinguish spotted fever from typhus fever, and I am inclined to think that they are identical."[31] The name "tick fever" has been applied to this disease, in some of our western states, but this is likely to confuse it with the fever of the basin of the Zambesi that seems to have a prior claim to the title. The latter disease is caused by a spirochæta. The next near of kin to Plasmodium and Piroplasma is Halteridium. This genus is nearer to Plasmodium than to Piroplasma. No attempt seems to have been made toward dividing it up into different species as most authors name them all *Halteridium danilewskyi*. These have been found in pigeons, woodlarks, marsh blackbirds, buzzards, ravens, falcons, buntings, horned owls, barn owls, wood owls, finches, jays, song sparrows, Java sparrows, and house sparrows.[32] Prof. J. B. MacCallum, of Johns Hopkins University, while making a study of Halteridium, in 1897, cleared up a puzzling point in the life histories of these organisms as well as of plasmodium. He discovered that what had been taken to be flagella were the microgametes —male forms—of the organism. Neveu-Lemaire has placed Plasmodium, Piroplasma, and Halteridium in the suborder Acystosporea and the next genus we wish to refer to—Hæmogregarina—in the suborder Hæmosporea. Most of the Hæmogregarina are parasites of cold-blooded vertebrates, and all were until lately believed to be so. The species found in cold-blooded vertebrates "frequently quit the corpuscle and become free for a time in the blood-plasma, after which they may penetrate a blood corpuscle again."[33] The following species show their distribution:

1. *Hæmogregarina ranarum*, of frogs.
2. *Hæmogregarina lacertarum*, of lizards.
3. *Hæmogregarina stepanowi*, of tortoises.
4. *Hæmogregarina mirabilis*, of snakes.
5. *Hæmogregarina gerbilli*, of rats.
6. *Hæmogregarina jaculi*, of jerbou.

A number of species have been found in fish and crocodiles. Their carriers, for cold-blooded aquatic vertebrates, are, usually, leeches, for lizards ticks, and for gerbilli a louse.

We can now take a glance at the present classification of the class Sporozoa up to its orders. As it is only necessary to see the position of the genera of Hæmosporidia those of other orders are not included in our diagram.

Class.	Subclass.	Order.	Suborder.	Genus.
Sporozoa.	Neosporidia.	Myxosporidia.		
		Actinosporidia.		
		Microsporidia.		
		Sarcosporidia.		
		Haplosporidia.		
	Telosporidia.	Gregarinidia.		
		Coccidiidia.		
		Hæmosporidia.	Hæmosporea.	Hæmogregarina.
			Acystosporea.	Piroplasma.
				Plasmodium.
				Halteridium.

All known species of the order Hæmosporidia are "parasitic, during the non-sexual schizogonous cycle, in the blood of a vertebrate, and during the sexual, sporogonous cycle, in the gut of an invertebrate host."[34] Prof. Calkins of Columbia University states that "The spores of the malaria organism are not covered by a protective coating as in the majority of Telosporidia, and are, therefore, unsuited for an exposed life outside of their host." Of the Coccidiidia the same author declares that "the permanent cysts contain spores, each of which contains sporozoites which are taken into the digestive tract with the food. Here the cyst membrane bursts or is dissolved, and the sporozoites are liberated. They penetrate the epithelial cells and grow to the

normal size of the adult."[35] Let the reader particularly note the fact that the absence of protective cysts, as is the case with the malarial parasites, is an exceptional one in the whole immense class to which they belong. It is a new, later evolved condition, not found in its kindred organisms. Prof. Minchin informs us that "Only in the comparatively small number of cases in which infection is conveyed from one host to another by an intermediate host, are protective envelopes wanting."[36] In Allbutt's "System of Medicine" we are told that "In the inoculative method of infection characteristic of the Hæmosporidia no resistant spores, but only gymnospores (*i.e.* naked spores) are found at any stage in the life cycle, since the parasite is never outside the sheltering body of the one or the other of its two hosts. In all other Sporozoa (vide diagram) so far as is known the method of infection is a casual or accidental one. Spores cast out from the body of the host are accidentally swallowed by a new host, in which they germinate. Thus the parasitic cycle starts from the digestive tract in all cases. In the casual method the parasite germs must be exposed for a time to the vicissitudes of the outer world, and it is a protection during this period that the characteristic spore-envelopes and cysts are developed, all to be dissolved off or cast aside when taken into the new host. Hence in Sporozoa generally, the exogenous cycle (*i.e.* the cycle outside of the host) is characterized by the formation of protective envelopes which in the endogenous cycle (*i.e.* the cycle within the host) are quite absent, being quite unnecessary."[37] Prof. Sedgwick of Trinity College, Cambridge, England, tells us that "In Gregarinidia and Coccidia the cysts pass out with the feces and enter another host with the food."[38] These facts show us most clearly that the progenitors of the malarial parasites had resisting spores and were able to pass part of their lives outside of all hosts, passing out of their victims without the aid of mosquito or other invertebrate. We have only to remember what has already been said regarding modern classification in order to see, by the aid of our diagram, that "The two orders Hæmosporidia and Coccididia may therefore be regarded as two very closely allied groups of the Telosporidia, which have diverged from a common origin in two directions, in accordance with the difference in their habitat."[39] We can also see that Coccididia and Gregarinidia bear a like relationship. If we will recall the fact that such Hæmogregarina as inhabit cold-blooded vertebrates have a habit of freeing themselves from the blood cells and entering the blood-plasm we can see an intermediate step in the direction of being able to get back into the intestines. This looks very much like a vestige of the old way their predecessors had in getting out of the blood-vessels as the oökinetes pierce the walls of the stomach of the mosquito. As further evidence in this direction we have the case of *Hæmogregarina ranarum*, of the frog, in which almost Coccidian conditions are found. This was the first of these organisms studied and was, until lately, known as Lankesterella. Here is what we are told of it by Prof. Minchin: "With regard to the Sporogony (Hæmosporidian) two types can be recognized, the differences between which depend upon whether the oöcyst is actively parasitic upon the tissues in which it encysts, as in the malaria parasites, or whether it forms round itself a tough protecting membrane within which it is more or less independent of its host or of external conditions, as in *Lankesterella*. The latter case is undoubtedly the more primitive, and does not differ essentially from the state of things seen in the Coccidia. In the oöcyst of *Lankesterella* the number of sporoblasts is relatively small, and each sporoblast appears to give rise to a single sporozoite only. This condition is related, in this instance at least, with absence of an intermediate host. Sporogony and Schizogony here go on in the same animal."[40] It is very evident that we have here the "missing link" that connects Hæmosporidia with the other orders of Telosporidia and gives us the explanation of how the mosquito came to play the part it does in carrying the malarial parasites. The same author further adds that "If the modern conception of the Hæmosporidia as forms closely allied to Coccidia, adapted to parasitism upon blood-cells, be correct, it is reasonable to suppose that the ancestors, at least of the group under consideration, were at first without any special means of dissemination other than the resistant spores and cysts found in Coccidia and Sporozoa generally."[41] But here we meet a difficulty that must not be ignored. Granting that Plasmodium, and other Hæmosporidia of warm-blooded animals, have been derived from organisms that made their homes in cold blood, how are we able to account for the present adaptation to warm blood? Why is it that schizogony is now only possible in warm blood? This is an adaptation that must have required a countless number of generations to be reached. Protoplasm has very great powers of adjustment but they are always slow. In the Acystosporea we have only adaptation to warm blood for schizogony. In the Hæmosporea we have adaptation to cold blood for the same, but, in some of the species, it is carried on in warm blood. Have warm blooded animals been derived from cold-blooded ones and has the transition been gradual? If this is the case then our problem is a simple one. For a mosquito to suck the malarial blood of a man and inject it into a bird or an ox is to kill the malarial organism. The slight differences between the bloods of these destroys the adaptation sufficient to kill. For a mosquito-like insect to have sucked a Coccidian-like parasite from some ancient cold-blooded animal and injected it into a warm-blooded one of the same period could never have established schizogony in the warm-blooded for the first time. The differences in temperature and chemical composition of the two bloods would have been far too great for the dual cycles to have started. Let us, however, suppose that at some time in the earth's history there were no warm-blooded animals but that warm blood came to a few through some gradual process of rise in their temperatures and then our difficulty begins to disappear. If mosquito-like insects then pursued the habit now so common the first transfers would be made from cold-blooded creatures like themselves. The transition from cold blood to cold blood would be slight and, as is reasonable to infer, the chemical composition of the respective bloods would not vary as greatly. Chamberlain and Salisbury, professors of geology and geography in the University of Chicago, and editors of the *Journal of Geology*, tell us that the amphibians were the "ancestors of the whole tribe of terrestrial vertebrates."[42] The transfer from a cold-blooded amphibian to a cold-blooded insect, and *vice versa*, would not be very great. It might, indeed, like the transfer of English rabbits to Australia prove, to the parasite, a decided benefit. It looks as if it had been so for "It is evident that the acquisition of an inter

mediate host is an adaptation which is vastly beneficial from the point of view of the parasite, as is shown by the rapidity by which the diseases caused by them spread in countries where the two necessary conditions occur—the presence, that is to say, both of the parasite and its blood-sucking intermediate host."[43] As early vertebrates, according to the evidence of geology, were all amphibian cold-blooded animals the question would now naturally arise regarding how we came to be warm-blooded. Did the Sporozoan and other parasites force upon the higher vertebrates their warm blood as a protective measure against them? This is a bold question and it is, perhaps, the first time it has been asked. We are all accustomed to take our warm blood as a thing not to be discussed. We treat it as Emerson did the Rhodora by saying:

"I never thought to ask, I never knew,
But in my simple ignorance supposed,
The self-same power that brought me there brought you."

Somehow we have come by it. We cannot conceive of the hosts of insects, amphibians, fish, molluscs, arachnids, crustaceans, annelids, echinoderms, etc., having all been warm-blooded and then becoming cold-blooded. The change must have been in the other direction if the principles of evolution are to be relied upon. In the struggle for existence warm blood survived in all the animals that reached the top in that struggle. How did warm blood come to be a fitness? How did such a change happen to save the lives of the active animals at the top of the vertebrate phylum? As it is common to them all the cause must be equally common among them all. As it differs in height of temperature among them all it must have differed in its intensity of activity for each order or genus of these animals. The normal temperature of a swallow is 118° F., the dog has one of 102° F., and ours is 98.6° F. Why this difference? Why has the ox a temperature of 100° F. while the goat's is 105° F. They all started with the low temperatures common to the amphibians, they have all varied to different degrees, and yet they are all normal to their own kinds. When the rise in temperature began—no matter what originated it—to the animal in which it occurred it was a fever. By the very nature of the case every degree of rise was pathological. It could not be otherwise. Every new change in the ascending temperature was of the nature of disease. The fact that such rises became the fixed temperatures of the creatures—their normal temperatures—proves that it was of selective value. They must somehow have saved these creatures' lives. All kindred animals that failed to respond to the conditions, by a rise of temperature, must have perished. What could it be that thus killed off such animals as did not respond by having fever? Geology tells of no universal refrigeration that such increased bodily temperature might offset. But, even if it did, this would be an inadequate explanation of the phenomenon we are considering. The unevenness of the temperatures among animals and the fact that insects and other lower forms made no such response is evidence that a refrigeration theory would be woefully defective as an explanation. There is one important cause worth considering. It is the single known cause of high temperatures in animals now. No other is known. Pathogenic microorganisms kill. They are responsible for elevation of temperature in animals. We have many certain spotted fevers, owing that their ravages have been coincidental in time with vertebrate phylogenetic evolution. Have they taken any part in giving us our permanent high temperatures? Let us consider the following experimental evidence regarding the effect of high temperatures upon germs and see if it has any bearing on our problem. Bunge says: "According to R. Koch, the most favorable temperature for the tubercle bacillus lies between 37° and 38° C. When kept at 42° C. for three weeks, its further development is impeded. For the gonococcus-Neisser the optimum temperature is between 33° and 37° C. A temperature of 39° C. kills it in twenty-four hours, and one of 42° C. in twelve hours. De. Simone found that the multiplication of the *Streptococcus erysipelatos* stopped entirely at 39° to 40° C., and that the organism died at 39.5° to 41° C. Bard and Aubert found that of the medley of bacteria in the feces, all of them disappeared, with the exception of *Bacillus coli communis*, under the prolonged action of fever temperature. According to Fränkel, the virulence of the septicemic cocci of the sputum is entirely abolished by growing it for two days at 42° C., or for four to five days at 41° C. Pasteur discovered that anthrax bacilli, after being exposed for some time to a temperature of 42° to 43° C., lost their pathogenic character, and that animals when inoculated with the bacilli in this condition became immune to the actual disease. G. and F. Klemper heated broth-cultures of pneumococci for two to three days to 41° to 42° C., and found that when they were injected into rabbits the latter were rendered immune to the infection of pneumococci. These results not only explain the significance of fever, but also indicate how immunity may occur after infectious diseases. * * * The rise of temperature in fever would therefore be one of the processes of self-protection and self-regulation, of which we have so many examples in the body"[44]. Here we discover two important facts, viz., that high temperatures destroy pathogenic microorganisms of many kinds, and that their responses to such temperatures vary for each kind. Some of them have become adapted to higher temperatures than others. This indicates that in their struggle for life they have survived by becoming able to endure higher and still higher temperatures, to which their hosts have subjected them. In the struggle between microbe and host there has not only been a survival of fit hosts, but a counter survival of fitter microbes. First one and then the other has triumphed for a while. The host temperature having reached the utmost limits of normal physiological plasticity in trying to kill the microbes, the latter have become victors. In the fight the cells that succeeded in raising that limit by raising the permanent temperature were the survivors. First the host and then the microbe have survived. With an increase in temperature-endurance on the part of the parasite came an increase in permanent temperature in the host. All parasites and all hosts that failed to make such readjustments perished, while those that did—those with the increased normal temperatures on the one hand and increased resistance to such temperatures on the other—survived to perpetuate their kind. Why there are so many kinds of normal temperature among the higher vertebrates is—per hypothesis—that the parasitism that has had to be overcome has been greater among some than among others. Chief among the agents that have brought man's temperature up to 98.6° F., if this reasoning is sound, have been the malarial parasites. They have been the most persistent enemies of our race and the

Piroplasma

most destructive. In malarial fever "The definite coincidence of the paroxysm with the fission of a generation of organisms has led most observers to assume that the poison, whatever it may be, is set free by the parasites at the time of segmentation"[45]. The young schizonts would be expected, on evolutionary grounds, to tend toward primitive conditions of existence as far as their environment would let them. This is the case with every known organism, and malarial parasites are not likely to be different in this particular from other living things. We should therefore expect that if warm blood affects them unfavorably it would affect the young more than the older and better adapted forms. If there is any lingering affinity toward their sporogonous state or toward their ancient schizogonous state the newly formed young should feel it most. If they have any means of defense against such injury, then at the moment of fission we should expect it to be used. Since this is the very time the malarial patient has his chill, this fact confirms the supposition. Whatever the nature of the poison that is then poured out into the blood the body meets it by a diametrically opposite reaction, that of fever. That more parasites than the malarial ones seek to chill the body in order, apparently, to favor the development of their new broods, has been noticed by Roger, who says: "It must be noted, however, that most of the microbic toxins, when injected in high doses, instead of raising, lower the temperature; they entail death in algid collapse. This result is important, in the first place, because it explains certain clinical facts; then, because it leads to a hypothesis regarding the pathogenesis of fever. It may, in fact, be questioned whether toxo-microbic fever is not due to a reaction of the organism, whether the soluble products of pathogenic agents do not always tend to lower the temperature. If such is the fact, they only excite fever as a reaction of a second order, which expresses a curative effort of the organism. Accordingly, fever is not directly caused by the microbe, but represents, on the contrary, a reaction against hypothermizing substances, and should, when not exceeding certain limits, be considered salutary"[46]. Our deductions, on the basis of Natural Selection, confirm this theory which Roger reached by reasoning from a different standpoint. Our ancestors seem to have unconsciously, or subconsciously, anticipated some such truth as this when they softened the word kill into chill.

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191 DEAN STREET.

THE VACCINE TREATMENT OF TYPHOID FEVER.

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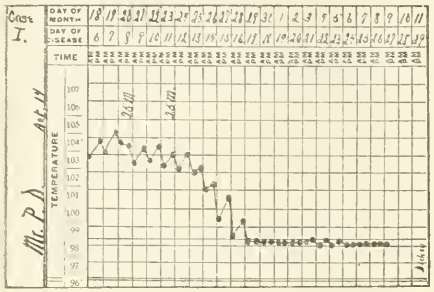
AT the present time, in this age of therapeutic nihilism, the advocacy of new methods of treating disease must be cautiously made and must be based upon a foundation uninfluenced by mere personal opinion and individual inclination. Especially is this true of a disease so widely distributed and so serious in its manifestations as is typhoid fever.

The writers of this paper fully realizing these needs, have prepared the accompanying material in the form of a preliminary report of their experiences, hoping, thereby, to induce others to draw their own conclusions from the facts as given. Some months after the regular establishment of work with opsonic therapy in their hospital, in the summer of 1907, a few cases of typhoid fever were placed under the observation and treatment of this department. In certain instances the results obtained were so satisfactory that a further continuance of the study seemed justified.

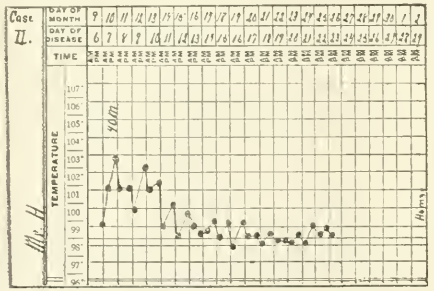
Accordingly, in the summer of 1908, all patients suffering with this disease that came into the services of Drs. E. E. Allen and J. H. Moore, were given routine treatment by bacterial vaccines. No selection of cases was made, the mild and the severe cases, the early and the advanced were all treated. In no instance was there any question concerning diagnosis, roseola and positive Widal reaction being present in each case before treatment was instituted, and usually epistaxis, headache, positive diazo and other less characteristic symptoms were also noted.

We fully realize that the number thus treated is entirely too small to justify any absolute conclusions concerning the ultimate value of the treatment in every case. In the majority of these patients, however, the effects have been so noticeable both to the writers and to the attending physicians that

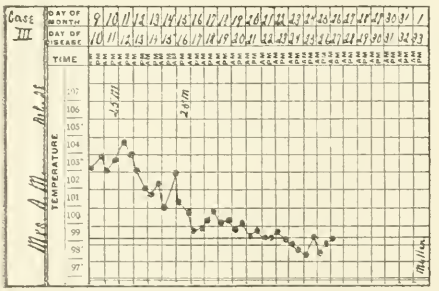


it seems wise to publish them, hoping thereby that others may be encouraged to apply the same method and that we may the sooner obtain a more certain knowledge concerning its benefits and its limitations.

In the majority of the cases, the temperature charts seem to show the effect of the inoculations

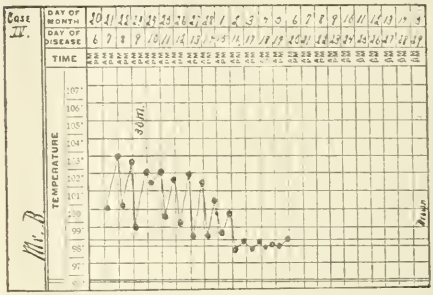


in a very suggestive manner. It has seemed wise, accordingly, to present each of these charts in order that every reader may judge the result for himself. Mere repetition of similar symptoms from case to case would be wearisome as well as valueless. This is therefore omitted. Instead, notes that may be

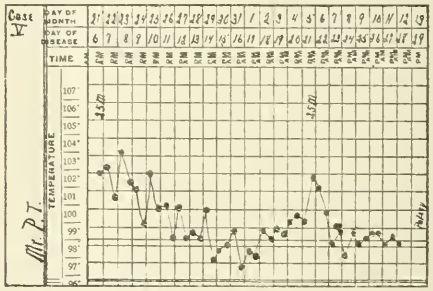


necessary to append in each instance will be made as brief as possible. The statement that clinical improvement was manifest frequently even before the temperature was influenced, and that, even when the temperature was not perceptibly lowered, the physical manifestations seemed to be benefited may be made here as an apparently evident fact.

The cases given are not selected ones, including, as has been stated, the good and the bad, those taken at a favorable time and those already far along in the course of the disease. In all instances the inoc-



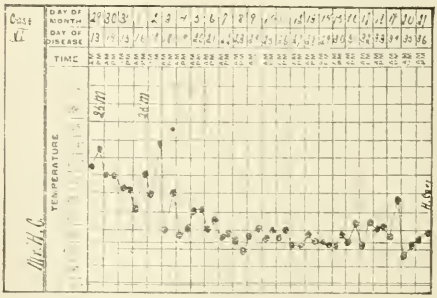
ulations were made into the subcutaneous tissue overlying the biceps muscle, and consisted of a stock emulsion of *Bacillus typhosus* made and standardized in our laboratory and sterilized by moist heat at 60° C. for twenty minutes and by 0.3 per cent. lysol. In no instance could any injurious re-



sult be demonstrated, either by clinical observation or by laboratory investigation, even in those cases in which no favorable response was obtained.

The cases are as follows:

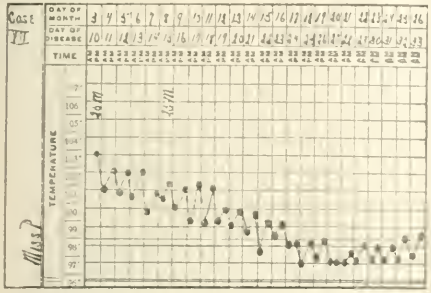
Case I, that of a boy of fourteen years, shows a steadily rising temperature for three days prior to



treatment. The night of the first inoculation, it will be noted, for the first time the temperature was lower than that recorded in the morning. This was followed by a subsequent slight fall which was much hastened by a second inoculation three days later.

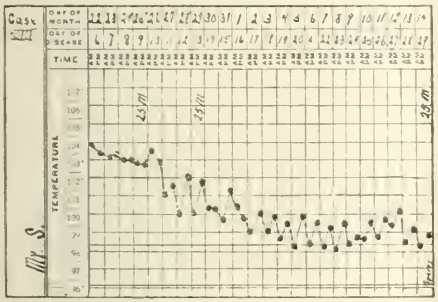
The temperature reached normal on the sixteenth day, where it remained thereafter. The clinical symptoms all showed corresponding abatement.

Case II.—In this case a similar fall is seen which, except for one slight temporary rise, was continuous, reaching normal on the twelfth day.



Case III is of interest because after the fall in temperature subsequent to the first treatment, a beginning rise five days later was apparently changed by reinoculation into a progressive fall continuous with that first noted.

Case IV.—Mr. B. had been sick nine days when



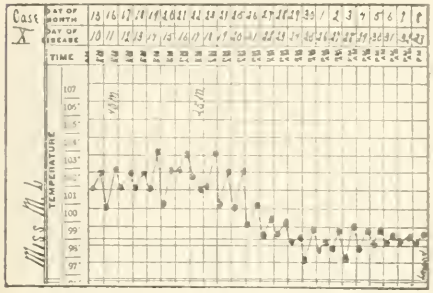
inoculation was given. The various symptoms gradually disappeared thereafter, as the temperature approached normal, which it did seven days after treatment was given.

Case V.—In this case a single treatment was followed by a fall in temperature for eleven days.

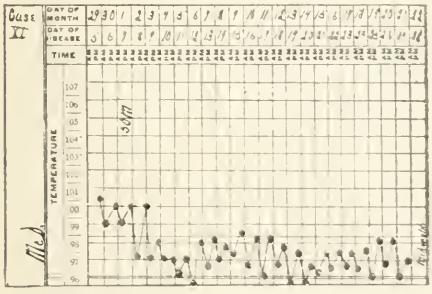
Then began a gradual rise in which purposely no further inoculation was made in order to test the effect of the vaccine. After four days of this rise a second treatment was given, followed by a second decline, this time proving to be lasting.

Case VI shows a favorable response to the first inoculation. Following the second is a period of aggravation of one day, then a prolonged period of amelioration. This last is strongly suggestive of Wright's "negative" and "positive" phase.

Case VII needs no detailed comment. Improvement in all ways was noted from the beginning of the treatment.

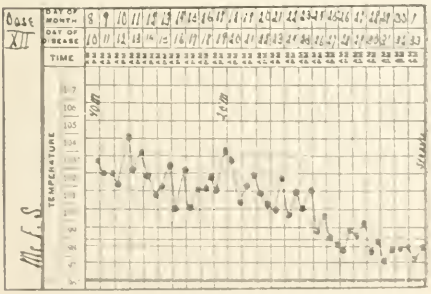


Case VIII was under observation in the hospital four days to determine whether perchance his symptoms might improve without inoculation, which they did not. The result of inoculations is seen,



first a slight "negative phase," then a more pronounced "positive" one. In four days a second treatment on a rising temperature resulted in a continuation of the improvement.

Case IX.—Here inoculation was the precursor of a gradual decline of temperature which persisted



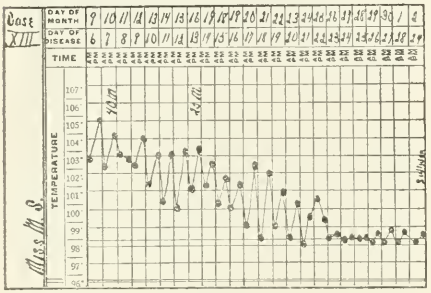
for eleven days. Then, after rising for three days, a second inoculation gave a continuation of the beneficent results.

Case X.—In this case the first treatment seemed to ameliorate the clinical symptoms, although having

no very evident effect upon the temperature. Upon its repetition, however, decided benefit seemed demonstrable.

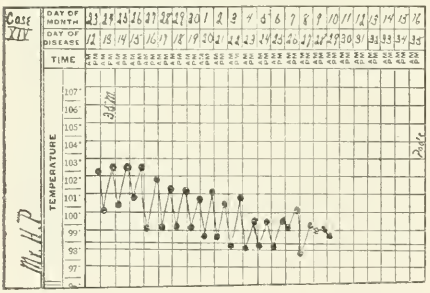
CASE XI was an early mild attack in a strong young man. The temperature curve after treatment is, however, at least suggestive.

CASE XII showed clinical improvement after the



first inoculation. This became more pronounced subsequent to the second, which, given on a rising temperature, was followed by decline by lysis.

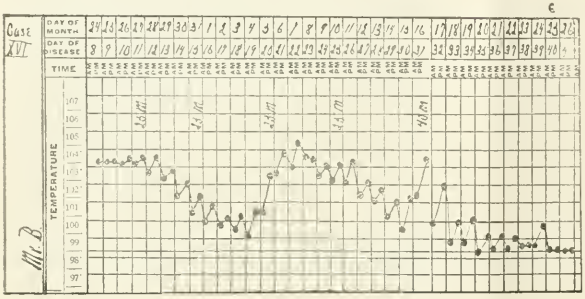
CASE XIII.—Steady decline in severity of clinical symptoms and gradual fall in temperature until it reached normal on the morning of the eighteenth day.



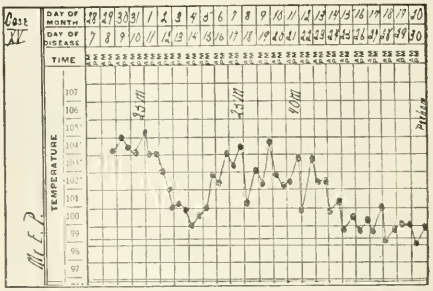
CASE XIV.—A steady, uneventful improvement in all ways following treatment.

CASE XV.—This patient seems to show an unusually significant chart as each of the three inoculations is followed by a distinct fall in the degree of fever. The clinical picture did not, however, show equal variations, it being a steadily improving one from the first.

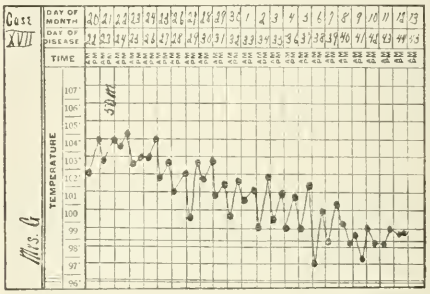
CASE XVI.—In this case the degree of fever which had been practically unvarying for four days, at once began to subside after the first treatment.



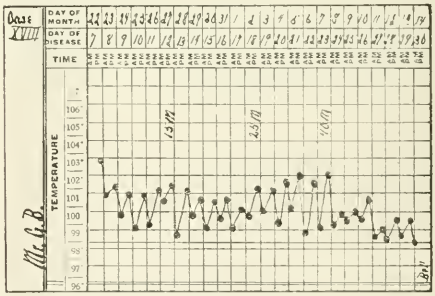
Marked improvement was noted within twenty-four hours, particularly in relation to a very troublesome



headache, which had been persistent and which was entirely gone in two days. The patient, a strong



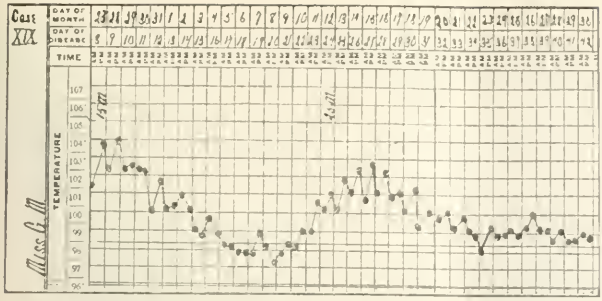
man, showed on the twentieth day a rise of temperature that was apparently little or not at all influ-



enced by repetition of the earlier dose. A second repetition was followed by a fall and another rise. At this time the dose was increased in amount with a much more satisfactory result, as indicated.

CASE XVII.—Here the fall by lysis cannot definitely be claimed as due to the treatment, as the disease was far advanced, having reached that point where decline might naturally occur. The patient was, however, very seriously sick, being on the "dangerous list" of the hospital. Improvement was steady and constant from the time of the inoculation.

CASE XVIII was a mild case of typhoid that seemed to respond to

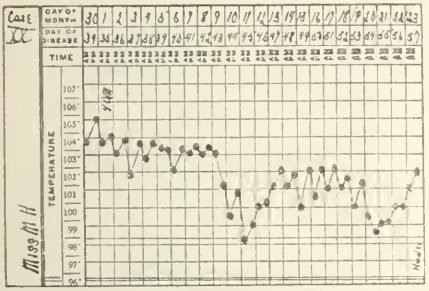


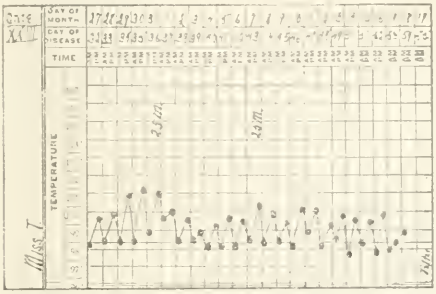
the first, small dose, and to the third, larger one. The clinical symptoms throughout were relatively mild.

Case XIX.—The chart of this case indicates not only the effect following inoculations but a concomitant decline, recrudescence and second decline in the severity of the symptoms.

Case XX was one of the first patients treated. The disease, as had been noted, was in the thirty-fifth day when the first and only inoculation was given. The patient had been supposed to be dying for a day prior to this time. There was a low muttering delirium, with picking at the bedclothes and muscular twitchings. Prostration was great. For two or three days after inoculation slight improvement was noted, which was fleeting. Because of unfamiliarity with the effect of treatment in such severe cases, no new inoculations were made. Death occurred three weeks later.

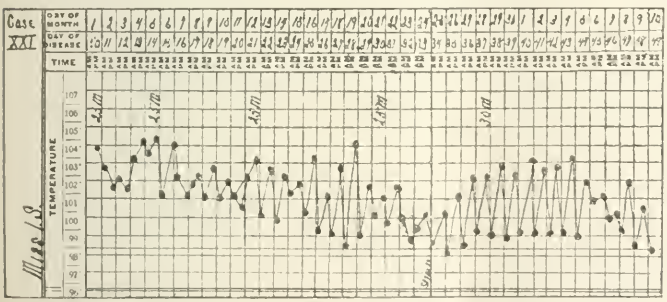
Case XXI.—In this case all seemed favorable in both the clinical symptoms and the temperature chart for more than three weeks.

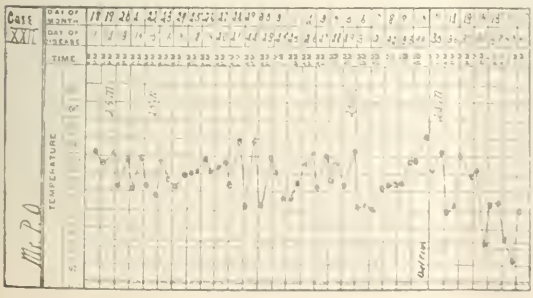




The first and second inoculations in particular seemed to have been followed with good results. Then, in some unknown manner, an abscess appeared on the hand and probably another in some internal organ, producing the septic picture. Pulmonary tuberculosis was another complication. Patient recovered.

Case XXII is the only fatal case among all those patients where treatment was begun during the first four weeks. Mr. O. was mildly delirious on admission, and while the inoculations, particularly the third and fourth, seemed to have some beneficial effect, the clinical symptoms progressed steadily to a fatal termination. Death was the result of a perforating ulcer.





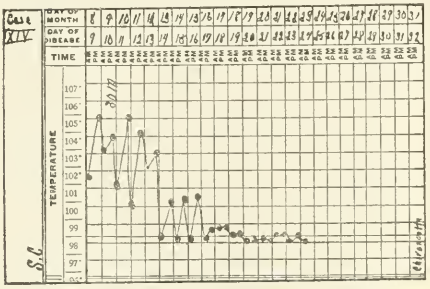
Case XXIII is that of a patient with a relapse of the fever. Each of two inoculations was followed by a fall in the temperature and clinical improvement. Later a latent focus of tuberculosis became active and gave rise to irregularities in the temperature curve. This eventually also fell to normal as convalescence occurred.

Case XXIV shows a very striking fall in temperature subsequent to a single inoculation. The clinical picture, while less spectacular, is nevertheless very decided.

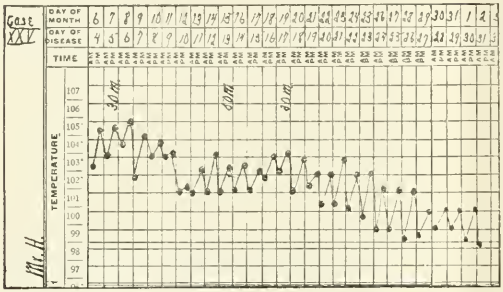
Case XXV.—A young adult who had been for some months much overworked was treated soon after entering the hospital. The entire course of the disease was very mild, there being some slight amelio-

rations of the temperature following inoculations.

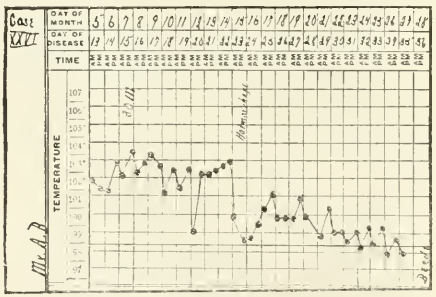
Case XXVI.—This patient had been sick for



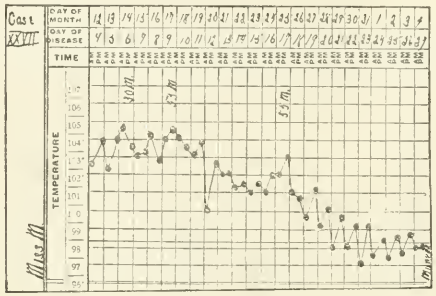
two weeks, part of the time with temperature of 103° to 104°, but had persistently refused to



take to his bed. On admission he was considered to be in an extremely critical condition. Soon

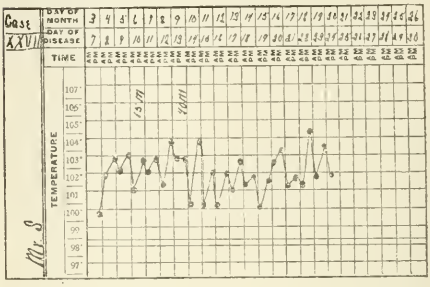


after the inoculation there was noted some improvement which continued to increase, except



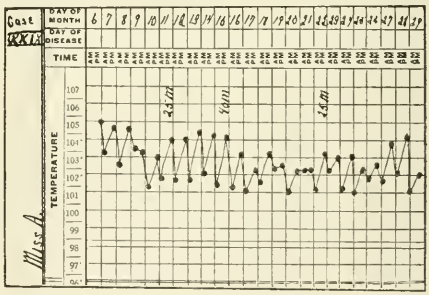
for a few days, when a hemorrhage occurred.

Case XXVII.—This patient, a nurse, was admit-



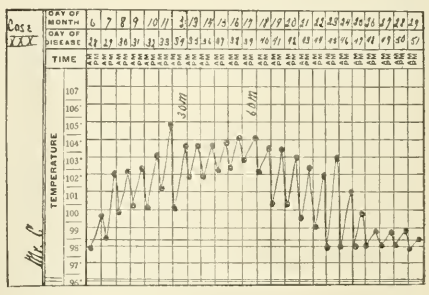
ted to the hospital soon after the disease appeared. Repeated inoculations seemed to be followed by beneficial effects in regard to both the temperature and the clinical symptoms. After about three days subsequent to the first inoculation practically all pain and discomfort disappeared permanently.

Case XVIII.—A man 45 years old. When first seen was in a somnolent condition. Two inoculations being followed by little if any improvement, further treatment was refused by the family. A third inoculation was advised for October 15, but was refused. Two or three days after this the patient, who had been comparatively comfortable, began to get-steadily worse, until death occurred on the 25th. It would seem possible to exclude any aggravation by the inoculations, and it is suggested that from the time when further treatment was vainly advised the disease began to progress steadily



toward a fatal termination.

Case XXIX.—This was a patient practically con-



fined by her habits to an indoor, unhygienic method of living. The disease progressed in a typical manner to a favorable termination influenced but little, if any, by inoculation.

Case XXX.—A boy suffering a relapse. The first inoculation was followed by no apparent result. Subsequent to the second and much larger one, the temperature began to fall steadily, soon reaching normal. An uneventful convalescence occurred.

In concluding this paper, the writers wish to draw no deductions, preferring rather to let each reader form his own opinion. It is of interest to note, however, how similar are a number of these cases to the expectations we would have of them from Wright's work. In not a few instances a period of aggravation, his "negative" phase first appears, followed shortly by the period of amelioration, his "positive" phase. Occasionally we have noticed a first slight amelioration, a short aggravation, and finally a longer amelioration, this also occurring in some opsonic determination as reported by various writers. It has seemed to the writers that the best results have been obtained in those cases in which a brief "negative" phase first occurred. In the thirty cases here reported two deaths are recorded. As one was a patient practically beyond help when treatment was begun, after the disease had been in progress a month, it might seem fair to eliminate it from our reckoning. This leaves one fatality in a patient where treatment was begun at the end of the second week. It is probable that here, as with so many other infectious diseases, the earlier proper treatment is begun the better will be the prognosis. If any modification of method would be advisable in a second series of cases it would probably lie in the direction of using larger doses. As stated in the beginning of this paper, this communication is considered by the writers to be merely a preliminary one. It is advanced with the purpose of inducing a wider application of a method that we are convinced is, under proper conditions, not only harmless, but in a material percentage of cases followed by much benefit.

To the trustees and to the Superintendent of the Massachusetts Homeopathic Hospital, for financial arrangements making this work possible, and to the medical staff, for so cordially cooperating in the work, many thanks are due, and are here gladly given.

THE PRACTICAL VALUE OF TINCTURE OF IODINE AND IODINE CATGUT IN MAJOR SURGERY.*

By WALTER T. DANNREUTHER, M.D.,

NEW YORK.

SURGEON, ST. ELIZABETH'S HOSPITAL; ASSISTANT SURGEON, ST. BARTHOLOMEW'S CLINIC; ASSISTANT GYNECOLOGIST, WEST SIDE GERMAN DISPENSARY.

In a previous paper† I noted the excellent results obtained from the use of iodine as an antiseptic and sterilizer in surgery, advocated its more general application, and suggested further study and experimentation. In conjunction with Dr. Augustin H. Goelet, I have had opportunity to employ this agent and observe the benefits to be derived therefrom in a sufficient number of major operative cases to warrant a rather more elaborate report in this respect. The results of our technique have been so exceptionally satisfactory, that a brief résumé may be of interest.

The patient is carefully prepared for operation in the ordinary manner, particular attention being paid to the alimentary tract. The hands and arms of the operator and his assistants are scrubbed with a liquid soap for five minutes, rinsed off, and immersed in a watery solution of tincture of iodine for one or two minutes. No gloves are worn, except in pus cases. The operative field is thoroughly cleansed with soap and a gauze sponge, a little ether and alcohol dropped on it, and the umbilicus filled with tincture of iodine. If the operation is one of emergency and there is some doubt regarding the efficiency of the preliminary preparation of the skin, full strength tincture of iodine is applied to the whole surface, allowed to remain about thirty seconds, and wiped off. This is always a wise precaution when the patient is colored. Within the peritoneal cavity iodine catgut is used exclusively for ligating blood-vessels, suturing, tying off pedicles, etc., irrespective of the nature of the case. Should pus be present, the sponges used to wipe it out are first dipped in a watery solution of the tincture. The intraperitoneal work having been completed, the peritoneum is closed with a continuous iodine catgut suture, and the wound irrigated with an iodine solution. The aponeurosis is also closed in like manner, and the wound again irrigated. The skin is brought together by a fine subcuticular iodine catgut suture. When dealing with a particularly fat abdominal wall, a small guttapercha drain is inserted in the lower angle of the wound, reaching only to the aponeurosis. A narrow strip of guttapercha tissue is placed over the whole length of the wound, and covered with an ordinary dry gauze dressing, which is left undisturbed for ten days.

Jeffries of the New York Polyclinic proved by a series of laboratory experiments that the abovementioned method of preparing the hands will render them sterile in thirty seconds, and this has been amply verified by our experience in the operating room. The iodine solution used for this purpose consists of a dram of the tincture in a quart of water. The hands may be frequently rinsed in this solution during the course of the operation. The staining of the skin is never deep enough to require any chemical treatment, although if a stronger solution is desired, ammonia water will readily remove any traces of discoloration. Even its prolonged use does not seem to injure the hands in the slightest.

We prepare our own catgut according to Moschcowitz's modification of the method devised by Claudius of Copenhagen. The raw strands of appropriate sizes are immersed in a watery solution of 1 per cent. iodine and 1 per cent. potassium iodide crystals, allowed to remain for eight days, and then transferred to a dry sterile jar covered with gauze. The result is that this catgut is antiseptic as well as aseptic (proved by bacteriological experiments), it absolutely cannot be infected, its tensile strength and pliability are increased, and it is exceedingly cheap. I cannot understand why iodine catgut has not been more extensively utilized, as most suture materials are somewhat expensive and difficult to prepare. The cost of raw catgut strands amounts to very little, anyone can prepare them with the iodine solution, and we then have a suture that can be thoroughly relied upon. We have never had an accident follow its use, al-

*Read before the Tri-Professional Medical Society, New York City, November 17, 1908.

†"The Surgical Value of Iodine," Medical Record, January 25, 1908.

though it has been used in almost every conceivable manner in which a suture or ligature is ever applied. We did have some apprehension of the ultimate result of the first trachelorrhaphy and perineorrhaphy done with iodine catgut, but it served its purpose admirably. We now expect and obtain just as good union by first intention in vaginal cases as in any others.

It was with considerable trepidation that I mopped out the abdominal cavity with gauze sponges squeezed out in an iodine solution. The first occasion for my so doing was a case of appendicitis with a beginning localized suppurative peritonitis. However, more than a year has elapsed and there do not seem to be any excessive adhesions or other untoward effects, and I now do not hesitate when sponging is indicated.

The solution used for irrigating the wound is rather strong: a dram of the tincture to a pint of water. It is poured directly from a pitcher into the wound. This promotes union of the incision, and is the very best method of procuring sterilization of the abdominal wound. Credit is due Dr. Goelet for originating this procedure.

The subcuticular suture of iodine catgut is introduced in much the same way as one of any other material. But the upper end is tied, the skin pushed up on the suture, and the lower end tied, thus converting a five or six inch incision into a one or two inch scar. I have also used this suture in numerous minor surgical operations, and have found it equally as satisfactory.

The guttapercha drain is inserted only in very fat abdominal walls, and simply for the purpose of draining the excessive amount of serum usually extruded in such instances. As a rule, it is removed about the second day. The strip of rubber tissue over the wound prevents the serous exudate from causing the gauze dressing to adhere to the abdominal wall.

The technique I have outlined is suitable for any operation, with slight variations, of course. I used a laparotomy for illustration because it is the most frequently performed operation. The essential features of the whole technique are simplicity, reliability, and economy. Since the adoption of this technique, almost two years ago, we have not had one single instance of stitch abscess or wound infection. In the entire series (unfortunately I cannot give figures) we have had only one death; a case of ruptured appendix with general septic peritonitis. The operation was done as a last resort, the patient being practically moribund, and dying within twelve hours. Nearly all our cases were abdominal operations; the majority gynecological. A long series of nephropexies of Dr. Goelet's is also included. No one's results can be any better than ours have been since the perfection of this technique. I said in my previous contribution, "From my experience with iodine in hospital and clinical work, I have been convinced that it is an agent of high germicidal potency, one of the most valuable antiseptics in our armamentarium, and endowed with remarkable penetrating power. I have used it extensively and for a variety of conditions, and the results have been exceedingly gratifying." This cannot be emphasized too strongly. If this paper but serves to arouse some interest in the subject, its purpose shall have been fulfilled. I am confident that once iodine as an antiseptic is given a trial, the results will justify the continuation of its use.

2030 Broadway.

THE IMMEDIATE VERSUS THE DEFERRED OPERATION FOR EXTRAUTERINE PREGNANCY.*

By ARNOLD STURMDORF, M.D.,

NEW YORK.

When shall we operate for tubal pregnancy? My conviction, based upon a personal experience in forty-three cases and a critical study of the controverted factors, would prompt me to answer, As quickly as the patient and surroundings permit.

My reasons? I have seen and heard of patients who lost their lives by delay, while I have been so fortunate as not to lose a single operative case to the present time.

I have encountered late cases of tubal abortion and hematocele, that might possibly have recovered without operative intervention, had they been fortunate enough to escape the late infections and other secondary pathological changes which brought them to the operating table.

I have never felt convinced that I could differentiate with the certainty essential to the patient's immediate and remote safety between the early stages of tubal abortion which result in an inocuous hematocele, and impending tubal rupture which eventuates in calamity.

While I appreciate and applaud the candor, the frank honesty, and courage that prompt the advocates of this pseudoconservative propaganda to expose a high mortality index in their operative work, I deplore their results and refute their deductions based upon such results. We must not let our sentiment divert our logic; the question at issue involves precious lives, and let me state in all sincerity that were I to realize such a mortality I would not operate early, late, or at all, but would insist upon some one operating, and that promptly.

The time limit set for this discussion precludes all elaborate analyses, so that I shall limit my discussion to a few salient points. It is claimed that not abdominal hemorrhage as such, but operative shock added to the shock incidental to the tubal rupture, is productive of the mortality. Three factors are brought forward in support of this contention: (1) active bleeding from the ruptured vessel is not observed during operation; (2) the amount of blood lost is never lethal according to physiological laws; (3) pregnant bitches with severed arteries never bleed to death.

I know of no operation for shock; and if it is shock and not the loss of blood that dominates the gravity of these cases any surgical intervention, immediate, intermediate, or deferred, must be contraindicated, and it follows as a corollary that, instead of asking, "When shall we operate?" the question naturally resolves itself into, "Why shall we operate?"

The absence of visible spurting from the ruptured artery is due to a very natural series of events, physiological and mechanical. Let us trace this cycle of events. A hemorrhage occurs, severe enough to produce syncope, that means cerebral anemia, which results in a diminution of frequency and force of the cardiac systole and prolongation of its diastole; as a consequence we have a slowed blood current which favors clotting. This is nature's remedy for grave hemorrhage.

We open the abdomen, we find intraabdominal

*Read during a discussion on the subject at a meeting of the Eastern Medical Society, December 11, 1908.

pressure increased in proportion to the amount of the extravasation, our incision converts this hypertension into a hypotension, as a result of which the large abdominal veins dilate at the expense of the arterial contents; we then draw the uterus or tubes into the incision and angulate them, thus obstructing the circulation through the ovarian arteries, and yet we find those who are surprised at the absence of spurting.

The amount of blood lost during the first hemorrhage may be and usually is insufficient to cause death, but how long does nature maintain this condition of slowed current? A short while only—ten or fifteen minutes at the longest. In the mean time the clotting may be sufficient to occlude the rent for a variable period, sometimes for weeks, then nature in her recuperated strength or as the result of some physical exertion on the patient's part, repeats the whole cycle and we at last find the pelvis, even the whole abdominal cavity, filled with clots and fresh blood.

Dogs cannot bleed to death from severance of ovarian arteries. Veterinarians assure us that even the carotid may be severed in a dog without fatal result, owing to the excessive development of the elastic tunic presented by canine blood vessels. Nevertheless, while dogs do not bleed to death from rupture of their arteries—women do—as witness the fatal results following the accidental slipping of ligatures from tied ovarians after operations for other pelvic conditions.

The studies of Crile and others show conclusively that an absolute differentiation between shock and concealed hemorrhage is clinically impossible. Nor can a hemoglobin estimation as recently advocated aid in this differentiation, for we must remember that the immediate result of hemorrhage on the blood is quantitative and not qualitative, consequently the last drops or the first drops must show the same hemoglobin content. We bleed our blood as a whole and not our hemoglobin only.

Every active therapeutic effort must be directed against the etiological factor. This etiological factor is the ectopic pregnancy—remove it.

The contributory and fatal factor is the ruptured vessel—seal it by the only measures known to surgery—prompt ligation.

In short, let us leave dogs and theories aside and operate promptly in ectopic gestation.

51 West Seventy-fourth Street.

A CYST OF THE PROSTATIC VESICLE.

By N. A. MIKHAILOFF, M.D.,

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PROFESSOR OF URINARY DISEASES AT THE IMPERIAL CLINICAL INSTITUTE OF H. I. H. GRAND DUCHESS HELEN PAVLOVNA.

Cysts of the posterior part of the urethra and especially those of the prostatic vesicle have not attracted particularly the attention of surgeons. Most handbooks on urology are silent regarding them and in the literature I have been able to find only two cases reported.

One of them is by Falta (*Prager medizinsche Wochenschrift*, 1898), who found many poppy-sized vesicles with sticky contents in the mucosa of the cavernous part of the urethra, while performing an autopsy on a man, 77 years of age, dead of cancer. This author believes that some of these cysts were distended follicles of the mucosa while others were due to the disintegration of the epithelium of the mucous membrane. The other article is by J. English (*Wiener medizinische Jahrbücher*, 1873, p. 61), who found cyst-like formations near the sinus pocularis in five out of seventy consecutive autopsies which he had performed on newborn children; he thought that these cysts were due to malformations; that is, that they were the result of congenital obliteration of the ducts of the prostatic vesicle.

Nevertheless, cases of this sort do not seem to be very rare. In the first quarter of the present year I had the opportunity to observe seven such cases, the first of which I shall report in this paper. The patient was a student, 28 years of age, single. He consulted us because of severe nervous depression and sexual disturbances. Family and personal history unimportant; no urethritis, no syphilis, no infectious diseases. Sexual desire appeared at the age of ten, and first pollutions occurred at thirteen. The latter were always very painful and the patient tried to prevent them by sleeping with a board tied to his back. After the age of 26 years the pollutions became less frequent and less painful, but were each time followed by very severe headache, which sometimes lasted for forty-eight hours. One year ago the patient had sexual intercourse for the first time, but the ejaculation of semen was accompanied by such a disagreeable sensation that he refrained from repeating the act. The patient is a native of South Russia, tall and well built, and quite normal in his mentality. The left side of his skull and of the face are flattened, causing marked symmetry of the features. Both knee-jerks are exaggerated. The external genitals are normal. Urination is very frequent, the quantity of urine passed every time being small. The right lobe of the prostate gland is atrophied, the left normal. The right seminal vesicle is easily palpable, the left one cannot be felt. Urinary examination is negative.

Cystoscopy failing to help me materially with the diagnosis, I proceeded to an examination with the urethroscope. Local anesthesia with a 2-per-cent. cocaine solution was used, and a Casper's urethroscope, size 28 of Charrière's scale, with a Mercier curve, was easily passed and showed only some passive hyperemia at the posterior part of the urethra. Further on, the instrument met with an obstacle, and I was surprised to see instead of the usual colliculus seminalis a round tumor resembling a cyst, the superior margin of which was clearly defined, while the lower one could not be distinguished. The tumor was about 1.5 by 1 cm. in size. When the instrument was pushed further the tumor seemed to disappear, but reappeared when the instrument was pulled back a little. The walls of the cyst were opaque, reddish-gray in color, and were covered with a prominent network of engorged capillaries.

The patient was operated upon a few days later. After anesthetizing with cocaine, I introduced the same urethroscope and then passed it to an assistant. I then seized the apex of the tumor with a forceps and dissected it out with a knife made specially for the occasion. The contents of the cyst were scanty, yellowish-gray in color, and contained much albumin. The sediment contained a few epithelial cells and some red blood corpuscles, but no spermatozoa. Soon after the operation, the patient's pollutions became quite painless, urination was less frequent and more copious, and the general health was much improved.

A microscopical examination of the cyst-wall showed that it consisted of three layers, the inner and outer being thin and made up of epithelium, while the middle layer was thick, being made up of connective tissue very poor in cellular elements. This layer was about 1.5 mm. thick, the total thickness of the wall being about 2 mm. It became apparent that the structure was a cyst of the prostatic vesicle. As is well known, the uterus masculinus, the remains of the organ of Müller, has no genetic connection with the prostate gland or with the ejaculatory ducts and is quite independent anatomically. A retention cyst can develop within it by the accumulation of secretion of the glands contained in the mucous membrane lining the structure. As it is limited in front and behind by the thick tissue of the prostate gland the cyst must increase in the direction of least resistance, that is, toward the urethra. The increasing pressure of the growing tumor disturbs the neighboring organs and interferes with micturition and ejaculation. In our case such a cyst led to serious disturbance of these functions probably by mechanical interference alone, and in addition it caused a series of general nervous symptoms. The other six cases I shall report in a later communication.

THE EARLY RECOGNITION OF ESOPHAGEAL STRICTURE.

A NEW SIGN OF INCREASED MEDIASTINAL PRESSURE.

By SIDNEY LANGE, M.D.,

CINCINNATI.

RADIOGRAPHER TO THE CINCINNATI HOSPITAL.

STRICTURE of the esophagus as a result of increased mediastinal pressure is not an uncommon occurrence and is rightfully looked upon as an important sign of mediastinal disease. Such a pressure upon the esophagus may be exerted by enlarged mediastinal glands, malignant disease of the mediastinum, aortic aneurysm, mediastinal or spinal abscess, pericardial effusion, chronic adhesive mediastinitis, etc. Clinically such pressure is recognized in two ways: the patient complains of dysphagia and the stomach tube or esophageal bougie meets with resistance at the site of compression.

By the introduction of the bismuth *x*-ray method in the examination of the esophagus it has been shown that the stomach tube or bougie will not register the very earliest encroachment upon the lumen of the esophagus but will show only those constrictions that are of considerable degree. The esophagus is elastic and will stretch to compensate for any *slight* narrowing of its lumen and will allow the stomach tube or bougie to pass. It is only by the use of a very large bougie (and these large instruments are distinctly dangerous) that a slight esophageal obstruction can be detected. And this same inaccuracy attaches to the subjective sign of dysphagia. The patient will complain of difficulty in swallowing ordinary food only after the lumen is considerably narrowed. This fact was brought to my notice in the examination of the esophagi of patients with dilated aortæ and aneurysms.

By a method of procedure outlined in a previous paper* the act of deglutition itself can be studied. Bismuth mush is given to represent the small bolus of soft food, while rice-powder capsules about the size of a quarter are given to represent the larger and more solid bolus. In many patients with slightly dilated and arteriosclerotic aortæ and with small aneurysms, it was found that while the bismuth mush would traverse the esophagus rapidly and normally, the large capsules would pause at the point where the aorta crosses the esophagus. In some cases a swallow of water would serve to carry the bolus past the apparent obstruction; in other cases the capsule would pass only after it had become partially dissolved.

In a majority of these cases, the patients were unconscious of this slight pressure upon the esophagus, not complaining of dysphagia, although after having their attention directed to it, some patients would claim to experience a "sticking" of a large bolus of food such as a partially masticated piece of meat or a bit of dry bread.

It would thus seem to follow that, by the use of the *x*-ray and a large bismuth capsule which would maintain its shape and size more or less throughout its passage through the esophagus, thus testing the capacity of the entire tube and not conforming to any narrow places as does the soft mush bolus, a constriction in the esophagus can be recognized before the dysphagia and resistance to the stomach tube are present.

The application of this method in the diagnosis of mediastinal tumors is shown by the following case:

An adult male, aged 35, had suffered for several months with distress in the mediastinum and with paroxysmal pains which started deep in the chest and radiated up into the neck and arms. His heart seemed normal in size and action. A faint systolic bruit was to be heard over the aortic valve. The lungs were apparently normal and there were no other pressure symptoms evident. The patient was referred to me for an *x*-ray examination. Upon examining the chest with the fluoroscope, I noted a slight broadening of the mediastinal shadow under the upper part of the sternum and, while it was not very marked, in the light of his associated symptoms it was suggestive of a mediastinal enlargement. Upon testing the act of deglutition, the bismuth was seen to pass readily, but the large bismuth capsule lodged under the upper part of the sternum and would not pass until partially dissolved. After this test the patient recalled that he had frequently noticed large pieces of meat would occasionally "stick" in his chest. The diagnosis of mediastinal enlargement with pressure upon the structures passing through the mediastinum was advanced. The case is still under observation.

This bismuth method is of especial value in the *early* recognition of true esophageal strictures, viz., those in which the cause is located in the esophageal wall. The large bismuth capsule will register not only mechanical obstruction but impaired or absent peristalsis as well, and, since with the earliest cancerous infiltration of the esophageal wall there must be an interference with peristalsis, the value of this method is at once evident.

The routine examination of the esophagus by the *x*-ray bismuth method is not an unfruitful procedure. A complaint of dysphagia on the part of the patient should never be lightly passed over as neurotic.

22 WEST SEVENTH STREET.

*The *Ohio State Journal*, Nov., 1908.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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VAGARIES OF INFANT FEEDING.

It is probable that more divergence of opinion exists among both scientific workers and practical physicians on the subject of infant feeding than upon any other important question in medicine. Beyond the recognized fact that maternal nursing is vastly superior to all artificial feeding, however scientifically and properly the latter may be carried out, there is no agreement in reference to the reasons why cow's milk should be so much more difficult of digestion, to the proper strength of the food in its various constituents, or even to the amounts required by the child. For many years the opinion prevailed that beyond the different quantitative composition, which, of course, could be remedied by proper modification, the whole trouble with cow's milk consisted in the difficulty with which its proteids were digested by the infant. Biedert in Germany did most to popularize this view which held sway until very recently, when careful analyses showed that casein of cow's milk did not pass into the feces in any such amount as claimed by Biedert, that the so-called curds that were interpreted as masses of undigested proteid consisted for the most part of fat, and that finally the fat and the proteids of cow's milk when fed with the whey of woman's milk were very well borne by children, while the fat and proteids of women's milk mixed with the whey of cow's milk led to frequent disturbances of digestion. That fat is the element that is more frequently productive of trouble has been fairly conclusively shown by the Breslau School of Pediatrics with Czerny and Keller at its head.

Lately the development of biochemistry has led to the application of the newest theories to the question of infant feeding, and Hamburger of Vienna proposed a new and a very interesting explanation of the difficulty experienced by the average child in digesting cow's milk. According to him the young of the human animal, after their intrauterine life, are naturally intended to lead a period of extrauterine dependence upon the mother because the latter alone can provide them with the proteids that are most nearly related to the proteids of which their tissues are made up. The digestive organs of the infant are intended to assimilate only such proteid as is similar to their own and the whole difficulty with the digestion of foreign proteid consists in the extra work which the digestive organs must perform in dealing with these elementary differences. The explanation seemed very ingenious and has been accepted by many and especially by Biedert who, while clinging to his theory of the special indigestibility of cow's proteids, was of course quite willing to use the newest biochemical reasoning to explain this difficulty. Hamburger's explanation has led to a great deal of very careful work in Germany, most of which is admirably reviewed by Uffenheimer in the second volume of the new "Ergebnisse der inneren Medizin und Kinderheilkunde." Uffenheimer's conclusion is that all proteid whether "native" or "foreign" is first broken up into its constituents by the digestive process and therefore no such difference can exist as has been suggested by Hamburger. The fact is rather borne out that so far as our knowledge is concerned the proteid of cow's milk is digested in a manner that is in no way different from the process involved in the digestion of breast milk.

For the time being, therefore, the application of the theory of specific biochemical differences between human milk and cow's milk to explain the problems of infant feeding has not met with any great success. Indeed, the highly theoretical considerations and discussions that have accompanied the controversy have led to a certain degree of feeling against the precipitate application of every new theory to the practical question of medicine. Thus the recent burlesque number of the *Münchener medizinische Wochenschrift* prints an article on the subject of "Side-chains in Infant Feeding." The author tells of having heard "side-chains" so often mentioned in connection with the subject that he decided to try them as an infant food, but met with the difficulty of being unable to find any such substance mentioned in the books on chemistry. He therefore appealed to a friendly druggist, the chemical industry being ever ready at the present day to help the physician in finding new remedies, and the latter in a short time supplied the doctor with a preparation labeled "side-chain powder." This powder the author recommends with much show of learning; indeed, he has tried it clinically on one or two infants and is ready to defend its use against all comers. This amusing account but little exaggerates the true state of affairs, for one need only to follow the pediatric literature for a few months to find every possible substance recommended for the modification of infant food from carrot soup and keffir to "three top ounces from three quart bottles of milk." That no such great difficulty is met with in the practical management of the great majority of artificially fed children as might be supposed from the literature of the subject is probably a fact, provided that pure milk can be obtained. It is the latter problem that has more importance for the well-being of the infants of a community than any other factor of the question.

INEBRIETY IN GREAT BRITAIN.

The consumption of alcohol to excess is undoubtedly a potent factor in the origin and spread of disease, yet it is impossible to lay down any hard and fast rule as to the amount of alcohol which can be taken without danger to the system. Some individuals are able to drink with seeming impunity

an amount of spirit which would be in a high degree poisonous to other persons. Again, there are those who hold that alcohol taken in small quantities is a poison and that the human race would be far better if no spirits whatever were consumed. However, the matter has not been so definitely decided as yet as to allow of the issuing of dogmatic statements. The most perhaps that can be said is that the trend of medical opinion is in the direction of extreme moderation as regards the taking of stimulants, and further that many men advocate strongly total abstinence. On one point, however, there is no divergence of views, namely, that alcohol taken in excess is dangerous to mankind, physically and mentally.

In Great Britain more possibly than in any other civilized country the matter is being dealt with from every conceivable standpoint. The fact is thoroughly appreciated that to the prevalence of drunkenness is greatly due the deterioration of physique and other symptoms of racial degeneration which are manifest among the inhabitants of Great Britain, and especially among the town dwellers. So painfully obvious has become the effects of the drinking habits which characterize a large section of the British people that the aid of legislation has been invoked to endeavor to check this tendency. A bill, known as the Inebriates' Act, was passed by Parliament with the object of checking this evil. The report of the inspector under this act for the year 1907 has been published recently. Dr. R. Welsh Branthwaite, the inspector for England, has this year restricted himself to little more than the publication of figures on the ground that as he is a member of the Departmental Committee which was recently appointed to inquire into the working of the Inebriates' Act he must avoid comment upon those matters of policy which up to the present time have not been debated and considered. In the whole of England there are thirteen reformatories and twenty-two licensed inebriate retreats. The certified reformatories are intended for the reception of 165 males and 1,021 females. Of the 498 persons who were sentenced during the year under the Inebriates' Act and admitted, no less a number of these than 428 were women, a number greatly in excess of that recorded during previous years. The preponderance of women drunkards committed to reformatories in Great Britain was commented upon in these columns two years ago, and it is discouraging to learn that drunkenness among women seems to have increased and to be still increasing in that country.

Dr. Branthwaite draws attention to certain defects in the Lunacy Laws of Great Britain, pointing out that a large number of the persons received at the reformatories are mentally defective and states that "there is no law to detain the most hopelessly defective person after sentence has expired, notwithstanding the recognized condition, certainty of relapse into drunken and disorderly habits, and possible danger to other persons from sudden, passionate violence." The *Lancet* thinks the community would benefit if the reformatory authorities were to be given power, under proper safeguards, to detain such cases until in the opinion of the medical officers there would be a reasonable hope that further relapses would be improbable.

It is difficult to say whether the establishment of reformatories in Great Britain for the detention of drunkards has been attended with good results. The publication of the report of the Departmental Committee referred to above should elucidate matters considerably. At any rate, the statistics issued yearly by the inspector have had the effect of making some points clear, especially that drunkenness is very prevalent in Great Britain, and that it is especially prevalent among women. The future working of the British laws enacted to check the spread of inebriety will be watched with great interest. Up to the present time laws with this end in view have not met with striking success.

Retroflexion of the Uterus.

The majority of gynecologists and gynecological text-books picture the baneful influences and effects of retroflexion of the uterus in such strong colors that the young physician sees the cause of most complaints of his female patients in this malposition of the womb and is instantly ready with the time-honored treatment by means of pessaries or with a recommendation to a gynecological surgeon. Pain in the back, bearing-down sensations, bladder disturbances, etc., are the complaints that immediately suggest abnormal position of the uterus as their cause, and the examination is often considered completed as soon as this condition is diagnosed. It is refreshing, accordingly, to hear another view preached from such a well-known clinic for diseases of women as that of Sellheim in Tübingen. Writing in the *Deutsche medizinische Wochenschrift* for December 3, 1908, Dr. Mayer of that clinic tells of his attempt to find out whether the often pictured effects of retroflexion are really due to it or may simply accompany the condition. The statistics of the clinic alone showed that there was a grave doubt of the primary importance of retroflexion in the production of symptoms, for this malposition of the uterus was found to exist in women not complaining of any symptoms in but slightly smaller proportion than in the patients who came for treatment because of the retroflexion. The study of the nervous symptoms showed that the two had nothing in common, with the exception, of course, of the fact that the neurasthenic patient was quite ready to see the cause of all her infirmities in the "bending of the womb." The fact rather was noted that neurasthenia was at the bottom of most complaints, and the less attention was paid to the local uterine conditions during the general tonic treatment the better were the effects obtained. Especially infrequent were operations for retroflexion, for, as Mayer correctly states, the result of such operations should not be judged by the mechanical change in the position or the fixation of the uterus, but by the effect of it upon symptoms. Such a study of operative results showed that success attended mostly not the special operations for retroflexion involving a laparotomy, but all procedures that affected the prolapse of the organ which often exists in these patients. While spinal pain, lassitude, etc., proved to be neurasthenic symptoms and were little affected, the disturbances of the bladder were materially diminished by anything that remedied the prolapse of the womb. Mayer concludes that retroflexion *per se* needs no treatment, especially in nulli-

paræ; indeed, treatment of the condition in neurasthenic individuals without treatment of the systemic nervous weakness simply helps to make life-long invalids out of many women. That correction of this displacement of the uterus may sometimes be indicated and prove curative is not denied, but as Mayer properly insists individualization is the important moment in all questions of medical art and practice.

Hysterical Fever.

Hysterical patients are such frequent and skillful simulators of various pathological conditions that any unusual phenomenon reported in them is often to be explained by the deception of the observer. This is the usual interpretation of the cases of apparent high fever or rather of hyperthermia that have been reported from time to time in the medical press. Yet the conviction is growing that authenticated cases of this surprising phenomenon have existed, recent observation having shown the great influence exerted by the central and sympathetic nervous systems upon various functions of the organism. There is no inherent impossibility in the conception of hysterical hyperthermia, for the possible ways of affecting the heat regulation of the organism are so numerous that the effect of hysterical conditions cannot be denied. Writing in the *Berliner klinische Wochenschrift* for December 14, 1908, Dr. Morchen reviews such authentic cases of hysterical fever, showing that observers of the standing of Tillmanns, Oppenheim, Dubois, and others, have been compelled to make this diagnosis in individual cases after having excluded all possible causes for the rise of temperature in their patients. Morchen himself had the opportunity of observing three cases of hyperthermia of this character, the surroundings of a sanatorium having given him an opportunity to exclude all possible deception on the part of the patient. All three patients showed a rise of temperature on several occasions during their stay in the sanatorium that led to the suspicion of tuberculosis in one case and of osteomyelitis in another; the third patient was so manifestly suffering from a hyperthermia of nervous character that no other diagnosis could be considered. Osteomyelitis was the diagnosis in the second case because of the appearance of some redness and swelling in the skin of the lower extremities, together with the nervous excitement accompanied by rise of temperature. The local symptoms, however, were shown to have been caused by the presence of several needles introduced by the patient. The characteristics of hysterical fever consist in its irregularity, in its appearance and disappearance in connection with psychic phenomena, and in the very insignificant changes in the general condition of the patient during its course, even the pulse showing but little effect of the hyperthermia. Another interesting diagnostic point is the fact that antipyretics are almost without influence on the course of the febrile reaction; as might be expected, however, baths and psychotherapy exercise a marked control over manifestations of the disease.

Bloodless Operations.

The loss of blood that accompanies extensive operative interference with the tissues of the lower extremities is frequently a most important element in diminishing the chances of recovery from amputations, excision of large portions of bone, etc. It is not to be wondered at, therefore, that surgeons have attempted various methods for obtaining a bloodless operative field in such cases. A well-known method consists in compression of the aorta by means of a tourniquet, but unfortunately it is never to be depended upon, as slipping of the tourniquet is a frequent accident. Momburg has recently proposed trying simple circular compression of the lower portion of the trunk in order to produce a bloodless field in the extremities just as circular compression of the upper portion of an extremity is constantly used in cases of operation on a distal portion. His three cases of compression by means of ordinary thick rubber tubing showed no untoward results whatever. In the *Deutsche medizinische Wochenschrift* for December 3, 1908, Axhausen reports another operation during which Momburg's method was applied, the necessity of saving all the blood possible being of paramount importance to his patient who suffered from tuberculous disease of the hip and was in a very poor general condition. The rubber tube was put on during narcosis and hardly a drop of blood was lost for the forty-five minutes which were taken up by the operation. The "wasp waist" produced in the patient by the constriction was rather disquieting, but no ill effects whatever followed the constriction; thus the operation was made possible in a man who probably could not have stood any interference had it involved considerable loss of blood. The few cases in which Momburg's method has been tried are not enough of course to prove the harmlessness of such construction of the trunk; often enough, however, the decision between operating and not operating in severe injuries about the hip joint depends upon the possible danger from the loss of blood. If the patient dies under conservative treatment the surgeon is usually left in doubt whether an operation might not have been productive of better results, for in the nature of things it is impossible to estimate very well the effect of the loss of blood. In such cases, perhaps, Momburg's method might be tried, so that its value in preventing unnecessary loss of blood may be learned.

News of the Week.

Health Matters.—In his message to the Legislature last week, Governor Hughes, calling attention to the urgent necessity of preventing the spread of tuberculosis, says: "The number of deaths from pulmonary tuberculosis in this State in 1907 was 14,431, of which 8,996 occurred in Greater New York and 5,435 in other parts of the State. Increased provision for hospital care of advanced cases will constitute a most important protection to the community. Greater progress with respect to this has been made in New York City than elsewhere. There are about 1,000 beds there available for tuberculous patients, while in other parts of the State it seems that the number of such beds is only about 250. While it is desirable that more adequate provision should be made in the metropolis, the most striking need is increased hospital accommodation in other parts of the State. I recommend for your consideration the means by which this may be suitably provided, either through State or local authority, or both." Because of the increasing difficulty of securing sites for public institutions, the Governor recommends that Chapter 638 of the Laws of 1903, providing that a hospital, camp, or other establishment

for persons suffering from pulmonary tuberculosis shall not be established in any town unless the Board of Supervisors of the county and the Town Board of the town shall authorize it, be repealed. He also recommends that the question of meat inspection and proper supervision of the slaughtering of animals be considered, and that proper means for protecting the milk supply be sought, so that this may be obtained in the most cleanly and healthful manner, with proper consideration and encouragement for those engaged in the production.

The First Negro Congress on Tuberculosis was held at Tuskegee, Ala., during the third week in December. On the opening day, "Health Sunday," seven meetings were held, and during the six following days the fifteen hundred students of the Tuskegee Institute attended the evening meetings at which addresses illustrated by stereopticon views were given. It was decided at this Congress to establish a permanent tuberculosis committee at Tuskegee with similar committees at other leading negro institutions such as Hampton and Shaw, these schools to work together, each pushing the tuberculosis campaign in their immediate territory. The colored press of the country will be counted upon to spread the propaganda, and the State boards of health will be asked to supply printed matter about the disease and the manner of living which will control its spread.

Association of Tuberculosis Clinics.—A meeting under the auspices of this Association was held at the Waldorf-Astoria on January 8, President John T. Finley of the City College presiding. Mr. Edward T. Devine described the growth of the Association and its work in reaching a class of patients not in touch with the hospitals. He told of the division of the city into districts to prevent overlapping of the work and dwelt upon the particular needs of the Association. Governor Hughes, who has already shown his great interest in the campaign against tuberculosis, warmly commended the Association and made an earnest appeal for money, saying that the men and the plans were ready and the only need was for funds to light the fire.

A Traveling Health Library.—During the last four years the members of women's clubs of Massachusetts have had in circulation a library of books on matters relating to health and hygiene, with the happy result of arousing a great public interest in personal and communal health and especially in the suppression of tuberculosis. It is believed that no other one agent has had a more happy influence upon the public mind, resulting in legislative appropriations for the care of the tuberculous, the establishment of local antituberculosis and visiting-nursing associations, and the foundation of day camps. It is proposed now to extend the library scheme to the country at large, and the General Federation of Women's Clubs (the national body) will recommend that such a library be bought by club women and circulated by them. The chairman of the Health Department of the General Federation is Mrs. Rufus P. Williams of Cambridge, Mass.

After Christian Science.—The annual report of the Massachusetts State Board of Registration in Medicine states that a definition of what constitutes the practice of medicine and a practitioner of medicine is most important, and is included in the medical practice laws of most of the other States, and the passage by the Legislature of an amending section, as follows, is strongly urged: "Persons shall be considered, irrespective of methods of practice, as practising medicine within the meaning of chapter 76 of the revised laws who shall assume or offer to assume the responsibility of determining the nature of disease, deformities or injuries of the human body, having in view the treatment of the same for the purpose of cure or alleviation." An attempt to enact a similar amendment last year called forth strong opposition from the Christian Scientists, and the Committee on Public Health finally recommended "no legislation necessary."

School Inspection in Chicago.—On January 4 the medical inspectors of the Chicago public schools resumed their physical examination of school children. This work was temporarily abandoned, so that the full force of medical inspectors might devote their services to the control of contagious diseases. The work of vaccinating school children will be resumed at once, and completed as speedily as possible.

Illinois Cocaine Law Sustained.—The Illinois Supreme Court recently declared the new cocaine law valid in the first case referred to it since the act was passed by the Legislature. The case in question was a fine of $500, which was imposed on two druggists of Chicago, who were convicted in the lower court of having sold catarrh powder which contained cocaine. It was contended by the accused that this powder was sold by a clerk, but the Supreme Court held the owners responsible.

Rabies in Pennsylvania.—A quarantine of one hundred days has been placed upon a number of cities in the western part of the State of Pennsylvania because of the prevalence of hydrophobia and the presence of dogs said to be suffering from rabies. More than one hundred persons have been bitten and more than five hundred dogs have been killed. At least one death has occurred. The Pasteur Institute of Pittsburg is overcrowded with patients threatened with hydrophobia and there is a long list of applicants waiting for admission.

Typhoid Fever in Montreal.—Upwards of one thousand cases of typhoid fever in Montreal and its suburbs were reported last week.

Cholera in St. Petersburg.—According to a dispatch, dated January 11, seventy new cases of Asiatic cholera were reported in that city during the three days following the Russian Christmas. The increase was attributed to the drunkenness and overeating during the holiday season. Up to the present time the epidemic shows a total of more than 9,000 cases and 3,599 deaths.

The Cartwright Prize.—This prize of five hundred dollars which is offered biennially by the Association of the Alumni of the College of Physicians and Surgeons, New York, will be awarded in June, 1909. Essays in competition for the prize must be forwarded to Dr. H. E. Hale, 752 West End avenue, New York, on or before the first of April. They must contain original investigations by the writer, and must be the work of one person only.

Dr. William T. Bull's Condition has of late improved very slightly, according to the most recent reports. On Sunday evening last, Drs. Blake and Potter issued the following statement: "So many contradictory reports have recently appeared in the newspapers with regard to Dr. Bull's condition and treatment that it has seemed advisable to his relatives and friends that a statement be issued

by his medical attendants. While the rheumatic complications have improved so that he has been able to be about in a wheel chair and go out driving, his general condition has not materially changed and barring complications is not likely to change in the near future."

Dr. Rose's "Medical Greek."—A prominent drug house on the East Side presented to each of one hundred physicians of the city, as a New Year's gift, a copy of Dr. Rose's recently published work on Medical Greek. We understand the first edition of this interesting work has already been exhausted and that a new edition is now in press.

Gifts to Charities.—The will of the late Amos Van Horn of Newark, N. J., contains bequests of $30,000 each to St. Michael's Hospital, St. James' Hospital, Beth Israel Hospital, St. Barnabas' Hospital, the Babies' Hospital, and the Hospital for Women and Children, all of that city.

Dr. James P. Glynn has been appointed Gynecologist to St. Mary's General Hospital of Brooklyn.

Surgeon-General Robert O'Reilly was retired on January 14, after forty-five years of active service in the medical corps of the United States Army, having arrived at the age limit of 64 years. He is succeeded by General George H. Torney, who has had a service of thirty-four years in the medical corps. Dr. Torney's appointment has given great satisfaction both in the army and in the medical profession of the country, his record of efficient service giving assurance that the high standard of administration set by his predecessor will be maintained.

No Ambulance Gongs.—The authorities of two hospitals in New York—the Roosevelt and the Presbyterian—have ordered the gongs removed from the ambulances of their institutions. At the Roosevelt the order affects both electric and horse-drawn vehicles, while at the Presbyterian the electric ambulances retain the gongs. The officials explain that the use of the gongs has tended to cause reckless driving.

The Cincinnati Academy of Medicine, at its regular annual election on January 5, 1909, elected the following officers for the ensuing year: *President*, Dr. R. B. Hall; *First Vice-President*, Dr. S. E. Allen; *Second Vice-President*, Dr. E. S. McKee; *Secretary*, Dr. E. O. Smith; *Treasurer*, Dr. A. G. Drury; *Librarian*, Dr. A. I. Carson; *Censor*, Dr. J. E. Greiwe; *Trustee*, Dr. J. F. Heady.

The McCracken County (Ky.) Medical Society at its annual meeting in December elected the following officers: *President*, Dr. E. B. Willingham; *Vice-President*, Dr. H. H. Duley; *Secretary*, Dr. Vernon Blythe; *Treasurer*, Dr. W. J. Bass. Dr. H. M. Childress and Dr. Frank Boyd were selected as delegates to the State Society meeting at Louisville.

The Jefferson County (Wis.) Medical Society, at its annual meeting in Jefferson, on December 31, elected the following officers: *President*, Dr. Harlow Caswell, Fort Atkinson; Vice-President, Dr. P. F. Stevens, Jefferson; *Secretary and Treasurer*, Dr. C. R. Feld, Watertown; *Censor*, Dr. Claude H. Searle, Palmyra.

The Navarro County (Tex.) Medical Society held its annual meeting on December 23. The following officers were elected: *President*, Dr. T. V. Fryar; *Vice-President*, Dr. Hugh Sloan; *Secretary*, Dr. T. B. Sadler; *Treasurer*, Dr. W. D. Fountain.

The North Central Illinois Medical Association, at its annual meeting, held at Princeton, December 1 and 2, elected the following officers for the ensuing year: *President*, Dr. James F. Percy, Galesburg; *Vice-Presidents*, Drs. Frank A. Turner, Sandwich, and Alfred E. Owens, Princeton; *Secretary-Treasurer*, Dr. George A. Dicus, Streator.

The Effingham County (Ill.) Medical Society elected the following officers in December: *President*, Dr. Chas. F. Burkhardt, Effingham; *Secretary*, Dr. Frank W. Goodell, Effingham; *Treasurer*, Dr. Henry Taphorn, Effingham; *Delegate to the Illinois State Medical Society*, Dr. George J. L. Haumesser, Shumway; *Member of the Medical Defense Committee*, Dr. Joseph B. Walker, Effingham.

The Ohio Association of Medical Teachers.—This association held its first session on December 28, in Columbus, O. Officers were elected as follows: *President*, Dr. J. U. Barnhill of Columbus; *Vice-President*, Dr. W. E. Lewis of Cincinnati; *Secretary*, Dr. E. I. McKesson of Toledo; *Treasurer*, Dr. Charles W. McGaveran of Columbus.

Nurse Dies of Burns.—Miss Eleanor M. Ryan, a nurse from St. Mary's Hospital, Brooklyn, died on January 6 of burns received a few days before. The bed on which lay Miss Ryan's patient and her young baby caught fire from the explosion of an alcohol lamp, but through the nurse's efforts both were saved. Miss Ryan however was severely injured.

Obituary Notes.—Dr. Daniel D. Gilbert of Dorchester, Mass., died at his home of pneumonia on January 2. Dr. Gilbert was born in Brattleboro, Vt., on December 23, 1838. He went to Boston as a boy and was graduated from the famous Boston Latin School and later from the Harvard Medical College in 1861. He then entered the army where he served as surgeon until the close of the war. He was a charter member of the Dorchester Medical Society, and one of the founders of the Dorchester Dispensary. He was a leader in the movement to establish free vaccine stations throughout the State, and was for many years president of the Norfolk District Medical Society and visiting physician to St. Mary's Infant Asylum.

Dr. Joseph Waldo Jewett of New Haven, Conn., died at his home on December 30, of typhoid fever, aged 54 years. Dr. Jewett was graduated from the Medical Department of New York University in 1881, and for a short time was an assistant in the Department of Ophthalmology there. Since 1882 he had practised continuously in New Haven.

Dr. J. H. Ward of Gahanna, O., died on December 25, after a long illness, aged 36 years. Dr. Ward was graduated from the Ohio Medical College in 1901, but two years later was compelled to relinquish his practice because of ill-health.

Dr. Luther Scofield of Maumee, O., died suddenly at his home, on December 20, of heart disease. Dr. Scofield was born in England forty-eight years ago, but came to this country when a young man and was graduated from the Cleveland College of Medicine.

Dr. Frank L. Hughes of Jackson, Tenn., died on December 28, after a long illness, from tuberculosis, aged 26 years. He was graduated from the College of Physicians and Surgeons of Memphis in 1907.

Dr. Henry A. C. Anderson of New York died suddenly of heart disease on January 4, aged 70 years. Dr. Anderson was born in Germany but

came to this country when a boy and was graduated from Bellevue Hospital Medical College in 1870. He was at one time connected with the Department of Health as bacteriologist, and was a member of the Medical Association of Greater New York, the Manhattan Medical Society, and the Society of Medical Jurisprudence.

Dr. Matthew Chalmers of New York died on January 6, aged 70 years. Dr. Chalmers was graduated from the College of Physicians and Surgeons, New York, in the class of 1862, and served in the Civil War as a surgeon. He retired from active practice about five years ago.

Dr. J. C. Bostick of Benton Harbor, Mich., died at his home after a long illness, on December 23, aged 50 years. He was graduated from the Bennett Medical College in 1881.

Dr. Alfred R. Goodrich of Vernon, Conn., died at his home on December 20, aged 90 years. Dr. Goodrich was graduated from the Berkshire Medical College in 1846. He had served several terms as president of the Tolland County Medical Society and as president of the State Medical Society. He was also a member of the Board of Health and one of the trustees of the public library. In the years 1864 and 1868 he was chosen a Presidential elector.

Dr. J. A. Pratt of Brookfield, Mo., died on December 17, after a long illness. Dr. Pratt was born in 1854, and was graduated from the Barnes Medical College of St. Louis in 1894.

Dr. Francis Marion Morgan of Norfolk, Va., died at his home on December 25, after a short illness, aged 62 years. He was a graduate of the College of Physicians and Surgeons of Baltimore.

Dr. Edwin S. Belden of San Francisco, Cal., died on December 29. He was a graduate of the Bellevue Hospital Medical College.

Dr. Charles William Eddy of Marietta, O., died at his home on December 28, of arteriosclerosis, aged 56 years. He was graduated from the Miami Medical College at Cincinnati in 1874.

Dr. Henry Reed Stiles, until 1888 a prominent citizen of Brooklyn, died at his home at Hill View on Lake George, N. Y., on January 8, aged 76 years. Dr. Stiles was graduated from the Medical Department of the University of New York in 1855, and was for some time connected with the Brooklyn Health Department. In 1873 he was appointed medical superintendent of the State Homeopathic Insane Asylum, and four years later went to Dundee, Scotland, to assume charge of the homeopathic dispensary there. Returning to Brooklyn in 1881, he resumed his practice, and in 1882 was appointed Professor of Nervous and Mental Diseases in the Woman's Medical College and Hospital of New York. In 1888 he removed to Lake George where he had since lived. Dr. Stiles was the author of a history of Brooklyn, the first volume of which was published in 1867. He was one of the organizers of the Society for the Promotion of the Welfare of the Insane, the American Anthropological Society, and the New York Genealogical Society, serving as president of the last from 1869 to 1873.

Dr. William Maddren of Brooklyn, N. Y., vice-president of the State Medical Society, died at his home on January 8, aged 63 years. Dr. Maddren was graduated from the Bellevue Hospital Medical College in 1873, and at once began the practice of his profession in Brooklyn. He was a member of the American Medical Association, and the Kings County and Brooklyn Surgical and Pathological Societies, and president of the Brooklyn Gynecological Society. He was attending surgeon to the Kings County Hospital, and consulting surgeon to St. Christopher's Hospital for Babies.

Dr. John J. Quigley of New York died of apoplexy on January 8, aged 43 years. Dr. Quigley was graduated from the medical department of New York University in 1886. In 1894 he was appointed a surgeon in the Fire Department and two years later took up the same service in the Police Department. In 1906 he was appointed Chief Surgeon of the Department, and since then had worked assiduously in bringing the service up-to-date. He was a member of the Academy of Medicine and the County Medical Society, visiting surgeon to the Fordham Hospital, and Professor of Clinical Surgery at Fordham University.

Dr. Edward Roland Snader of Philadelphia was killed on January 3 as the result of an automobile accident. He was 55 years old and was graduated from Hahnemann Medical College in the class of 1878. He was for two years resident physician in Hahnemann Hospital and then become chief of the dispensary staff. In 1886 he became demonstrator, two years later lecturer, and in 1897 professor of physical diagnosis. In 1907 he was transferred to the chair of the practice of medicine. He was at one time clinical chief in the department of diseases of the heart and lungs of the Children's Homeopathic Hospital, and consulting physician to Harper Memorial Hospital.

Dr. Vanroom R. Tindall died at Philadelphia on January 5 at the age of 69 years. He was graduated from Hahnemann Medical College in the class of 1864.

Correspondence.

IOWA'S ENDEAVOR TO CONTROL GONORRHEA AND SYPHILIS.

To the Editor of the Medical Record:

Sir:—For a number of years our esteemed colleague, G. Hardy Clark, M.D., of Waterloo, has with industry and enthusiasm striven to bring about enactments for the control of syphilis and gonorrhea. Dr. Clark's endeavors are endorsed by a number of physicians, schools, clergymen, the Woman's Christian Temperance Union, the Commercial Travelers' Congress of Iowa, numerous church organizations, the Iowa State Bar Association, and other bodies, all acting with the good of mankind at heart. Dr. Clark's present efforts take the form of a letter in which he submits a "bill drafted for the purpose of securing criticism and suggestions that will be useful in shaping legislation for the control of venereal diseases in Iowa." The letter accompanying the draft of the bill gives the "assurance that there is a pronounced demand by the conservative citizens in all parts of Iowa for the firm application of an effective law," and asks the recipient's "sympathetic help in the matter." Dr. Clark's sincerity certainly merits the attention of those whose lives are directed to at least the reduction of venereal diseases. This seems not the place to discuss whether syphilis is purely a venereal disease. Bulkley has led in the elucidation of this matter.

The questions that invite discussion are in the draft itself.

Section 1 provides that syphilis and gonorrhea "shall be reported as other contagious diseases to the County Board of Health for Venereal Diseases hereinafter provided for." It is safe to say that no reputable practitioner will report to any official body or any person syphilis or gonorrhea afflicting any of his patients. The records of such a board would form the basis of so many actions for divorce that additional courts would have to be established to hear them. Families would be disrupted and children left to grow up with but one parent; the other, the divorced one, would be to them worse than dead. The public, knowing the law-abiding

tendency of physicians, would, when infected, fear the possibility of being reported, and consequently would hasten, in even larger numbers than now, to the quacks, who, having no sense of decency, would have no respect for the law.

Section 5.—"From and after the first day of January, 1910, it shall be the duty of every physician and surgeon practising within the State of Iowa to report to some member of the County Board of Health, within 24 hours, every case of syphilis or gonorrhea coming to his knowledge during the infectious stages thereof." This section commands every physician to violate professional confidence, upon which the very basis of his usefulness to society rests. The wording also opens to him the door to perjure himself for the benefit of his patients, by asserting that the case did not come to his knowledge during the infectious stages. The loophole is there. It commands him also to decide when the infectious stage of syphilis and gonorrhea has ceased. The *Journal of the American Medical Association* for December 5, 1908, devotes nearly three pages to the outlines of the steps necessary to determine when a presumedly cured gonorrheic may be permitted to marry. It shows that at least two months are required to determine whether a person in whom the crass manifestations of gonorrhea have ceased, is or is not in the infectious stage thereof. During these two months the patient, if he still be one, may infect a number of others before it can be determined whether he shall be, according to the proposed enactment, reported to the suggested Board of Health. On the other hand, the law might be construed to require the reporting of all cases not proven infectious, which would be manifestly unfair to the patient. With syphilis that presents no symptoms at the time of examination, the question of infectiousness is still more difficult to determine. In many cases it is practically impossible. Ravogli (*Journal of the American Medical Association*, December 12, 1908) emphasizes that while the presence of spirochetes proves the presence of syphilis, their absence does not prove that the patient is free from the disease. The objections presented to this section may become nugatory, when by means of specific sera or other means a diagnosis of ability to infect with syphilis or gonorrhea may be definitely determined. Unfortunately, our methods have not reached that desirable perfection. The means described in the first article cited above as regards gonorrhea entail special experience and laboratory facilities which are not available to all practitioners. Moreover, the people infected actively or otherwise with these diseases are so numerous that the 120,000 physicians of the United States and Canada would not, even if all became venerologists and applied themselves to these examinations alone, have time to care for those of their patients whose ailments are of an uninfectious character.

Section 6 obliges "a person afflicted with syphilis or gonorrhea in the infectious stage * * * to give bond * * * not to exceed $500 conditioned for the faithful observance of and compliance with all rules and regulations * * * controlling the acts and conduct of persons afflicted with either of such diseases * * * ."

Section 7 places the person afflicted with syphilis or gonorrhea in quarantine or isolation until the infectious stage no longer exists. It is estimated by Bulkley and others that New York City alone presents annually an increase of 50,000 people newly infected with gonorrhea or syphilis. It would be pure guesswork to suppose that 10,000 of these are in a position to give bond in $500. These figures are probably far overestimated. Even if correct, 40,000 would have to be quarantined or isolated while in the infectious stages of gonorrhea or syphilis. These infectious periods are exceedingly variable; they may extend from weeks to years. It would be a great economic problem to decide who is to support the quarantined or isolated ones and those dependent upon them during the inevitable inactive period. New Yorkers cannot be deemed prone to acquire pro rata more gonorrhea and syphilis than the inhabitants of other regions; therefore the question presented will apply everywhere proportionately with but slight variations.

Section 10 would make it "unlawful for any person * * * other than duly authorized physicians and surgeons to sell any medicine or compound to cure or purporting to cure either syphilis or gonorrhea * * *." While it is unlikely that practitioners anywhere sell preparations of this class or any other, it may have reference to such physicians in small communities as are obliged to dispense their own prescriptions. In this sense the restriction cannot offer any objection. The same section 10 further forbids advertising for "sale any such medicines or compound." This certainly must have the approval of all who are opposed to such swindles. The same section 10 also obliges every physician to add to each prescription he may write in cases of syphilis or gonorrhea the name of the person to or for whom it is issued. It is not credible that any physician will thus expose to the pharmacist, or any one else, the name of a patient who has either of, or both, the diseases under consideration. Moreover, the patient can easily render such identification futile by giving an assumed name to the physician who would obey his part of the section, if there be such in the profession.

Section 12 would compel every mother or father whose child is so unfortunate as to contract gonorrhea or syphilis to expose the misfortune to the Board of Health, under pain of a fine of from $25 to $100, or to imprisonment in the county jail of from 10 to 30 days. Comment on this section is superfluous.

Section 13 will punish a physician treating syphilis or gonorrhea and not reporting it, by a fine of $100, or imprisonment not over thirty days and revocation of his license to practise. Should this become law, no physician in Iowa will accept any syphilitic or gonorrheic case, and these unfortunates would be forced to travel to another State for the professional care of which they are in dire need, or to go without treatment and thus still more endanger the community.

Section 14, providing as it does a fine of $500 or imprisonment for one year, in punishment for communicating by sexual intercourse either gonorrhea or syphilis, offers to the prostitute a field for blackmail such as has never before been conceived.

The sections not mentioned above deal more with administrative than with medical matters; those presented, however, seem to show that our profession cannot endorse the proposed enactment. The only remotely possible salutary effect of the bill would be in the nature of a warning to the public as to the importance of these diseases. Yet it has ever been demonstrated that mankind cannot be legislated into the paths of virtue, and the perniciousness of unenforceable legislation is so great as to negative any good result that the legislative warning might be expected to effectuate.

No desire for iconoclasm underlies the comments presented. On the contrary, they are offered with the hope that Dr. Clark and others who are prompted by the manifestly humanitarian intentions that underlie the proposed act, will be directed to the only means that now seem feasible for the reduction of venereal diseases—namely, educational.

As long as men are constituted as at present, so long will premarital and extramarital coitus be practised. As long as a certain number of females are prostitutes, so long will they offer themselves to men for hire. Before the sexual millennium arrives, these males and females will disseminate venereal diseases, regardless of any laws that may be placed upon the statute books.

In view thereof, the energy, devotion, and disinterestedness of Dr. Clark and his followers could be more effectually directed to teaching that the only safeguard from the worse than sad results of immorality is to take advice from a regular practitioner as early as possible in the infection.

Ferd. C. Valentine, M.D.
Terry M. Townsend, M.D.

THE AMERICAN SCHOOL OF TROPICAL MEDICINE AT HONOLULU.

To the Editor of the Medical Record:

Sir:—In a reprint from the *New Orleans Medical and Surgical Journal*, entitled "An American School of Tropical Medicine," my good friend, Dr. Isaac W. Brewer of the United States Public Health and Marine Hospital Service, cleverly takes advantage of Hawaii's freedom from malaria to urge his claim that New Orleans is the best location for an American School of Tropical Medicine, and that Honolulu is too far from abundant malarial clinical material.

In the *Harvard Graduates' Magazine* for June, 1908, Dr. Edward Nelson Tobey, teacher of bacteriology in the Harvard Medical School, has an article on "Tropical Medicine" in which he urges the establishment of an American school similar to those in London and Liver-

pool, England; Hamburg, Germany, and Brussels, Belgium. He suggests that "the Canal Zone would seem to be an ideal place, as it is within easy reach of tropical countries in both oceans, and it will soon be a place where the ships from all ports of the tropics will pass." He says, as to the objects of a school of tropical medicine: "The object of any school of tropical medicine is twofold: First, to spread the knowledge already obtained; secondly, to advance knowledge by research. In a department of this sort one physician should be at work in the medical school to teach the subject, to work up the material brought home, and to aid the investigator in the tropics. * * * In England the schools have a certain annual grant from the government. Expeditions are fitted out by private subscriptions, and the government in many cases has paid transportation charges and allowed the members of the expedition about $2.50 a day for traveling expenses while in the tropics. Our government, if asked, might respond in a similar manner. Why should not Harvard take the lead?"

While departments on tropical medicine in the various colleges and schools outside of the tropics have their place and diffuse a great deal of valuable knowledge regarding diseases peculiar to the tropics, they cannot supply the specific need of a school of tropical medicine situated in the tropics; this fact, I think, is undisputed. I am ready to grant that a certain amount of local pride and patriotic partizanship may color my stated reasons and preferences as to a location, as well as it does the preferences of my dissenting associates, but I think it is easy to make it plain to strictly disinterested parties why Honolulu is at the present time the best location in the United States for an adequate school of tropical medicine. Aside from the continued local prevalence of the peculiar diseases to be studied, and the availability of sufficient clinical material, we must look to the conditions affecting those who are to teach and those who come to learn. As Sir Patrick Manson said in his San Francisco lecture, the typically tropical country was not an ideal location for the study of even typically tropical diseases, because of uncontrollable physical conditions, like hot, humid temperature, and an extreme and almost unavoidable liability to contract infectious diseases.

For this reason Panama, on account of its heat and unhealthfulness, as well as for other reasons, must be excluded. New Orleans, as a populous American city, offers many inducements, no doubt, and my friend Dyer and his efficient associates down there are real allurements. In a teaching staff and material for the study of leprosy, we must acknowledge the superiority of New Orleans over any other mainland city. But New Orleans is not in the tropics, nor has it a climate which can be called comfortable. It has periodical epidemics which are not particularly useful in a scientific way to investigators who reside there, and may be dangerous to their safety. The yellow fever waves which pass that way are not of the nature to contribute much to science, owing to a natural eagerness on the part of residents to limit them as to time and virulence and to the fact that expeditions equipped for special work in epidemics are able to secure all the data needed.

So far as Hawaii is concerned, it has the yellow fever mosquito, and needs not the disease itself as an erratic and ephemeral visitant reaping its deadly harvests at long and irregular intervals. As to malaria, which Dr. Brewer emphasizes, it is indeed a very important disease, and should be familiar to every medical practitioner, but it is not strictly a disease of the tropics any more than is leprosy. Malaria may be studied in the Sacramento Valley, in Kern and other places in California; in Oregon, in Indiana, in Michigan, and even in New Jersey. The very fact that malaria may not be acquired physically as well as intellectually within our borders, is, I am inclined to believe, an advantage to be considered in the establishment of a school of tropical medicine.

Now, such places as Panama, Porto Rico, Manila and other points mentioned as available locations (except New Orleans), do not have, and cannot have, the resident teaching staff quite as necessary to a successful school as the clinical material.

It is as necessary as anything else that the school should have not only the ably imparted theory of a large corps of teachers and demonstrators, but that it should have their actual experience as doctors of medicine in the tropics. Honolulu has this staff, as the Tentative Schedule of the Honolulu School of Tropical Medicine amply shows. Thus, we have two dozen or more physicians, conversant for years with nearly all the various diseases peculiar to the tropics, and in many cases possessing knowledge of diseases like malaria not found here. Honolulu has specialists, too; experts in leprosy, beriberi, plague, and whatnot. What other American city can furnish similar material in leprosy, plague, beriberi, dengue, tropical dysentery and abscess, several fevers yet to be classified, and numerous skin affections? None except the distant city of Manila. And, with this available bedside instruction, what city can furnish the agreeable climatic and social and commercial advantages? As to accessibility, Honolulu is not so far away after all. It has been called the "Crossroads of the Pacific" and the "Pacific Arena," names which will be all the more applicable when the Panama Canal is completed. Five days from San Francisco, every one of them pleasant. Here at hand is the United States Federal Laboratory, a great institution for the study of leprosy, and on Molokai ample equipment for the territorial care and treatment of our large number of lepers.

To "run down" from the mainland is nothing; to "run up to the Coast" is less, after you have started either way, and students of medicine would find the trip a valuable part of their course in tropical medicine, with little opportunity in any case to waste time in the devious bypaths of seasickness.

It is true that Hawaii is a long way from students living in the West Indies and South America; but so is New Orleans a long way from the Philippines, Hawaii and nearly all the Rocky Mountain States. Besides, there are comparatively few practitioners in the West Indies, and fewer (of our own) in South America. Were the school in Honolulu it would have recruits from some of the South Sea Islands, from Australasia, India, the Straits Settlements, and no doubt from Japan and China.

If our government were to decide upon Honolulu as a location for its national school, I have no doubt the institution would be given financial aid by some of our wealthy and philanthropic residents of Hawaii. Already several of them have organized the Pacific Scientific Institution, the objects of which are to encourage scientific work and research throughout the Pacific. It is the intention of the promoters, who have good financial backing, to further the study of the meteorological conditions of the islands of the Pacific; to investigate thoroughly the ethnology, physiography, fauna and flora of this specific field, and to send exploratory expeditions throughout the region. Who can doubt that a school of tropical medicine would not come in for a large share of consideration and aid! Let us not overlook this opportunity to place a school where it properly belongs. Greater demands have been successfully made by poorer beggars.

E. S. Goodhue, M.D.

The Doctorage, Hawaii.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LEAGUE OF MERCY — RHEUMATIC AFFECTIONS — POISONING OF EMIGRANTS BY FERROSILICON — IMPORTED MEAT, NEW RULES.

London, December 24, 1908.

This week it is the turn of the League of Mercy to hold its annual meeting—the ninth of the series. You are aware that the League was established under the auspices of the Prince and Princess of Wales to help the King's Fund by organizing a collection of small sums—though it does not decline large ones. A message from the Prince was read expressing the gratification of the Princess and himself at the steady progress and expansion of the work. As he anticipated, its extension to the home counties has led to grants, to hospitals outside the area of distribution of the King's Fund. The chairman reported that an extra £1,000 had been loaned to the King's Fund this year. The honorable treasurer said the total collected, including promises, was £22,100, or more—the largest of any one year. They had given £1,516 to the Home counties hospitals and £19,000 to the King's Fund. The value of small subscriptions is illustrated in the fact that out of a total of £43 in an East End district 4,707 individual pennies were subscribed in the tenements. During its nine years' life the League has given £116,000 to the King's Fund. Clearly this organization is a powerful support to hospitals. There are now 322 recipients of the "Order" of the League—a distinction conferred only for personal service. A number of new presidents were appointed, and so the branches grow.

Counterirritation, especially by means of blisters, has so long been an accepted treatment in rheumatic affections that we can safely anticipate that in some form or other it will from time to time come up for reconsideration. Forty years ago or more small blisters an inch or two from each swollen joint were well tried in acute rheumatism. A little later, larger blistering was recommended by leading physicians in chronic cases. Still later, I saw the plan applied in so-called rheumatoid arthritis. In recent months we have heard of good results by applying blisters along the spine, chiefly in the neighborhood of the cervical and lumbar enlargements. On the 9th inst. the plan was brought before the Bacteriological Society by Mr. W. J. Middleton of Bournemouth, who showed a patient who had recovered health and freedom of locomotion under this treatment carried out by Dr. S. G. Champion. Notes of other cases were added—27 in all—besides some of paralysis and hysteria. The counterirritation is kept up for a considerable time, and it is suggested that the nervous system is improved and that toxins may be removed in the discharges when the blisters are kept open. Dr. Luff's comment on the paper was that blisters to the spinal region for various joint affections had not compared favorably with other treatment. Dr. Armstrong of Buxton said he had for the last twelve years paid special attention to the so-called "joint centers" in the cord, as he thought in all cases of arthritis the nerve nutrition of the joints must be affected. Mustard, acetic acid, and other counterirritants were used in his earlier work. Later he had tried the blistering method in 16 cases of severe rheumatoid arthritis and obtained improvement to some extent in all. He had also for about four years been using the electric cautery. He applied it to the sides of the cervical enlargements when the upper limbs were affected, and to the lumbar enlargements for the lower. He did not call it a specific treatment, nor could it exclude the necessity of eliminating all sources of reflex-irritation—gastric, septic, or other. In a number of cases the results were gratifying. Dr. Buckley said he had given a fair trial to counterirritation of the skin over the spine, and thought all plans including Paquelin's cautery, which he preferred, alleviated pain, but had no curative effect. He did not think they could cure, for he believed the disease was of bacterial origin. Dr. Llewelyn Jones spoke in favor and Dr. Mantle against the method. In reply Mr. Middleton said many of his patients and of Dr. Champion's had tried all kinds of treatment both at home and abroad. The foregoing discussion may be compared with that on acute rheumatism at the Therapeutical Section of the Royal on the 1st inst. It was opened by Dr. R. Stockman, who exhibited many charts to show the prompt fall of temperature under the use of sodium salicylate. When the initial fall was delayed a larger dosage would be effective. Allied drugs, as salicin, were also shown to have similar effects. In one group of cases the synovial membranes were principally or solely involved. In another group the surrounding fibrous structures were much affected, and these cases were more chronic and more resistant, requiring large doses. Dr. Lees said the present treatment failed to arrest the disease because the arthritis alone was attacked and a beneficial effect on the heart was scarcely hoped for. He recommended salicylate in large doses combined with twice the amount of bicarbonate of sodium. For an adult 150 grains of salicylate daily, increasing by 20 to 50 grains until the temperature fell to normal. Unpleasant symptoms might be met by decreasing the dose, but again coming back when they disappeared. Sodium salicylate was not, as so often supposed, a depressant to the heart. Two precautions should be observed in this treatment: namely, give enough of the bicarbonate to alkalinize the urine and prevent constipation. Dilatation of the left ventricle disappeared under this medication. An icebag was useful in pericarditis and myocarditis, but before applying it any indication of dilatation of the right ventricle must be relieved by leeches. I have summarized these two discussions in consequence, perhaps, of a long talk I had this morning with a friend on the unsatisfactory results of treatment in numerous cases. He told me of two apparently parallel cases sent to Buxton with opposite results; of two sent to Droitwich, one of which seemed nearly cured and the other "as nearly killed." These convinced him that we could never be sure that anyone would benefit by a course of treatment, the experience of drugs being similar. The same experience applied to massage, passive movements and electric measures. I was obliged to admit facts and could not suggest what conditions varied so far as to determine the contradictory results. As a final note I may mention a case sent to Buxton by Dr. F. Booth after he had obtained a remarkable degree of improvement by persistent lavage of the intestines. Three quarts of warm water in which two tablespoonfuls of magnesium sulphate were dissolved were passed into the colon daily by a long tube attached to a Higginson's syringe. Thus the lower bowels were well irrigated, while to disinfect the smaller, castor oil and betanaphthol were given simultaneously. Offensive stools and alternating constipation had been marked in this case and the determined attempt to deal with it had been soon successful in these respects, and then pyrexia and the joint symptoms had begun to abate. The lavage was, after some weeks' daily use, dropped to three times a week, and eventually to once a week. The last note from Buxton says that all the joints except one knee have recovered. It will be interesting to hear whether that also recovers, though few patients may be able to continue so prolonged treatment, and perhaps not many are so evidently connected with intestinal trouble.

The deaths of five Jewish emigrants on a steamer have been explained, as due to fumes given off from ferrosilicon which formed part of the cargo. The analyst said he had examined a sample from the cargo, and that it was very dangerous. It was used by steel manufacturers, and regularly imported from Belgium, and was more affected by sea air than land air. The medical officers found no evidence of ptomaine poisoning or of cholera, but signs of poison by noxious gases. The captain of the vessel said he did not know it was dangerous, and had "never heard of the stuff before." The importers accepted all responsibility. The firm had carried ferrosilicon for years with no mishap, but had lately given instructions to refuse it. The present consignment was the first breach of the rule, and it was accepted by clerks at Antwerp on the assurance of the German manufacturers that a new process had eliminated all danger. The verdict was that the deaths were due to gases emitted by the ferrosilicon, and the captain was not to blame.

New regulations have been issued, to come into force with the new year, as to the importation of tinned meat and "boxed meat." Medical officers of health are to satisfy themselves that the pieces of meat can be individually separated and examined; (2) that any piece can be identified with the parts of the carcass the box is stated to contain. Pork is not to be admitted in portions less than a whole carcass and must be accompanied by a certificate that the pig was not diseased. Other regulations will remain in force.

Progress of Medical Science.

Boston Medical and Surgical Journal, Dec. 31, 1908.

Early Cervical Lymph Node Enlargement, the Sole Sign of Carcinoma of the Esophagus.—O. W. H. Mitchell reports one case in full, discussing from its data the question of differential diagnosis from tubercle, syphilis, and Hodgkin's disease. He says that any enlargement of the cervical nodes in the adult should always awaken suspicion of malignancy. Metastases may prove more malignant than the primary deposit. The latter may give no signs or symptoms till late in the disease and in fact may be discovered only at autopsy. In the present case a preliminary excision of a node revealed the malignant nature of the disease.

Morris's Point of Tenderness as an Aid in Diagnosis.—J. C. Hubbard declares that the point has by no means the importance attached to it by Morris. The abdominal lymphatic glands, becoming secondarily inflamed, cause tender areas. The area found tender on examination is somewhat of a guide to the organ primarily infected and therefore in certain cases may be an aid in diagnosis. In acute appendicitis tenderness at Morris's point is of less importance than the symptoms caused by the appendix itself. In chronic appendicitis tenderness at the point may be of distinct diagnostic value. Tenderness at this point, even though the only physical sign, makes the diagnosis by the rule of chance probable. When combined with tenderness at McBurney's point the diagnosis becomes more certain. Its absence does not rule out appendicitis and it may occur in other conditions.

New York Medical Journal, January 2, 1909.

A New Instrument for the Estimation of Urinary Acidity.—H. R. Hanower's device is a graduated test tube to replace for the clinician the familiar buret. It is easy to handle, is just as accurate as the buret, much less expensive, and simple in use. The new acidimeter is so graduated that 10 c.c. is the first measuring

point. From this upward the tube is so graduated in fifths of a degree to 100 degrees, each degree representing the amount of decinormal sodium hydroxide solution required to neutralize 100 c.c. of urine. The tube is filled to the 10 c.c. mark and two drops of phenolphthalein indicator solution are added. Then with an ordinary dropper decinormal sodium hydroxide solution is added, the tube being inverted after each addition till the color changes from a yellow to a light rose pink. The acidity is now read off in the tube at the level of the tube. The normal acidity of a mixed twenty-four hours specimen should lie between 30 and 40 degrees. If the urine is alkaline and the degree of alkalinity is desired, we substitute for the sodium solution decinormal hydrochloric or oxalic acid, the pink color present being first discharged by the acid.

Bluish Discoloration of the Conjunctiva from an Indelible Pencil.—A. Bray reports the case of a young woman who was sharpening an indelible pencil and accidentally received a bit of the lead in the eye. Examination showed a small conjunctival laceration on the lower lid and both the lid conjunctiva and the bulbar conjunctiva up to the lower corneoscleral margin was a dark purple blue mass. An alkaline wash was ordered and the next day the eye was clear. In fact, the stain disappeared in eight hours. These indelible pencils contain the aniline dyes and do not form an insoluble salt with the albuminates of the tissues.

Toxic Effects from Bismuth Subnitrate.—E. G. Beck has been able to find eight authentic cases of bismuth subnitrate poisoning and gives a bibliography of the literature covering, as well as the reports of certain experiments on animals. His conclusions follow: (1) Bismuth subnitrate administered by the stomach in small doses is harmless. (2) In the presence of certain bacteria or feces of children bismuth subnitrate will liberate nitrites, which will be absorbed by the intestines and eliminated by the kidneys, and if the production is faster than the elimination, methemoglobinemia will result. (3) In large doses by mouth it is liable to produce an acute nitrite poisoning, characterized by cyanosis, collapse, methemoglobinemia, and may terminate fatally. (4) Rectal injection of small doses of bismuth subnitrate may cause nitrite poisoning much quicker and more severe than when administered by mouth. (5) Children are more susceptible to nitrite poisoning due to administration of bismuth subnitrate. (6) Persons suffering with intestinal putrefaction are very susceptible to nitrite poisoning when bismuth subnitrate is injected into the bowels. (7) The bismuth injected into these sinuses, and encapsulated, will be gradually absorbed, and may be found in the liver, spleen, muscles, and intestines. (8) Characteristic symptoms of black borders of gums, ulcerations of mucous membranes, diarrhea, desquamative nephritis may appear several weeks following the injection of the paste. (9) After the injection of large quantities of the bismuth paste into suppurating sinuses, mild symptoms of nitrite intoxication may appear. (10) The acute nitrite poisoning is to be regarded as a distinctly separate affection from the more chronic bismuth absorption. (11) Radiographers should employ some other preparation of bismuth than the nitrate, and refrain from injections of subnitrate into the bowels, especially if intestinal putrefaction is present.

The Responsibility of the Family Physician Toward Tuberculosis.—S. A. Knopf says that any physician who is able to make in a given case a definite diagnosis of tuberculosis should inform the patient and his family. The course of treatment as to climate, diet, etc., must depend on circumstances, but the usual prophylactic measures should be begun at once, whether the patient remains at home or not. If the law requires registration, this should be done. Very sick cases should not be sent away from home. Care should be taken in regard to the children of a tuberculous parent who remains with them. The choice of a future career often determines whether young people will or will not have the disease. Thus the son of a consumptive printer should choose some other occupation. The daughter of a tuberculous mother should never be a seamstress. Tuberculous patients should not marry. At the present time they will, in spite of all advice, and if the laws of one State prevent it they will simply move to an adjoining State. If a tuberculous woman becomes pregnant, emptying of the uterus may be justified to preserve the mother's life. But prevention of pregnancy is better and the author deems it justifiable to advise it. There is no need of turning the treatment over entirely to the specialist. The family physician should be able to meet every requirement. Knopf deems it a great error to hand patients over entirely to faith healers of all kinds, Emanuel movement men, etc., though the hopeful methods and measures of such persons are highly commendable.

Journal of the American Medical Association, January 2, 1909.

School Hygiene.—L. H. Gulick insists that the problem of the health of school children demands special technical skill for their solution, and that school boards should take as much pains to secure such aid as they do in matters of architecture and business details. As instances, he refers to vision and its defects and says that, notwithstanding its importance, there is hardly a school board in America that has in its employ a technical expert to decide on questions of eyesight. This is not alone in its neglect; he mentions also the unnatural sedentary conditions of school life, the effects of respiratory obstruction by adenoids, enlarged tonsils, etc., on the capacity of the child, the increase of nervous symptoms, the effects of fatigue, of home study, etc., all of which are subjects that properly fall within the class that should be considered by educational authorities. Until they are thus considered with all the aid that science can give, no contribution of permanent value to physical development will be made, he says, in the field of education. There should be organized under every board of education a department of school hygiene with adequate authority, responsibility, and financial support.

Backache in Women.—L. F. Garrigues says that backaches in women are so common and so far-reaching in their effects that their thorough understanding is of great importance to the physician, yet we find practically nothing on the subject in text-books. Leaving out of consideration those due to rheumatism or strain, he confines himself to the subject of the pelvic backaches, and more especially those caused by disease of the internal pelvic organs and cellulitis of the uterosacral ligaments. Pelvic backache is of two kinds. In one there is pain and tenderness at the level of the fourth and fifth lumbar vertebræ, where the spinal nerve center governing the internal pelvic organs is situated. The treatment of this form, to be effective, necessitates the cure of the underlying disease. In the second variety there is a tender spot on either side of the second sacral vertebra which he contends is due to cellulitis of the uterosacral ligaments. If only the site of the pain is considered, incipient sacroiliac disease or caries of the fourth or fifth lumbar vertebra might be mistaken for pelvic backache, but the first of these is rarely bilateral, and is accompanied by pain on compression of the iliac bone, while the other has some spinal rigidity and is especially aggravated by jars. Neuralgia is less sharply localized and usually causes a more intense, intermittent pain, instead of a dull and constant ache. In rectal inflammation and fracture of the coccyx the pain is referred to the coccyx. In pendulous abdomen there is a dull, constant dragging pain, referred to the lumbar region, probably due to the traction of the mesentery, but it is relieved by lying down or the wearing of a supporter. The only variety of backache peculiar to women, Garrigues says, is that due to cellulitis of the uterosacral ligaments, characterized as stated above, by pain at the outer sides of the second vertebra, and he goes at some length into the description of the anatomy and pathology of the condition. The symptoms in an uncomplicated case are backache, referred to the spots described, which becomes worse on exertion, and there is a distressing sense of weakness. Pain on sexual intercourse is often marked. The diagnosis by vaginal examination is easy if the normal conditions are known and the symptoms of pain on manipulation of the ligaments is brought out and their abnormal conditions recognized. The treatment is to put the patient to bed, apply an icebag to the lower abdomen, and to administer active saline cathartics; tampons dipped in a 5 per cent. solution of iodine-glycerin are useful and hot douches may be employed, though he thinks that their value is overrated. Besides this, the cause, if still present, must be removed. If suppuration occurs, or before in a severe case, vaginal incision and drainage should be employed, care being taken not to enter the peritoneal cavity. In mild chronic cases, painting of the posterior vaginal fornix with tincture

of iodine, two or three times a week, also 5 per cent. ichthyol-glycerin tampons or vaginal suppositories inserted at night, are useful. If these measures do not produce sufficient absorption, pelvic massage gives fairly good results, but seldom complete cure and is somewhat tedious and painful. To overcome these objections, it occurred to Garrigues that section of the uterosacral ligaments would be rational and not a dangerous treatment, and he reports two cases successfully treated in this way. In answer to possible objections that these ligaments are an important uterine support and that severing them might lead to a prolapse, he answers that the peritoneum holds the divided ends of the ligaments from dropping too far apart, and the gap must eventually be filled by a nerveless fibrous tissue.

Typhoid Agglutinins in Meningitis.—W. Becker and G. C. Ruhland report a case of cerebrospinal meningitis, in which the typhoid agglutination test was positive within twenty minutes, a dilution of the serum of 1 to 100 was used on a typhoid culture in bouillon not over twenty-four hours old. The autopsy revealed the lesions of meningitis and the presence of the specific diplococcus, but no evidence of typhoid. While they are almost certain that the specific agglutinins of typhoid and for the Diplococcus intracellularis are distinct, and that higher dilutions of the serum of the patient would have ultimately agglutinated only with the meningococcus, yet the case appeared to them of sufficient interest to make its publication desirable.

A Deceptive Case of Leprosy.—C. J. White and O. Richardson give a full and interesting account of a case of leprosy which baffled the diagnosis of a number of competent dermatologists, including some of the best known in this country and Europe, such as Bertarelli, Crocker, Hallopeau, and others, who unanimously considered the case one of syphilis. It was only when the nose began to develop its convincing symptoms with the finding of the bacilli that the authors were able to reject the diagnosis of specific disease.

Climate and Tuberculosis.—C. L. Wheaton upholds the value of climate in the treatment of tuberculosis. Elevation above the sea, dryness of air, sunshine, winds, variability of air temperature, electricity of the atmosphere, are all, he says, contributing factors in the arrest of tuberculosis. The higher strata of the atmosphere are the freest from impurities, atmospheric cleanness and transparency is a test of purity, and the bactericidal action of sunlight is recognized by all. Though the results of sanatorium treatment in so-called unfavorable climates have exceeded expectations, it is no reason why we should deny that some climates are better than others and possess attributes beneficial to the treatment of pulmonary disease. While recognizing the fact that most victims must avail themselves of home conditions and that change of climate has often been injurious and too indiscriminately prescribed, let us still acknowledge that, in selected cases, the advantages of climate are not all fictions and that it plays its part in the hygiene of tuberculosis.

The Lancet, December 26, 1908.

Arthritis Deformans.—A. H. Tubby gives a general description of this disease, contrasting it with Still's disease. Rheumatoid arthritis or arthritis deformans is, in the authors' opinion, probably an autointoxication. He notes that almost invariably the patients have carious teeth. Under the general name of the malady are grouped various types, such as the hypertrophic or osteoarthritic and the atrophic or rheumatoid arthritis proper. In the former the general health of the patient is to be maintained and he should live on a dry soil. A warm climate is advisable for the winter. Excess of nitrogenous extractives or carbohydrates in the diet is to be avoided. Locally the joint should be used moderately and electricity with massage is of service. In the atrophic form, if the patient is young the general treatment is very much as in incipient tuberculosis. The various forms of fermented milk provide an excellent diet, especially the Metchnikoff milk, and the lactic acid bacillus milk. Surgical measures fall under three general heads: (1) Rid the articulation of the products of inflammation. (2) Remove the hypertrophied villi and osteophytes which interfere with the functions of the joint and produce erosion of the articular surfaces, and (3) correct deformities.

Clinical and Post-Mortem Observations on the Status Lymphaticus.—Notes of five cases with full autopsy findings are given by R. E. Humphry, who says that the thymus gland so often enlarged in these cases often remains hidden at the root of the neck, partly covered by the inner extremities of the clavicles. In fatalities of this class it seems evident that it is the respiratory system that is first affected and not the heart, as is generally supposed. The author confesses that he does not know of any positive collection of signs or symptoms on which we can base a diagnosis of status lymphaticus. It may be that there is some change in the blood with which we are as yet unacquainted. Males are apparently more liable to the disease than females. Death may come without any apparent warning. Many fatalities have followed the use of ethyl chloride as a general anesthetic, and the author claims that this remedy is a valuable one and has been greatly maligned and he says that there is no evidence to show that it is any worse than any other anesthetic in dealing with the status lymphaticus. A practical point is the statement that if the region of the lingual tonsil shows a great excess of lymphoid tissue anesthetics should be avoided, for this lymphoid excess is suggestive of the general status lymphaticus. Unfortunately the negative aspect of this point is of no value.

British Medical Journal, December 26, 1908.

Pyrexia During the Puerperium.—L. B. Crane presents in tabulated form a study of the causes of fever in 1,196 consecutive cases of childbirth. Special points considered are (1) the number and percentage of cases of pyrexia, with relative frequency in primiparæ and multiparæ, (2) the usual time after delivery at which the normal limit is passed, (3) duration of pyrexia from all causes and of those cases clearly due to sapremia, (4) the range of temperature in primiparæ and multiparæ respectively, and (5) the more common causes and their relative frequency. Concerning the latter point the author says that careful clinical and histological researches show that most rises of temperature are due to the activity of pathogenic organisms. Out of the 1,196 cases, 24 per cent., of the pyrexias could be definitely traced to sapræmia in uterus, vagina, or perineum. In 36 per cent. of the cases there was constipation. Such sapræmia is probably due to some extent at least to imperfect drainage of the lochia. Constipation acts as the second great cause of fever. In 9 per cent. there was a "reaction" temperature by which is meant a transient rise unaccompanied by any corresponding rise in the pulse rate, which occurs only within twenty-four hours after delivery and rapidly falls again to the normal. This condition is found chiefly in primiparæ and is more frequent in summer than in winter. In 11 per cent. breast conditions were responsible for the fever; in 5.2 per cent. the respiratory organs; in 2.9 per cent. thrombosis, urinary, and dental causes, and in 0.6 per cent. emotional causes. This latter variety seems to be more common in maternity hospitals when they occur most frequently on visiting days. They are more frequent in primiparæ, especially in unmarried women. The fever may be high when the patient is awake and fall during sleep. Its recurrence is very rare. Slight elevation from emotional causes is more common than is generally believed and is often overlooked. Finally it must be remembered that pregnancy does not protect a woman from any disease to which she may be exposed and the possibility of such infection should always be considered in unraveling an obscure febrile movement.

Asthma.—A. G. Auld gives a general description of asthma, his sub-headings being historical note, recent anatomy and physiology, spasm or hyperæmia, action of amyl nitrite and adrenalin, pathological basis of the affection, and management. His choice of this last term rather than of the word treatment shows his broad conception of the condition and his relegation of drugs to their proper place in therapy. He says that the disease requires consistent and watchful care. No one plan is applicable to all cases. As to sedative drugs during acute paroxysms, we should always remember their tendency in numbing the nerve centers and rendering the bronchial mucosa insensitive to arrest or prevent those metabolic processes designed to rid the system of the asthma poison, and in addition there is the danger of the formation of a drug habit. Special organs always to be looked after are the nose, nasopharynx, and stomach. The lungs must be carefully ventilated. A regulated amount of hill-climbing is an excellent form of pulmonary exercise. Swimming is also an excellent exercise for asthmatics. It

increases the depth of breathing and brings into play the accessory muscles of respiration. It is also a tonic to the nervous system. All the emunctories must be kept in good working order. Overeating is to be avoided and all foods slow and difficult of solution in the stomach should be cut out. Vegetables producing flatulency are harmful. Cool water may be given freely. All carbonated beverages are to be avoided and as well strong drink of any kind.

Berliner klinische Wochenschrift, December 28, 1908.

Treatment of Pernicious Anemia.—Klemperer says that cholesterin has been introduced into the therapy of pernicious anemia because of Ransom's finding that it prevented the hemolytic effects of some substances, such as saponin and cobra poison. The objections to the use of cholesterin consist in the lack of evidence that pernicious anemia is due to hemolysis and in the fact that the substance is not at all decreased in the blood of these patients, but is often increased above the normal figures. Klemperer has at first attempted to administer cholesterin in three per cent. solution in oil, but this disagreed with most patients. The feeding of milk, cream and butter, however, accomplishes the same results by increasing the fat and the cholesterin content in the blood. Large amounts of these substances were used in the diet, and the results were very favorable, though it is impossible to say whether the cholesterin had anything to do with it. At the same time Klemperer used arsazetin, which proved to have a more favorable effect upon the blood formation than other preparations of arsenic.

Münchener medizinische Wochenschrift, December 22, 1908.

Cervical Ribs.—Schaefer says that cervical ribs are not at all so rare as has been thought previously; 139 cases have been described before 1894, and the use of x-rays since that date has shown that in many cases the presence of this anomaly has escaped attention. He has observed three cases of cervical ribs. The first patient was a woman whose affection wsa diagnosed as incipient pulmonary tuberculosis. The ribs in her case simulated very closely enlarged cervical lymphatic nodes, and the apices showed diminution of resonance on percussion. X-ray picture proved the existence of the anomaly. The other three cases were likewise sent in with the diagnosis of pulmonary tuberculosis founded upon the physical signs obtained in the examination of the apices. Two of them showed some respiratory symptoms of pulmonary tuberculosis, but in no proportion to the great real of dullness due to the presence of the ribs. The third case was not tubercuolus at all, the diagnosis of tuberculous infection of the lymph nodes being founded simply on the signs given by the rib. Schaefer lays stress upon the necessity of remembering the possible presence of this anomaly when examining the lungs for signs of early tuberculosis.

Treatment of Suppurations.—Kolaczek says that the pus of tuberculous abscesses and of those caused by pyogenic cocci is quite different in character, the former being very poor in ferments while the latter has an abundance of them. While the introduction of leucocytes or some substances that would cause the gathering of leucocytes in the diseased focus has a very favorable effect upon the course of tuberculous affections, the opposite method, that is, the use of anti-ferments, is the best in acute suppurations. Blood serum or the fluid of ascites or of a hydrocele can be used in this way, and in certain conditions where these are not obtainable the serum of animals may likewise be employed. The anti-ferment content of the latter may be raised by immunizing the animal by injections of ferments. The abscesses may be simply punctured and then filled with the serum, or in other cases incised and washed out with the serum. The curative action of the serum is explained by the inhibition of the dissolving action of the ferments contained in the pus of abscesses, by the diminution of intoxication of the organism because of lessened destruction of tissue by the action of ferments, and by the anti-bacterial effect of the serum.

The Value of Blood Examinations in Surgery.—Fabian says that the morphological examination of the blood is of no less value for surgeons than a bacteriological study of this tissue. Especially important is such an examination in the presence of tumors of the lymph nodes. Thus pseudoleukemia may be diagnosed by the relative lymphocytosis and the increase in the number of large mononuclears; Hodgkin's disease may be suspected from the increase in the polynuclear neutrophiles; tuberculosis of the lymph nodes may be suspected if the number of the lymphocytes is diminished, and lymphosarcoma may be diagnosed in the absence of any typical blood changes. Another condition in which the examination of the blood may be of value is echinococcus cyst, which is often accompanied by an eosinophilia.

French and Italian Journals.

Hemorrhoids in the Child.—Denis G. Zesas states that, although hemorrhoids are rare in children, they do occur, forming bluish tumors about the anus. The author believes that one of the factors is heredity, there being an abnormal congenital thinness of the mucous membrane of the anorectal region. The vessels of this region participate in this thinness and they are unable to support the column of blood pressing against the walls of the hemorrhoidal veins. Constipation is an important factor in many cases, while in others a chronic diarrhea causes weakness of the walls. Tumors in the abdomen and enlarged liver are occasional causes of pressure on the veins. Infection may also be a cause, inoculation taking place from simple subsphincteric ulcers and excoriations of the anal region. Hemorrhoids present two forms, angioma and simple varix. Diagnosis presents no difficulty. Treatment is the same as in adults, the Miculicz operation giving the best results.—*Archives Générales de Chirurgie,* October 25, 1908.

Evolution and Treatment of Tuberculosis Among Syphilitics.—Emile Sergent tells us that syphilis and tuberculosis are frequently associated in the same subject. Syphilis constitutes a prime factor in causing tuberculosis both directly and indirectly. Directly a tuberculosis may be engrafted on a syphilitic laryngitis or tracheitis; indirectly, syphilis causes a condition of the system which predisposes the subject to the reception of the tubercle bacillus. This occurrence of tuberculosis in the syphilitic may take place in the early primary or in the secondary stage. There may be association of the two lesions in the same location, as when we have a hybrid lupus. Generally the soil is such that both conditions are engrafted on it at the same time. We may have local tuberculosis in syphilitics, or pulmonary tuberculosis in syphilitics, and either condition may be the primary one. The author believes that the contraction of syphilis by a tuberculous subject is not as serious as has been thought. Provided that the tuberculous subject is in a fair general condition, he may not be very severely affected by the syphilis. In all probability syphilis is a cause of many cases of fibrous or sclerotic pulmonary tuberculosis. Tuberculosis also occurs in heredo-syphilis in young subjects. In all cases except very late ones or very acute ones of tuberculosis, anti-syphilitic treatment benefits both the syphilis and the tuberculosis. It should be so administered as not to interfere with the digestion and not to cause sore mouth.—*La Presse Médicale,* October 14, 1908.

Cystalgia in Movable Kidney.—Ferdinando Gangitano gives the symptomatology of movable kidney as including all sorts of neuralgic pains in the lumbar, crural, and intercostal regions, gastralgia, hysterical attacks, nervous phenomena, abolition of reflexes, diminution of the visual field, and disturbances of the genital organs. The author records a case in which the disturbances of the bladder were very severe and of a neuralgic nature. The pyelo-uretero-vesical reflex was excited in this case. The nervous filaments become congested or affected by toxic elements and react excessively. The same plexus which supplies the bladder enervates the lower portion of the ureter. The pain resulting causes in the author's case a course of treatment for cystitis by means of lavage of the bladder to be undertaken. The reflex genital pains caused a curetting and other uterine treatment to be undertaken, all of which produced no benefit because the cause of all the trouble was a movable kidney. The pain was due to contractions of the detrusor and sphincter of the bladder, and with them was combined disturbance of micturition.—*La Riforma Medica,* October 26, 1908.

The Bactericidal Power of Living Cells.—A. Albergo-Berretta, after experiments on animals by injections of emulsions of bacteria to ascertain the power af the living cells to destroy bacterial life, gives us the following conclusions: That the uninjured tissues as long as they preserve their vital properties are able to destroy rapidly all microorganisms that come immediately in contact with them. The microorganisms only find a condition adapted to their action in the presence of injuries to the tissues, or in conditions in which their vitality is lowered. In this destruction the phagocytes take an important part, but they are not the only factor in this destruction of germs. There are substances already contained in the protoplasm of the tissues which kill the germs, and all cells have the power of elaborating such substances when they are needed. —*Lo Sperimentale,* July-August, 1908.

Book Reviews.

A Text-Book of Operative Surgery. Covering the Surgical Anatomy and Operative Technic Involved in the Operations of General Surgery. Designed for Practitioners and Students. By Warren Stone Bickham, M.D., Phar. M.; Junior Surgeon, Touro Hospital, New Orleans; late Surgeon to Manhattan State Hospital, New York; late Assistant Instructor in Operative Surgery, College of Physicians and Surgeons (Columbia University), New York; late Instructor in Surgery, New York Post-Graduate Medical School and Hospital; late Visiting Surgeon to Charity Hospital, New Orleans; late Demonstrator of Operative Surgery, Medical Department, Tulane University of Louisiana, New Orleans; Fellow of the New York Academy of Medicine, etc. Third edition, greatly enlarged; containing 854 illustrations. Philadelphia and London: W. B. Saunders Company, 1908.

The well-known text-book of Dr. Bickham appears in this edition enlarged by over two hundred pages of text and over three hundred illustrations. It has thus kept pace with the progress of surgical technique and remains one of the most complete one volume text-books on the subject. The consideration of each operation consists in a concise description of the results aimed at and in directions regarding the position of the patient, followed by the surgical anatomy of the parts and the external landmarks; the technique is then fully given from the first incision to the last suture closing the wound. Splendid illustrations, the work of Miss Fry and of Mrs. Farnham, help to fix the descriptions in the mind of the student and bring back to the operator the picture of the parts as he sees them in the living subject. The index is very serviceable, various technical procedures being entered both under their names and under the names of surgeons who have introduced the method. We have no hesitation in recommending the book as admirably adapted to the needs of students and practitioners.

Einfache Hülfsmittel zur Ausführung Bacteriologischer Untersuchungen. Von Dr. R. Abel, Geheimer Medizinalrat in Berlin, und Dr. M. Ficker, Professor in Berlin. 2 Auflage. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1908.

This is a booklet of fifty pages containing directions for fitting out a small bacteriological laboratory. The preparation of the usual culture media and stains is explained, and a list is given of the apparatus and material required. The book will prove of use to any one buying supplies for a small laboratory.

Emergency Surgery. For the General Practitioner. By John W. Sluss, A.M., M.D., Professor of Anatomy, Indiana University School of Medicine; formerly Professor of Anatomy and Clinical Surgery, Medical College of Indiana; Surgeon to the Indianapolis City Hospital; Surgeon to the City Dispensary; Member of the National Association of Military Surgeons. With 584 Illustrations, some of which are printed in colors. Philadelphia: P. Blakiston's Son & Co., 1908.

This is a handy volume bound in flexible leather and small enough to go into an overcoat pocket. It is meant for the general practitioner who does not refuse his services in surgical capacity, though he has not made a specialty of that branch of practice. Accordingly, the book is intensely practical; it tells the methods of administering anesthetics, of stopping hemorrhages, of preparing material, and finally of operating that the author has found most serviceable in his own practice. The dogmatic character of some directions is fully made up for by the clearness gained; references to literature are omitted because of the very aim of the book to give one or at most two methods of operating and no more. Most of the commoner operations are included in the scope of the book from a tracheotomy and a circumcision to an operation for hernia or a laparotomy for appendicitis. The treatment of fractures and dislocations is allotted sufficient space. The illustrations are good. We recommend the book as fulfilling the purpose of the writer, to furnish a manual of ready assistance in preparing for an emergency operation.

Syphilis Osseuse (Syphilis acquise). Par le Dr. Louis Spillmann, Professeur agregé à la Faculté de Médecine de Nancy. Avec. 21 figures, formant 12 planches hors texte. Paris: G. Steinheil, 1909.

This little monograph has been written under the direction of the well-known syphilidologist, Professor Fournier of Paris. After a short historical introduction the author considers the frequency, the mode of invasion, the localization and the etiology of the syphilitis diseases of bones. The latent, the acute inflammatory and the gummatous lesions are treated in their turn. One chapter is devoted to the clinical aspect of the subject and has many valuable hints for the diagnosis of the syphilitic affections of bones. Treatment is likewise considered. The twelve plates show the gross lesions of the disease.

The Surgery of the Ear. By Samuel J. Kopetzky, M.D. New York: Rebman Company, 1908.

This volume, while not all that the expectant reader hopes it will be when he opens it, nevertheless deserves to be read as an introduction to more complete treatises on the subject yet to be written. The author has not learned the art of balancing unimportant facts against those of indispensable value, and hence he places undue stress on certain indifferent points and passes over essentials with a mere word or two. For instance, his discussion of new growths is incomplete and unsatisfactory, being limited chiefly to the polypoid variety. Chondritis and perichondritis are not mentioned at all, and we do not find anything upon cosmetic surgery of the external ear. No reference is made to the use of blood examination as an aid in diagnosis, nor of skull fracture through the temporal bone with its important complications and sequelæ. The bacteriology of surgical conditions receives scant mention. As for illustrations, the four colored plates are very good, but the line drawings are crude and the artist has failed in many cases to grasp the meaning of what he is trying to show. There is great need of an exhaustive treatise on otological surgery and the author deserves thanks for blazing his way through the mass of material which has accumulated in the past decade. His failure to give us just what necessity demands is not entirely his own fault, but partly that of the unsettled condition of his subject.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. By Leading Members of the Medical Profession throughout the World. Edited by W. T. Longcope, M.D., Philadelphia. Volume III, Eighteenth Series, 1908. Philadelphia and London: J. B. Lippincott Company, 1908.

The new number of this well-known quarterly contains articles on treatment, medicine, surgery, gynecology, pediatrics, orthopedics, psychiatry, neurology, ophthalmology, rhinology and pathology. The more valuable of these are: "Melanotic Neoplasms," by John H. Gibbon; "Treatment of Fractures by Internal Splints," by E. M. Corner; "On the Trail of the Subconscious," by Joseph Jastrow; "On Leukemic Retinitis," by A. Rochon-Davigneaud, and "Studies Upon the Etiology of Appendicitis," by Richard Kretz. In general the volume is as rich in practical and scientific information as its predecessors. It is illustrated by several photographs and by a colored plate.

Digestion et Nutrition, Apercus de médecine pratique, par le Dr. E. Monin, specialiste pour le tube digestif et la nutrition. Paris: Vigot Frères, 1908.

These observations in practical medicine are practical in the best sense, for Dr. Monin has brought to light the best that has been found in the management of the diseases which he here describes. No time is wasted in discussing this or that theory, but the author goes straight to the point and gives what the practitioner wishes to know. The chapter on gastric cancer is especially helpful, and the author's optimism in regard to palliation of the more distressing symptoms is especially pleasing, inasmuch as so little is ordinarily done for these patients. Nervous and acid dyspepsias, ulcer of the stomach, and alimentary poisoning receive due consideration, and the author has something to say about such diverse topics as floating kidney, rheumatism, gout, obesity, pyelonephritis, and diseases of the heart.

Ärztliche Beredsamkeit. Von Dr. med. Henry Hughes, Arzt in Bad Soden a. T. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1908.

The reviewer fails to see any use in this little book, which purports to analyze the usual conversation of the physician with his patients and to give model speeches for various occasions in the relations of these two persons. Indeed, it is even ludicrous to read a model little speech on the occasion of a patient's death or an exhortation to another patient to agree to an operation. The author's style shows him to be a well-read and entertaining writer. It is to be regretted that he should waste his time in writing such material as forms the subject of this little book on medical eloquence.

Society Reports.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Twenty-first Annual Session, Held in St. Louis, December 15, 16, and 17, 1908.

THE PRESIDENT, DR. F. W. PARHAM, OF NEW ORLEANS, LA., IN THE CHAIR.

Syphilitic Hyperplasia of Bone.—Dr. C. E. CALDWELL of Cincinnati said that this conditon was characterized by the deposition, without apparent coincident inflammatory symptoms, of a bony substance from the osteogenetic layer of the periosteum. When occurring in the long bones, particularly in the tibia, it resulted in overgrowth or a species of gigantism of the affected bone. Occurring as it frequently did in the epiphyseal ends of the long bones, it might, through juxtaposition to a joint, be mistaken either for tuberculous epiphysitis or a myeloma of the epiphysis. Fortunately, in the Röntgen ray we had a very satisfactory means of differential diagnosis. The class of cases to which he referred had usually a remote and not always clearly defined history of syphilitic infection. The progress of the affection was so gradual and accompanied by such slight disturbance of the comfort of the patient that he did not usually present himself for treatment until the bony overgrowth was such as to attract his attention. Inasmuch as the cases which had come under the author's observation had not undergone operation, but had more or less promptly yielded to treatment with iodide of potassium in large doses in a period varyng from six weeks to three months, with local inunctions of mercurial ointment, there had been no opportunity for pathologico-histological investigation. Inferentially, from the *x*-ray pictures, there was a formative osteitis of chronic form, which might not inaptly be compared to the chronic interstitial hyperplasia of internal viscera, and to the syphilitic hyperplasia of the coats of arteries resulting in obliterating endarteritis. It was not at all improbable that in this class of cases there might be nutritive changes in the periosteum which produced a condition not dissimilar to leontiasis or to Paget's disease.

Dr. ARTHUR DEAN BEVAN of Chicago said he had had such an experience as this, that of a man brought to him by a good practitioner with a diagnosis of sarcoma of the thigh, the patient, the father of four or five healthy children, denying absolutely any history of syphilis, and when informed that amputation at the hip joint was necessary, was quite willing to submit to the operation. Fortunately, before deciding upon this extensive operation, massive doses of iodide of potassium were employed for a few months, with entire disappearance of the tumor, and then the patient confessed to a syphilitic lesion long before he was married, stating that he had not said so before because he was confident that there could not be any connection between that initial lesion and his present condition.

Myoma and Myosarcoma of Stomach.—Dr. JAMES E. THOMPSON of Galveston, Texas, reported one case with the following symptoms: Marked hematemesis and melena; muscular cramps (tetany); no tumor palpable. Examination of gastric juice showed free HCl, 40: no lactic acid. A partial gastrectomy was performed successfully. The tumor was found to spring from the anterior wall of the stomach, and projected into the interior. Microscopically, it was a pure myoma.

Dr. MAURICE H. RICHARDSON of Boston had been unable to tell the difference between a malignant tumor of the pylorus and a chronic ulcer at the time of operation. The surgeon could not always have at hand an expert microscopist, with freezing apparatus, etc., to aid him, and yet he must know on the spot what the diagnosis was.

Dr. CHARLES H. MAYO of Rochester, Minn., said benign tumors of the stomach were so rare as compared to malignant that they were very seldom thought of; at the same time, there were quite a few of them in which the tumors had been found to be malignant at autopsy.

Dr. GEORGE W. CRILE of Cleveland added a case of myoma of the stomach which was operated on by his associate, Dr. Lower. He also reported a case of adenomyoma, which was situated in the wall of the stomach, but at the time of operation it was supposed to be a sarcoma.

Conclusions Based Upon Observations of Five Hundred Cases of Fracture of the Skull.—Dr. WALTER C. G. KIRCHNER of St. Louis read this paper: Linear fractures of the vault usually did not require operation unless they involved important vessels or sinuses. In depressed fractures the fragments causing depression should be elevated or removed. Experience had shown that in compound fractures, especially where there was injury to the dura or brain, drainage of the wound was usually desirable. Operation for fracture at the base was indicated where hemorrhage was extradural and where there were no signs of compression. The middle fossa was most frequently involved and drainage here could be easily instituted. The practice of examining hematomata by means of exploratory incision was practically without danger, when reasonable precautions were taken, and often gave most valuable information as an aid in diagnosis. The neurological findings were of value in determining focal symptoms, but when complex brain disturbances existed, they might be unreliable as diagnostic aids and required special interpretation. Brain compression was a positive indication for operation, and, as a rule, the sooner compression was removed, the better the prognosis. At operation shock and hemorrhage were factors that should be carefully regarded, and operation should be done as speedily as possible. In doubtful cases, where it was probable that the symptoms were caused by brain compression, exploratory operations were indicated. The expectant treatment was to be advocated in those cases in which there were no symptoms of brain compression, in which the temperature and pulse remained nearly normal, and in which the reflexes were but little altered. Unconsciousness in itself was no index of the seriousness of the trouble. Operation was contraindicated in those cases in which the symptoms were the result of intrinsic destruction of brain tissue, when the temperature was high, where the pulse was rapid, and the blood pressure diminished. The importance of a longer period of rest in bed should be strongly emphasized, so that the danger of secondary complications might be avoided.

Fractures of the Elbow Joint.—Dr. ROBERT CAROTHERS of Cincinnati selected three points for consideration: (1) The importance of a correct diagnosis; (2) correct apposition and maintenance of the fragments, and (3) early passive motion. A diagnosis was based upon the physical signs present and confirmed by *x*-ray plates made at right angles to each other of the injured elbow. It was the careful study of the case that counted. The cause of the accident, the age, comparison of the injured with the uninjured elbow, and then an elucidation of any and all the signs of fracture were considered, especially as applied to the location under discussion. After this evidence had been obtained, with a careful study of the *x*-ray plates, one was able to arrive at a diagnosis which which was not only complete, but scientific. Since these injuries occurred with such frequency in childhood, in reading an *x*-ray plate in such a case one must have in mind the ossifying centers in the immediate neighborhood of the elbow joint, and not be misled thereby. He could not lay enough stress on the *x*-ray examination of fractured elbow joints, for a diagnosis otherwise made was a guess at best. The most frequent fractures of the elbow

joint were pointed out, and their treatment discussed. In the so-called chisel fractures of the head of the radius the repair was usually with so much callus and impairment of function of the joint that it was advisable, unless for some good reason contraindicated, to remove the broken fragment. In the fractures of the neck of the radius, the best results would be obtained by making apposition, which ordinarily was easy by manipulation and maintaining the same with the forearm in a semiflexed position to overcome a possible displacement of the biceps.

Suprapubic Prostatectomy.—Dr. ARTHUR DEAN BEVAN of Chicago said that suprapubic enucleation of the prostate had the widest field of usefulness. It was practically applicable to all cases of prostatic hypertrophy, in which a prostatectomy was indicated. It gave full and complete information of not only the prostate, but the bladder and its contents. It did not injure or interfere with the musculature and nerve supply of the perineum and structures controlling continence. It carried with it little risk of injury to the rectum; it was seldom followed by incontinence, fistula or stricture. The disadvantages claimed against it were greater mortality and necessity of longer residence in hospital. He felt confident that there were fewer complications after the suprapubic than after the perineal operation. This operation was preferable to other methods which had been advocated.

Dermoid Cyst of the Kidney.—Dr. WILLIAM S. GOLDSMITH of Atlanta, Ga., said that only two cases of dermoid cyst of the kidney had been reported up to this time, one by Paget, in 1853, and the other by Haeckel, in 1902. The symptoms in the author's case were those of a solid tumor of the kidney, probably the malignant type. It was of slow growth and associated with it were hematuria, pain, and tumor. The patient, aged 20, family history negative, at two years of age suffered with pain in the right lumbar region, and at intervals of two or three years was treated for kidney trouble. When sixteen years old, he experienced the beginning of a dull pain in the right side, which progressively increased until two weeks ago, when the pressure and pain radius was compared with that of a heavy watch lying in the abdomen. Four years ago he had attacks of colic, followed by a slight hematuria. These attacks confined him to the house for twenty-four hours, and were relieved by hypodermics of morphine. Recurrences took place two or three months apart, and for the past two years were characterized by the appearance of a solid tumor, which presented in the right lumbar region. Hematuria and great pain were also accompanying features, and the disappearance of the outline of the tumor was frequently followed by a cessation of the pain. Having witnessed an attack three days before the operation, when the tumor was most manifest, he was convinced that these symptoms were due to a twisted ureter, since the return of the kidney to its normal position practically obliterated the tumor outline. Twenty-four collections of urine showed insignificant deviations from the normal quantity, and microscopical and chemical examinations were negative, except for red blood cells. The patient's weight was normal, and his general condition good. An exploratory operation was advised and consented to. A lumbar incision was made, which exposed a large semisolid tumor of the upper pole of the kidney. Efforts to deliver the kidney resulted in a rupture of the tumor, and a quantity of red granular material was scooped out with the fingers. Nephrectomy was quickly performed, and recovery was prompt and uneventful. A pathologist pronounced the tumor to be a dermoid cyst.

Stone in the Kidney.—Dr. MAURICE H. RICHARDSON of Boston said that operations for stone in the kidney and ureter were becoming of greater frequency and importance. In early and difficult cases the diagnosis rested upon a history of pain in some of its forms, usually without confirmation by the *x*-ray, cystoscopy, or ureteral catheterization, by the touch, or by marked signs in the urine. The history in such cases, as in many gallstone cases, gave the only clew; hence we should study with renewed care the history of stones demonstrated in kidney or ureter, just as we did the history of stones demonstrated in the gallbladder. The indications for operation were hopeless impaction of a stone in the ureter, in the kidney the mere presence of a stone. The contraindications were local lesions which either forbade operation or made it so dangerous or so uncertain that the patient had much to lose and little to gain. The great operative danger in nephrotomy, as well as nephrectomy, was hemorrhage; and when this was from the renal artery or vein or vena cava, easy and instant accessibility was essential to avert death on the table; hence the anterolateral approach was the best. Nephrectomy was unjustifiable unless the changes in the kidney demanded it, especially when the remaining kidney was so likely to contain the nuclei of stones. Before a nephrectomy was done, the remaining kidney should be very carefully palpated by the hands. As a stone may be overlooked, so may tuberculosis or other infections.

Conservative Surgery, Then and Now.—Dr. F. W. PARHAM, the President, selected this title for his Presidential Address. The aggressive surgeon, who always felt sure he was right and then went ahead, would do well to temper the enthusiasm born of the present brilliant achievements of surgery by giving reverent heed to the admonitions of the past. In renal surgery conservative and radical surgery displayed most conspicuously their coincidence. Here results demonstrated that often the most conservative treatment was also the most radical. The glory of the present-day surgery rested primarily upon more accurate diagnosis, but the refinements of scientific investigation must always be subjected to the criticism of common sense. It was becoming more and more characteristic of the modern surgeon that, while recognizing the value of data furnished him by the laboratory, he would relentlessly subject them all to the test of reason and would only decide upon his surgical therapeusis when, after a thorough study of all the facts, he had obtained a true perspective of the case.

Appendicostomy in Pernicious Anemia.—Dr. L. E. BURCH of Nashville reported this case, the patient being a negro, forty-five years of age. He concluded by saying that all cases should have the stools examined, in order to determine the presence of infection by *Bacillus capsulatus aërogenes*. If these bacteria were present in great numbers, then high irrigation, combined with arsenic internally, should be used, and if the patient failed to improve, the appendix offered the best route for thorough irrigation.

Dr. H. S. MCLEAN of Richmond, Va., said that twenty months ago he operated in a similar case. The man had been ill for years. He was brought with an acute attack of catarrhal appendicitis, and the history disclosed anemia, continued weakness, and bowel trouble. The speaker performed appendicostomy. The patient had been living on zwieback, buttermilk, and the like for years, but six weeks after operation the red blood count was over four million. He soon gained fifteen pounds, went to Europe, and was now in excellent health.

Porro-Cesarean Section.—Dr. F. D SMYTHE of Memphis reported a case in which he did this operation, and gave his reasons for doing so. The rapidity with which the Porro could be performed increased the chances of the patient surviving the operation. The patient was in a condition too much weakened to be subjected to any available risk of the puerperium, hence the Porro. There would always occur cases demanding cesarean section in the interest of the child and mother. In elective cases there should be no infant mortality attending either operation; hence the surgeon should select the operation that sub-

jected the mother to the least risk of losing her life. The author was fully convinced that the Porro operation was the safer, and that the surgeon performing the Sanger operation in an honest effort to preserve the reproductive organs, would have occasion to congratulate himself now and then on the result of his efforts in that plausible undertaking, but he could not escape the responsibility of the loss of a mother at times, whose life could have been saved had the simpler and safer operation been selected at the outset.

Elective Cesarean Section.—Dr. Miles F. Porter of Fort Wayne, Ind., discussed cesarean section as an operation of choice, especially in those cases in which delivery was usually effected by so-called minor operations or by unaided natural forces after long labor. Summarizing the reports of 126 elective cesarean sections collected by personal correspondence, the maternal mortality was found to be 1.58 per cent.; the fetal mortality, 0; the maternal morbidity, 12.69 per cent.; the fetal morbidity, 0. It should not be forgotten that the fetal morbidity following forceps, etc., was often worse than death. No method of delivery entailed so little risk to the child as did cesarean section. Remote ulterior results of cesarean section, including hernia, rupture of the uterus, and adhesions, could be so nearly prevented by proper technique as to render the dangers arising therefrom practically *nil*.

Necessity of a Second Operation for the Removal of the Appendix in Cases Where an Appendiceal Abscess Has Been Treated by Simple Incision and Drainage.—Dr. Stuart McGuire of Richmond, Va., supplemented a paper read by him in November, 1907, in which he discussed the necessity of a second operation for the removal of the appendix after simple incision and drainage of an appendical abscess. Among the cases reported in the former paper, there were 23 cases of appendical abscess of the class adherent to the parietal peritoneum. In this group the treatment had been simple incision and drainage, no effort being made to locate or remove the diseased appendix. In every instance the patients were told that the operation was not for appendicitis, but for an abscess which was the result of appendicitis, and that the appendix had not been removed. To reach conclusions, two methods of investigation were followed; first, the opinions and practices of a number of eminent surgeons were obtained, and, second, the twenty-three patients whose cases were reported were written to and their subsequent histories ascertained. Dr. McGuire quoted the opinions of the twenty-six surgeons responding to the inquiry, and from the two lines of investigation drew the following conclusions: While a surgeon might be justified in advising a secondary operation in all cases as theoretically the safest plan to follow, he was not justified in persuading, urging, or starving a patient until he consented to have it done. The appendix should always be removed at the first operation, if the abscess was small, and not adherent to the abdominal wall beneath the incision. It should be left only in neglected cases, where the abscess was large and attached to the parietal peritoneum. When this condition existed, the appendix was usually gangrenous, underwent liquefaction, and was eliminated with the discharges. In such cases suppuration continued, as a rule, for several weeks, and before a secondary operation could safely be done, the patient was homesick, weakened physically by confinement, and depleted financially by the expenses incident to his stay in the hospital. Experience showed that if subsequent trouble developed, the infection was not usually acute, and pus, if it were formed, was walled in by old adhesions. Therefore, the surgeon did his duty if he made it clear to the patient that, owing to the complications which existed, it was not found safe to remove the appendix, and told him that while a second operation was advisable, it was not imperative unless he had tenderness over the incision, colicky pains in the bowels, or persistent digestive disturbances, in any of which instances it was distinctly necessary for him to seek promptly surgical assistance.

Resection of the Bowel, with a Report of Eleven Cases.—Dr. J. Shelton Horsley of Richmond, Va., first discussed the technique of the operation and described the advantages of a continuous right-angle suture penetrating all coats over interrupted sutures and mechanical appliances. In order to have satisfactory union, there must not only be approximation of the serous coats of the bowel, but a mild degree of pressure as well, and this pressure must be uniform along the line of sutures. Experiments showed that mere approximation of the peritoneal coat in dogs did not always secure union. In resecting the bowel, he first divided the mesenteric border and clamped and ligated this area before opening the lumen of the bowel. Union was made by a continuous suture inserted in the following manner: Starting about one inch from the mesenteric border, a mattress suture was inserted, so that the knot was on the mucous membrane in the manner advocated by Connell. The short end of this suture was clamped and the needle with the long end made a continuous mattress suture toward the mesentery. After one-third of the bowel was approximated in this manner, the needle was brought through on to the peritoneal surface and the rest of the union was effected by a continuous right-angle suture penetrating all coats. When the point where the original knot was tied was reached, the suture was terminated by tying the thread to the short end of this knot. This made practically one knot for the whole line of sutures and brought this knot within the lumen. Of the eleven cases reported, there was only one death. This was in a patient with strangulated hernia who had been a chronic alcoholic for years. The post-mortem showed no sign of leakage or peritoneal inflammation. Death was evidently due to suppression of the liver and kidney functions. There were 12 resections in the 11 cases, as in one patient a double resection was necessary. The operations included five resections in four patients for strangulated hernia, one for gangrene from a band, one for volvulus of the sigmoid, two for malignant disease of the large intestines, one for tuberculosis of the cecum, and two for damaged intestine during pelvic operations.

Obstruction of the Bowels.—Dr. T. C. Witherspoon of Butte, Mont., said that after reflecting upon the results he had obtain in 36 cases, with seven deaths, of bowel obstruction, he was prepared to go to less extreme measures to bring about relief than formerly. Most surgeons were inclined to look too much to the mechanical side of the problem and neglect the physiological. Even in strangulation by a hernial ring, the lumen of the bowel loop caught in the hernia did not suffer from complete closure, but rather was there a vascular obstruction. The bowel shut-off was as complete when its coat died from a thrombotic process as when it was caught in a hernial ring. The real obstruction was one of function and not of pure mechanics. The danger to the patient arose from toxic absorption proximal to the affected segment. With this in view, he had formulated for himself the cardinal principle of bowel drainage. The method of obtaining this might vary as the conditions varied, but it was the part of wisdom never to tax the patient's strength by long procedures except in the few instances, like a Mechel's diverticulum strangulation. If the condition was due to a band, invagination, hernia, or the like, which admitted of easy remedying, the method should be applied, but if the case was one of uncertainty or necessitated an exhaustive and dangerous procedure, it was always better to let out the proximal bowel contents by an artificial opening until the general toxic state was much improved, when a more radical measure might be adopted to bring permanent relief. Inflammatory obstructions cleared up beautifully when the

loop proximal to the involved segment was drained. Neoplastic or granulomatous processes might be readily handled after sufficient drainage was given the bowel above the lesion. The danger lay in attempting a complete procedure at the one time. Why should one attempt to resect the bowel in a very ill patient when a strangulated hernia existed? A simple local anesthetic opening would suffice to bring about relief from sufferings, physical and toxic. In a week the anastomosis became a matter of simple surgery. In one of his patients, a child of 12 years, obstruction became complete nearly three weeks after an operation for general peritonitis. He opened the abdomen only to find a conglomeration of bowel loops, which to unravel would have probably caused death. He selected a portion of bowel which, because of its distention was recognized as proximal to the obstruction, and which, at the same time, seemed to be the most distal distended loop from the stomach. This was drained through a large rubber tube. In less than two weeks the fecal movements were passing again by the natural route and the artificial opening was allowed to close. Again, in the treatment for obstruction, success lay in seeking to drain rather than to unravel the mechanical difficulty. When the latter could be done without adding a material chance to mortality, it was wise to adopt the measure, but when one added to the danger of the condition by so doing, he should simply drain artificially and at a later time a serious condition would have become simple.

Penetrating Wounds of the Abdomen.—Dr. Floyd W. McRae of Atlanta, Ga., said that of his fifteen cases, nine had the benefit of early operation with seven recoveries. Seven of the nine operations were for rifle or pistol-shot wounds, and all presented grave visceral injuries. One had an extensive laceration of the liver, with excessive hemorrhage; the patient, exsanguinated, and pulseless at the wrist, recovered. One had three perforations in the stomach, with leakage; recovery. Three had multiple perforations in the small intestines, with leakage in all; two recoveries, two deaths. In one of the above the bladder was also injured, but recovery ensued. Two operations were done for stab wounds of the liver. Free hemorrhage in both cases was controlled by suture of the liver wounds and gauze packing. Both recovered. He had treated four pistol-shot wounds of the abdomen expectantly, with three deaths and one recovery. One man with a stab wound, treated expectantly, died. Of five cases, there were four deaths, one recovery. He had done two late operations for complications due to penetrating wounds, that might have been prevented by early operation; both died, a mortality of 100 per cent. The above statistics, his personal experience, observation, and a careful review of the literature on penetrating wounds of the abdomen, led him to make the following conclusions as to civil practice: 1. In civil practice every suspected penetrating wound of the abdomen, under favorable conditions of practice, should have the benefit of wound tracing. 2. When the wound proved to be penetrating, an exploratory laparotomy should be done at once and visceral damage excluded or repaired so far as practicable. 3. There was far less danger from wound tracing than there was from probing or from masterly inactivity, while awaiting positive evidence of visceral damage requiring operative interference. 4. Local toilet with moist sponging for cleansing was better than free peritoneal irrigation. 5. When in doubt, it was safer to drain. 6. Operations done within two hours should not give a mortality over 25 to 30 per cent.; within four hours, over 40 per cent.; within six hours, over 50 per cent.; within eight hours, over 60 per cent., and within twelve hours, over 70 per cent. 7. After twelve hours, expectant treatment was best unless there was some definite indication for operation. These deductions did not apply to military practice.

Some Rare Forms of Hematoma.—Dr. J. Garland Sherrill of Louisville, Ky., reported three cases of hematoma presenting symptoms somewhat in common and extending beyond the usual time which these conditions lasted, one having existed for more than ten years, and each of them continuing to increase in size from the beginning. The following hypotheses were offered as possibilities in explanation of this condition: 1. The blood might flow through a sac returning into the vessel and remain fluid, at least in part, just as is the case in aneurysm. This proposition would seem to be fallacious because these hemorrhages were probably venous, and the tendency of a vein was to collapse immediately upon injury, and, moreover, no such patent vein had been noted in any of these cases. 2. The cellular tissues possessed the power of secreting a substance which tended to prevent coagulation. This seemed clearly refuted because the infrequency of the occurrence of persistent hematoma would appear to prove the lack of such power of secretion. 3. That slight infection present in insufficient amount to produce suppuration resulted in such change that the blood could not be taken up by the absorbent vessels. This theory seemed to the author to be irreconcilable to the facts in the case, for effused blood had but little power of resistance, and any culture of bacteria should find here an excellent pabulum, and suppuration would be inevitable. 4. That the tissues about a hematoma might be so dense or so compressed that the absorbent vessels would be occluded or obliterated, thus preventing the accomplishment of their normal functions. This proposition seemed to the writer to have a more probable foundation in fact, although not accounting fully for the phenomena. 5. That coagulation took place, but when disintegration occurred the blood remained fluid, but was not absorbable. This contention seemed also within the range of probability. 6. The constant escape of fresh blood occurred in a quantity sufficient to more than make up for the loss in volume from absorption. In proof of this the author believed it could be demonstrated that the escape of fluid into a hematoma did occur, as was shown in his cases, in which the tumor increased in size steadily. In one the bleeding occurred from a wounded vessel in the femur; in another, the source of the blood could not be discovered, but he thought it came from a small vein. There was also the possibility of blood being manufactured inside the sac, as in the case of the development of the circulatory apparatus in the embryo, although to use it seemed highly improbable that this could occur in adult life. From the evidence at hand, the author concluded that the tissues about a hematoma from pressure lost their power of absorption; that even though coagulation and disintegration occurred, resorption did not result, and that in some instances there was a continual addition to the amount of blood in the sac by an outflux from the damaged vessel.

Observations on the Surgical Treatment of Exophthalmic Goiter.—Dr. John R. Wathen of Louisville, Ky., stated that preliminary ligation of the superior thyroid artery on one or both sides had not only better prepared the patient to withstand the more severe shock of thyroidectomy, but had also greatly reduced the size of the tumor in the otherwise hopeless cases, and he had had occasion to employ to great advantage this method in several of his worst cases. In the preparation of the patient for operation he had tried almost every remedy usually recommended to reduce the pulse and better the condition, but none had yielded such good results as absolute rest in bed and tincture of strophanthus. It was that class of cases where no preliminary treatment seemed to be able to make such temporary reduction which were especially dangerous. These usually had an irregular pulse, a degenerated heart muscle, low blood pressure in contradistinction to the majority which had often a very much in-

creased blood pressure, albumen in the urine, or enlargement and fatty degeneration of the liver. Aside from the proper selection and preparation of the case, the most important thing was a rapid and safe technique suitable to the average surgeon and not a variety of complicated methods. The technique employed in his last fifteen cases had been a slight departure from that usually recommended. With the head elevated in the reverse Trendelenburg position, and a large sand pillow under the shoulders and neck, the skin was grasped with two pair of forceps in the median line and traction made upward. With the blunt-pointed scissors, instead of a knife, the skin and platysma muscle were incised, then with constant upward traction the incision was continued around the neck as far as was needed, using the scissors without in any way injuring the deeper structures. Next were ligated the anterior veins and the ribbon muscles of the neck, severed high up and retracted, then the capsule opened, and the tumor grasped with a stout pair of large volsella forceps, and traction made in an upward and opposite direction. This readily allowed the operator to wipe off the capsule of the gland with a piece of gauze, and placed the arteries and the veins to be ligated on the stretch. Forceps should always be used to clamp rapidly, and these could be placed close upon the tumor and ligated later with catgut after the complete enucleation. The isthmus was clamped with a large pair of forceps and cut V-shaped, parallel with the clamp, so that the raw edges could be turned inward by whipping over with catgut. The wound should only be washed out with hot saline solution, and closed with a subcuticular catgut suture. Drainage through a lower stab wound with large open rubber tube, instead of gauze or a cigarette drain, should complete the operation.

Consideration of the Mortality in One Thousand Operations for Goiter.—Dr. Charles H. Mayo of Rochester, Minn., said the mortality from early operations was high for the number operated, as the operations were performed from great necessity after the delay of long and oft-changed medication. Operations upon colloid, simple or diffuse adenomata, as a rule, involved slight risk to life. In his series of cases he had 574 of simple, colloid, or diffuse adenomata, treated by extirpation or enucleation, with four deaths; 18 malignant, with one death; 97 cases of hyperthyroidism treated by double ligation of the superior thyroid arteries and veins, with one death, and 15 cases with single ligation, with no deaths; 295 cases where more or less of the gland was removed, with 18 deaths, seven of which were in the first 46 cases.

Hypoplasia in Its Relation to Health and Disease.—Dr. Charles P. Noble of Philadelphia said that man consisted of a body and intellect and a moral nature, and might degenerate in either one or all three of his natures, and this degeneracy might be inherited or acquired. If the potential of life received by the ovum was imperfect, there resulted an imperfect body. The effects might be most marked in the physical body, in the intellect, or in the moral nature. When the potential of life was deficient, there resulted imperfect evolution and an imperfect adult; that is, the adult was imperfectly developed in all his parts —bones, muscles, circulatory apparatus, nervous system, ligaments, fasciæ—in other words, man was suffering from hypoplasia or imperfect development. The same conditions in kind, if not in degree, might be brought about by environment, malnutrition, insanitary conditions of living, traumatisms, or intercurrent diseases which acted by arresting development, that is, by causing hypoplasia. If the potential of life received in the ovum was very defective, there resulted embryonal or fetal death and abortion. In other cases there resulted monsters or instances of imperfect development, such as spina bifida, cleft palate, etc. There resulted idiocy, imbecility, and insanity of hereditary type, or the lesser degrees of what had heretofore been called functional nervous diseases or the symptoms complex, such as epilepsy, catalepsy, hysteria, nervous instability, and a tendency to the development of nervous prostration. In infancy and childhood there resulted a tendency to nutritional diseases which, acting as environment, tended to arrest normal evolution or development. In certain cases chlorosis followed, due to hypoplasia of the circulatory apparatus and the blood-making organs. Puberty was delayed, and in a woman menstruation was abnormal and painful. The young adult and the adult through imperfect development might retain the body form of the child, that is, neuter. This was the body form of the consumptive. The vertebral column did not retain its normal curves; the chest was flattened, and the abdomen protuberant, and, owing to the imperfect development, the hypoplasia of the ligaments and the muscles, the attitude of the man, was such that, as it is said, he looked as though he was tied together with yarn string. There resulted a loss of relative immunity, and so when we contrasted the diseases of civilized man with those of the savage, we found there was a tendency to the so-called surgical infections, including puerperal sepsis, appendicitis, tuberculosis, etc. There resulted a tendency to visceral ptoses due to the imperfect development of the ligaments of these organs and to the insufficient support of the abdominal muscles. This explained the failure to relieve the symptoms when such cases were operated on; whereas, when the cases of acquired ptoses in normal individuals were operated upon, the local diseases were cured and the patients got well. There resulted imperfect function of the glandular cells of the body, with consequent imperfect digestion, so-called nervous dyspepsia, when this was not acquired from environment. There resulted nervous instability, hysteria, catalepsy, epilepsy, insanity, idiocy, etc., which were but the manifestations of the various degrees of imperfection in the development of the nervous system, and these symptoms complex bore the same relations to hypoplasia of the central nervous system as a cough did to a bronchitis. Degenerates or defectives were the weaklings, the unfit, and the process whereby nature got rid of them was through progressive degeneracy until they lost the power of generation or deliberately refused to exercise it. In medicine this biological principle and the recognition of its results upon the body in the arrest of development would make simple things heretofore obscure, and would make prognosis and treatment rational instead of guesswork, as they had been. These patients, when afflicted with diseases, were different from normal individuals. When the local condition was cured in a normal individual, the patient was well; whereas in the defective, when the local trouble was cured, he still had hypoplasia, and so might retain the most of his symptoms. The greatest hope in the future lay in prevention. Through state medicine and through individual prophylaxis, the children of defectives and those who acquired hypoplasia must not be brought up under the usual environment. They must not be sent to school in the usual way, but must be sent to the country and live according to the laws of nature, whereby their development may become as perfect as is possible under the conditions. These people were the weaklings and could not stand the strains and stresses of life, and when subjected to them they always gave out and got nervous prostration. Therefore, the physician in dealing with these people should first treat them along lines of rest and improve their nutrition, and then must show that they could not perform the usual labor of other people, but must accept this as a fact and limit the expenditure of their energy to that which they manufactured. They could never do the full work of a normal man or woman.

Surgery of the Pleura.—Dr. John B. Murphy of Chicago said that pneumothorax was not so dangerous a condition as was formerly believed. In discussing lesions of

the pleura, one should first consider the primary infective, perforative lesion, which demanded prompt and immediate action; second, chronic indurated lesions, which called for masterly inactivity, so far as operations were concerned. In the first class of cases the use of the exploring needle between the ribs will usually afford relief; but incision would give these patients immediate relief. Aspiration did not cure chronic conditions of the pleura. According to statistics, of one thousand cases treated by simple aspiration, there were only two cures reported. In the suppurative types of infection of the pleura, absorption of the toxic products could be stopped, sterilization of the fluid effected, and the necessity for opening the chest avoided. A number of agents had been used for this purpose. Perchloride of mercury had been used with success. Formalin, which has little or no toxic effect, had great sterilizing power. In the other variety of cases, in which there was a dense, firm mass of cicatricial tissue, which would not contract, we had a different condition. This tissue would remain for years without absorption because many times it had large deposits of calcium salt in it and could not collapse. In these cases one could make use of the same injections, but they must be given more slowly. The injection of formalin and vaseline sterilized the fluid contents and prepared it for absorption, and finally in six months thereafter we would have a sanguinolent fluid, and in twelve months the patient was practically well without having any tube in his side.

Splenectomy for Splenomegaly of Doubtful Classification.—Dr. M. C. McGANNON of Nashville, Tenn., read a paper with this title, and reported a case of splenectomy. The case presented some unusual features not heretofore recorded in connection with primary splenomegaly. The patient was a white woman, aged 43. Chronicity was doubtful, since the patient first noticed the enlargement of the spleen only a few months before she came under the author's observation. Her physical condition had been below par for a year or two; but preceding an attack of pneumonia, which was four months before she discovered the splenic enlargement, she had not considered herself in any sense a sick woman. Anemia, hematemesis, jaundice, liver enlargement, all terminal symptoms, might have arisen later had the disease been permitted to continue. The most marked and unusual features of the case were the general enlargement of the superficial lymph nodes and the myxedematous symptoms; thickened, puffy skin, and mental hebetude, with complete disappearance of all symptoms and pathological conditions in other tissues after the removal of the spleen.

Relation of Surgery to the Neuroses, with Special Reference to Neurasthenia.— Dr. CHARLES M. ROSSER of Dallas, Texas, said that surgery was the most definite art with which medicine was concerned, and neurasthenia the most vague of diseases. Writers mentioned heredity and exercise, but ignored intercurrent causes independent of which, in many cases, physiology would not be disturbed, on account of predisposition and excitation. Neurasthenia was both a psychosis and a physical condition, and might be induced by surgical conditions which disfigured, disabled, or caused distress. As physical causes, deformities which might not affect vital functions, but which embarrassed sensitive temperaments, were factors. Extensive scarring from burns upon exposed surfaces was prevented by surgical skin grafting. Goiter, through visual and secretory disturbances, might cause stomach conditions that were amenable to surgery by digestive deviations and those disorders of the bile passages, as was true of chronic appendical involvement, which tended toward autointoxication, and insomnia was the most frequent forerunner of mental depression. The clinical examination should be as careful as though the symptoms were not exaggerated. The prognosis should be more guarded, but the patient should not be denied opportunity of physical relief on account of nervous and mental conditions, and should be subjected to no procedure that was not justified by clinical findings. The patients should always have the benefit of all doubts that were reasonable.

Fibroid Tumors and Pregnancy.—Dr. CHARLES L. BONIFIELD of Cincinnati pointed out that fibroid tumors of the uterus were said to be the penalty a woman paid for celibacy. All observers agreed that they were much oftener seen in women who had not borne children than in those who had, and one could safely say that sterility predisposed to fibroids, and that fibroids predisposed to sterility. Fibroid tumors had a tendency to render women sterile in three ways: First, the hypertrophic endometritis they produced rendered the endometrium unfit to receive and nourish the ovum. The nearer the fibroid was to the endometrium, the more marked its effect on this membrane. Second, they were frequently complicated by, and apparently caused, disease of the appendages, which prevented conception. Third, they might so displace the cervix that it was not bathed in seminal fluid during the sexual act. But as a fibroid might exist without producing any of these conditions, and as pregnancy might occur in spite of the presence of one or more of them, the coexistence of fibroid tumors and pregnancy was by no means extremely rare. It was probably more frequent now than formerly, for the reason that women were marrying later in life, and thus putting off their child-bearing until they had reached the age when fibroids were prone to develop. Pregnancy by the physiological hyperemia of the uterus to which it gave rise usually caused fibroids to grow rapidly. During the process of involution, following the normal termination of pregnancy, fibroids might decrease in size very perceptibly. Cases had been reported where they had disappeared entirely. Fibroid tumors might have little or no effect on pregnancy, or might give rise to the most serious complications. Submucous fibroids might cause the premature expulsion of the ovum. Pregnancy might go to term and labor might be normal, but followed by severe hemorrhages, the fibroid acting as a foreign body in the uterus and preventing normal contraction and retraction of the muscular fibers. The efforts of the uterus to expel the fibroids might be successful. There was danger in such a case if the fibroid be attached near the fundus, that inversion might follow the expulsion, for if a fibroid had developed between the folds of the broad ligament, it might prevent the uterus from rising into the abdomen as pregnancy advanced, and give rise to symptoms so severe as to demand immediate surgical relief. A fibroid tumor springing from the lower part of the uterus might so fill the pelvis as to prevent the passage of the child, either prematurely or at term. Subperitoneal or interstitial fibroids that were interfering with pregnancy or promised to interfere seriously with delivery, might be removed by myomectomy. Numerous cases had been reported where this operation had been successfully done without interrupting pregnancy. Only one such case, however, had come under the author's observation. Myomectomy should usually be limited to those cases in which the tumors were not numerous and were easily accessible. In spite of the reported cases of myomectomy, one could not expect the uterus to withstand too much traumatism without rebelling. The part of the uterus from which the tumor sprang was important. Fibroid tumors might be the cause of extrauterine pregnancy. Noble had reported six cases of ectopic pregnancy complicating fibroids. Eight cases were reported by the author to illustrate the various phases of surgical interference during pregnancy.

Vaginal Hysterectomy for Carcinoma of the Cervix. Dr. HENRY T. BYFORD of Chicago said the relative value of the vaginal and abdominal routes was still under discussion. He was satisfied that the permanent results of the

vaginal method might be improved sufficiently to give it an important place in the future, and proposed a method of causing sloughing of the broad ligaments by the combined use of silk ligatures and strong forceps. In this way much more of the connective tissue in the broad ligament and about the cervix could be removed than by either ligatures or forceps, as ordinarily employed. The essential part of the method consisted in ligating the broad and sacro-uterine ligaments as far from the cervix as possible after having pushed the ureters out of the way. After the uterus had been removed, the broad ligaments were pulled still farther down and strong forceps applied still farther away, which were clamped so as to cause sloughing of all tissue within their grasp. Dr. Byford exhibited a pair of forceps which he had devised and which, he thought, obviated some of the objections that were found to the ordinary broad ligament forceps. Most forceps projected too far into the peritoneal cavity, and caused pain; they sometimes failed to grasp the tissues firmly at all points, and thus might not cause prompt and complete sloughing; and they projected too far out of the vulva and were in the way externally. The forceps shown were short, and would not only hold the stump down near or at the vaginal edges, but they did not form a large mass of metal projecting between the thighs. They were blunt and slightly hooked at the end of the blades, and thus not only did not scratch the intestine, but did not allow the pressure to force the edge of the flattened stump beyond their grasp. They were strong enough to exert a uniform pressure that caused sloughing even when left on but a few hours. He usually left them on for twenty-four hours, although ten or twelve would probably be long enough.

Temporary Ventrosuspension of the Uterus.—Dr. Edward H. Ochsner of Chicago, after a brief review of the dangers and disadvantages of permanent ventrofixation and ventrosuspension, gave the technique indications, and end results of a temporary ventrosuspension of the uterus. The operation consisted in passing the needle, armed with a double strand of ten-day unchromicized catgut, through the rectus fascia, rectus muscle, and peritoneum, on the right side, one inch below the lower angle of the peritoneal incision, then through the fundus of the uterus, being careful not to injure the peritoneal covering of the uterus unnecessarily, then cut through the abdominal wall in reverse order to its introduction. This stitch was now tied just tight enough to bring the uterus in contact with the parietal peritoneum, but not tight enough to cause necrosis of the peritoneum. The operation was recommended if, after pelvic operations for inflammatory conditions, the uterus showed a tendency to fall backward after the intra-abdominal work was completed. It was claimed that, if properly applied, it would prevent the uterus from falling backward and becoming adherent to the pelvic floor without making a permanent ventrosuspension or fixation.

Abdominal Aneurysm.—Dr. Murat Willis of Richmond, Va., reported a case of abdominal aneurysm treated by wiring, although the result was unsuccessful. A critical study of 21 cases thus far reported led to the conclusion that surgery so far offered no certain relief for this malady. Of these 21 cases, the subsequent history of three was not recorded; in the remaining 18 death ensued in every case. The duration of life after operation in this series varied from one hour to nine months, with an average duration of less than fifty days. The operative technique, as developed for this condition, would seem to be absolutely perfect, and based upon sound surgical principles, but the fact remained that this method of treatment was disappointing, and the last word had not yet been said concerning the surgical treatment of abdominal aneurysm.

Dr. R. S. Cathcart of Charleston, S. C., reported a case of false aneurysm of the femoral artery following typhoid fever.

Elephantiasis of the Male Genitalia.—Dr. J. Norment Baker of Montgomery, Ala., discussed this subject, and said the comparative rarity of the affection in America furnished the stimulus for preparing a paper on this subject. He reviewed the literature, and reported a very interesting case of elephantiasis in a colored man, aged 52, upon whom he had operated successfully for its removal.

Anatomical and Physiological Restoration Versus Removal of the Internal Generative Organs of Women.—Dr. John E. Cannaday of Charleston, W. Va., said the advantages of waiting and of giving nature a full opportunity in cases of infected fallopian tubes were great. The damage done by inflammation in many cases was small. He spoke of the bearing of the woman's social condition on the case, and pointed out the necessity for the wage-earner of small means to get well quickly. He discussed the desirability of letting his patient decide what was best to be done in many cases. The non-operative treatment of tubal inflammation was really cautious neglect. The measures taken were to divert the attention of the patient. Pelvic massage was of benefit in removing the results of inflammatory attacks. There were numerous valuable methods of treating uterine pathology without the removal of both uterus and disease. It was seldom necessary or advisable to remove the ovaries.

Cancer of the Parotid Gland.—Dr. George A. Hendon of Louisville, Ky., read a paper in which he reported five cases and of having performed an operation successfully in each case.

Extensive Injury to the Abdominal Wall; Operation; Recovery.—Dr. Rufus B. Hall of Cincinnati reported a case of an accident to an infant, seventeen months old, with extensive injury to the abdominal wall, and evisceration of all of the small intestines, with recovery of the patient. The child's mother was giving him a bath by holding him on her lap in the kitchen where she had been canning fruit. To facilitate rinsing off the soap, she stood the child on the drain board of the sink, which was two and a half feet high. The mother left the child standing and went across the room for a towel. The child fell, striking the right side of the abdomen on the top of an empty half-gallon glass Mason fruit jar. The impact broke the jar, telescoping it, leaving four sharp points remaining on the bottom of the can. One of these made a large wound in the side of the abdomen and the intestines at once protruded on to the dirty kitchen floor, picking up several fragments of peelings of tomatoes and pears. The child had lost a great quantity of blood due to the injury of the deep epigastric artery. One prong of the glass cut through the tenth rib, dividing the intercostal artery. Another one made an opening into the abdomen three inches above the large opening. All of the small intestines, the pyloric end of the stomach, and four inches of the ascending colon were outside of the abdomen. There were sticking to the coils of bowel and omentum several pieces of the peelings of pears and tomatoes. When Dr. Hall arrived the child was semiconscious, pulseless, with cold extremities, and rapid, superficial breathing. In addition to the division of the deep epigastric artery and the intercostal artery, there was a ragged wound in the omentum and another in the mesentery. The intestines were largely distended with undigested pears. The temperature twelve hours after the accident was 106.5°, and remained high for twelve hours longer, at which time he succeeded in getting the intestinal tract emptied. Before the bowels were emptied, the child was delirious, with general twitching of the muscles throughout the body. Within two hours after the bowels were emptied, the temperature declined to 100°, and convalescence was established. The child made a good recovery.

Surgical Treatment of Epilepsy.—Dr. W. P. Carr of Washington, D. C., reported twenty operations for

epilepsy, and said that eight of these cases had been cured to date, or were well when last heard from; one after nine years, one eight and a half years, one seven and a half years, one four years, one three and a half years, one after one year, and two after three months. Five of these cases, probably not traumatic, in which the habit was well established, had been cured for over three years; three of them for seven, eight and nine years, respectively. Nearly all the cases were benefited temporarily, most of them being so much improved as to make the operation justifiable. One was confined in the Government Hospital for the Insane, and another, a complete imbecile. Both regained the normal mental condition, and have remained mentally sound to date. Only one patient was not benefited. The best results were in cases apparently most unfavorable. He believed that operation for cases of long standing traumatic epilepsy, and idiopathic or hereditary epilepsy, had been abandoned upon theoretical grounds, without a fair trial of modern surgical methods, and that such cases should be operated upon for the following reasons: (1) There was very strong evidence to show that a considerable proportion of even the most unpromising cases could be cured. (2) In view of the hopeless and progressive nature of the malady, the operation would be justifiable if even a very small percentage could be cured, or even greatly benefited. (3) No systematic attempt had been made to find what percentage of cures might be obtained, since modern methods had made the operation easy and safe, and that such attempts should be made. (4) There was so little danger in the operation of either death or unpleasant sequelæ. (5) Because of the freedom from pain or discomfort of any kind following the operation, which was in marked contrast to the discomfort following most other operations of equal severity.

Successful Operation for Vesicouterine Fistula, with Loss of Function of the Vesical and Urethral Sphincters.—Dr. R. S. Hill of Montgomery, Ala., reported the following case: Patient, 32 years of age, weight 155 pounds, was delivered of her second child in February, 1908, after being in labor eighteen hours, which was more severe and lasted longer than her first confinement, eight years ago. The child was born dead, though fully developed, and presentation was normal. Within one hour after the completion of labor, she felt an intense desire to urinate, which was followed by a tremendous gush of water from the vagina. From this time on the urine passed continually and entirely through the cervix uteri. Vesicouterine fistula was diagnosed. She was brought to the essayist six weeks later, and through a T-shaped incision in front of the cervix uteri the openings into the bladder and uterus, which were about the size of the end of the index finger, were closed with catgut sutures. Union was perfect, but when the patient left the bed it became evident, from the continuation of the urinary incontinence, that the vesical and urethral sphincters had lost their function. She returned home and remained until October 15, when she came back in the same condition, except a three months' pregnancy to complicate matters. The following technique, which so far as the author knew was original, was used: With a metal sound in the urethra as a guide, a median incision was made through the vaginal mucosa from a point one inch on the bladder wall to the meatus urinarius, and then around this orifice. The mucosa was dissected from the underlying structures to the extent of one inch or more transverse measurement. The sound in the urethra was now changed for one of smaller size. Commencing at the bladder end of the denudation, the muscular structure were folded in or brought together with a continuous catgut suture passed transversely, but never deep enough to include the vesical or urethral mucosa. As the gut was made taut after each passage of the needle, the sound was drawn from its grasp. The vaginal mucosa was now trimmed and made to fit snugly over the underlying tissue and held in position with silkworm gut sutures, some of which were carried through the muscular tissues, re-enforcing the catgut sutures. Patient was catheterized with a small soft rubber catheter every four to six hours. The author was opposed to leaving an instrument in the urethra after this operation, and suggested the advisability of establishing vesicovaginal or even suprapubic drainage after the operation, in order not to disturb the parts until firm union was established. The extent of the dissection was to be regulated by the condition found in the individual case. Furthermore, if any one part of the muscular wall, as, for instance, either of the sphincter muscles, appeared more injured than the rest, then a special suture of catgut should be used to repair it.

The following papers were likewise read: "Report of a Case of Urethral Transplantation," by Dr. John D. S. Davis of Birmingham, Ala.; "Operative Treatment of Tuberculous Joints," by Dr. Horace J. Whitacre of Cincinnati, Ohio; "The Transverse Abdominal Incision," by Dr. S. M. D. Clark of New Orleans, La.; "Further Observations on Transfusion, with a Note on Hemolysis," by Dr. George W. Crile of Cleveland, Ohio.

Officers.—*President*, Dr. Stuart McGuire, Richmond, Va.; *First Vice-President*, Dr. John Young Brown, St. Louis, Mo.; *Second Vice-President*, Dr. R. S. Cathcart, Charleston, S. C.; *Treasurer*, Dr. Wm. S. Goldsmith, Atlanta, Ga.; *Secretary*, Dr. William D. Haggard, Nashville, Tenn.

Hot Springs, Va., was selected as the place for holding the next annual meeting; time, third Tuesday in December, 1909.

Philadelphia Neurological Society.

At a stated meeting, held December 18, Dr. A. A. Eshner exhibited "A Case of Hematomyelia." The patient was a woman 25 years old, who was suddenly seized with numbness and loss of power in the lower extremities, followed by loss of control of the sphincters and loss of temperature-sense, and of painful sensibility in the lower half of the body, so that she had been burned without being sensibly conscious of the accident. While tactile sensibility was preserved generally, in the right lower extremity the patient was unable to recognize the character of the touching object. The knee-jerks were exaggerated and the Babinski reflex was present, with abortive ankle-clonus on the left. Girdle-sense also was present. Dr. Eshner also described "A Case of Syringomyelia." The patient was a woman, 27 years old, who presented loss of all forms of sensibility in the right upper extremity, and impairment of thermal and painful sensibility in the left upper extremity, together with exaggerated knee-jerks and Babinski reflex. Dr. John K. Mitchell presented "A Case of Progressive Muscular Atrophy, with Remarkable Improvement." The patient was a man, 25 years old, who, following an attack of scarlet fever, exhibited progressive muscular wasting and weakness over the entire body, without sensory disturbances or involvement of sphincters. Under treatment with rest, massage, electricity, and feeding the man gained some 20 pounds in weight and became able to walk long distances, whereas previously he had been scarcely able to get about. The possibility of multiple neuritis and of progressive muscular dystrophy was considered. Dr. Charles K. Mills exhibited "A Case Showing Hypostereognosis and Impairment of Sensibility, Exaggerated Reflexes, Including the Babinski Phenomenon, and a Peculiar Mental State." The patient was a man, about 35 years old, without syphilitic history, who was suddenly seized with vertigo, and who developed

the symptoms mentioned, together with a peculiar happy and contented state of mind, without evident delusions. There were no ocular changes and no derangement of the sphincters. The possibility of multiple sclerosis, of paretic dementia, and of hysteria was considered. Dr. F. X. Dercum exhibited "Two Cases of Astasia Abasia." One occurred in a girl, about 17 years old, in whom the condition had been present from early childhood, following an acute infectious disease. When she first came under observation she was scarcely able to walk and to stand, but under training and suggestion she was acquiring skill in both directions. The second case occurred in a woman, about 35 years old, who in walking placed the left foot slightly forward and then brought the right foot after, and permitting the body to descend with flexion of the right thigh on the leg. The same movements were gone through with every step that was taken. Dr. Dercum also presented a communication entitled "Association and Reinforcement in Aphasia." He pointed out that under certain conditions aphesics became capable of uttering words that ordinarily they appeared unable to articulate. Such reinforcement might be effected through any of the special senses or even under psychic stimulation. Dr. S. D. Iggham read a paper entitled "Encephalitis, with a Report of Two Cases with Necropsy." Drs. T. H. Weisenburg and W. F. Guilfoyle presented a communication entitled "Tumors of the Lateral and Third Ventricles." They reported two illustrative cases, in both of which there was loss of upward associated movement of the eyeballs and anatomical involvement of the posterior longitudinal bundle, and it was suggested that there might be some pathological connection between the two facts.

Idiopathic Enlargement of the Esophagus.—Dr. Armin Huber of Zurich has published a very detailed account of two cases of idiopathic enlargement of the esophagus, an affection which is rarely diagnosed during the patient's life. Dr. F. Krauss wrote an elaborate monograph on this condition some years ago, and Dr. Neumann in 1900 reported 70 cases, most of which, however, were discovered by the pathologist only. The improvement of skiagraphy during recent years has made this condition easier to diagnose. As regards etiology Dr. Krauss attributes the origin of the disease to a primary nervous lesion—namely, partial paresis of the vagus nerve and consequent atony of the longitudinal muscles of the esophagus combined often with local contraction of the transverse muscles. In several cases some infectious disease such as diphtheria was responsible for the malady. In Dr. Huber's two cases the patients were aged 52 years and 20 years respectively; the important points were (1) the establishment of an exact diagnosis during life by means of skiagraphy; and (2) the relief afforded to the patients by artificial feeding through an esophageal tube.—*The Lancet.*

Temporosphenoidal Abscess Rupturing into the Lateral Ventricle.—A. A. Gray recently reported to the Glasgow Medico-Chirurgical Society a case of this nature. On the opening of the abscess, very fetid pus mixed with cerebrospinal fluid escaped. After operation great improvement took place. Consciousness and intelligence were quite restored, and the various paralyses, previously present, disappeared to a great extent. A few days afterward, however, meningitis set in, and the patient died fourteen days after operation. Post-mortem examination revealed a long and tortuous sinus passing almost horizontally backward from the abscess and opening into the lateral ventricle at the point where the posterior joins the middle cornu. The infection thus had reached the right lateral ventricle, and had then extended to the third ventricle, from there to the left lateral ventricle and downward to the fourth ventricle, through the aqueduct of Sylvius. From the fourth ventricle pus had escaped into the arachnoid space, and caused a basal meningitis, and involved all the cranial nerves. The chief interest of the case lay in the comparatively long time the patient lived after the rupture of the abscess into the lateral ventricle. This was probably due to the operation being performed very soon after the rupture, and from the rupture being more a gradual leakage into the ventricle rather than a sudden burst.—*British Medical Journal.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

New Hampshire State Board of Medical Examiners.

Concord, July 15 and 16, 1908.

ANATOMY.

1. Name all the muscles that have to do with respiration.
2. Locate, anatomically, the normal heart.
3. Name and give distribution of third pair of cranial nerves.
4. What are the organs of assimilation? Name them.
5. What is meant by the vasomotor nervous system?
6. Place and describe the nasal bone.
7. Describe the hip joint.
8. Describe the pectoral muscles.
9. Give origin, course and termination of the popliteal artery.
10. Describe the uterus and its appendages.

PHYSIOLOGY AND HYGIENE.

1. Define albuminoids. Mention two, and where found.
2. What is epithelial tissue? Give its general function.
3. Describe visceral muscle. What is its physiologic property?
4. What are the physiological properties of nerves?
5. What are the forces concerned in the circulation of the blood?
6. What are the functions of the medulla oblongata and pons?
7. What are the best methods of food preservation?
8. What substances are found normally in water?
9. What are the more common methods of sewage disposal? Which will you advise for large cities?
10. Discuss (in brief) the hygiene of occupation.

CHEMISTRY.

1. Define anesthetics, sedatives, narcotics. Give an example of each.
2. Name an antidote to carbolic acid. How would you diagnose carbolic acid poisoning before death?
3. Complete the following formulæ:
   $2HCl + CaCO_3 = ?$
   $Zn + H_2SO_4 = ?$
   $Ba + 2\ HCl = ?$
4. What are isomeric compounds?
5. Give symptoms and treatment for chronic lead poisoning.
6. Give treatment for phosphorus poisoning.
7. Describe properties of hydrogen. How prove that it is not a supporter of combustion?
8. Give formulæ for (*a*) sulphuric acid; (*b*) nitric acid; (*c*) carbolic acid.
9. What is the difference between analysis and synthesis?
10. How is oxalic acid obtained, and what are its antidotes?

MATERIA MEDICA, THERAPEUTICS AND THE PRACTICE OF MEDICINE.

1. Mention the silver salts used in medicine and give the dose of each.
2. Give the materia medica of gelsemium and its therapeutic indications.
3. Give the materia medica and therapeutic uses of ergot.
4. Differentiate chronic eczema from psoriasis.
5. What is hematemesis? Mention the most reliable remedy for its relief.
6. Give clinical description of tubercular meningitis. Is it usually primary, and at what age is it most common?
7. What is tetanus? Give incubative period of acute tetanus and differentiate from strychnine poisoning.
8. What is acute poliomyelitis anterior? Give clinical description.
9. Give etiology and treatment of hemothorax.
10. What treatment would you recommend for post diphtheritic paralysis? What is the prognosis?

PATHOLOGY AND DIAGNOSIS.

1. Give pathology and diagnosis of pyonephrosis.
2. Differentiate between actinomycosis and tubercular infection of tissues of neck.
3. What symptoms during first year of life would lead you to make a diagnosis of congenital pyloric stenosis?
4. Give pathology and diagnosis of herpes zoster.

5. Give pathology and diagnosis of articular rheumatism.
6. Give pathology and diagnosis of typhoid fever.
7. Give pathology and differential diagnosis between smallpox and chickenpox.
8. Describe the postmortem appearance of a case of intussusception.
9. Describe a case of bronchopneumonia.
10. Describe the symptoms of disease of the suprarenal capsule.

OBSTETRICS.

1. At what time of gestation is the placenta formed?
2. Give symptoms and diagnosis of ectopic gestation.
3. Give the common causes of sub-involution of the uterus.
4. Give treatment for specific vaginitis; name its most common sequelæ.
5. Under what circumstances would you irrigate after confinement, and with what solutions?
6. Describe the placental circulation.
7. How would you manage a case of prolapsed funis?
8. Give best method of management of shoulder presentation.
9. What is the difference between presentation and position?
10. Define metrorrhagia; what would you suspect should it occur subsequent to the menopause?

SURGERY.

1. Differentiate between acute and chronic perforation of gastric ulcer, and give treatment of each.
2. Describe technique of suprapubic drainage of bladder.
3. Give symptoms of adenoids and describe operation for removal.
4. Describe the effects of ether and chloroform on the respiratory and cardiac centers.
5. Differentiate between inguinal and femoral hernia, and give treatment of each.
6. Enumerate causes of vomiting which may require surgical interference.
7. Give diagnosis and treatment of iritis.
8. Name the various dislocations of the shoulder joint and give symptoms of each.
9. Give diagnosis of mastoid disease.
10. Describe briefly inflammation, cellulitis, suppuration, and gangrene.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

NEW HAMPSHIRE STATE BOARD OF MEDICAL EXAMINERS.

Concord, July 15 and 16, 1908.

PHYSIOLOGY AND HYGIENE.

1. *Albuminoids* are "a miscellaneous collection of those proteins which are neither albumins nor proteids. About the only character which they have in common is that they are insoluble in the neutral solvent of the albumins and proteids. They can be dissolved only after undergoing chemical change. They are found in connective tissues, cartilage, bone, epidermic tissues, etc."—(Witthaus' *Essentials of Chemistry.*)

Two albuminoids: Elastin, found in elastic connective tissue; and *keratin,* found in the surface layer of the skin, hair, and nails.

2. *Epithelial tissue* consists of one or more layers of nucleated cells, united by an interstitial cement substance, resting on a basement-membrane; it covers all the surfaces of the body.

Its *function* is: (1) Protection, (2) secretion, (3) motion (ciliary), (4) special sensation, (5) absorption.

3. *Visceral muscle* is made up of nucleated spindle-shaped cells, which are fastened into bundles by a cement substance. It is not under the control of the will, and is characterized, physiologically, by its tendency to *rhythmical movement,* and to *peristalsis.*

4. *The physiological properties of nerves,* are: (1) Irritability, (2) conductivity of nerve impulses, (3) electrotonus, (4) incapability of fatigue.

5. *The forces concerned in the circulation of the blood,* are: The force and frequency of the contractions of the heart, the elasticity and tone of the arterial walls, the resistance in the capillaries and tissues, the values in the veins, the contraction of the muscles, the aspiration of the thorax.

6. *The functions of the medulla oblongata and pons,* are: (1) It is a conductor of nervous impulses or impressions from the cord to the cerebrum, from the brain to the spinal cord, also of co-ordinating impulses from the cerebellum to the cord; (2) it contains collections of gray matter which serve as special nerve centers for the following functions or actions: Respiration, salivary secretion, mastication, sucking, vomiting, deglutition, speech production, facial expression; it also contains the cardiac and vasomotor centers.

7. *Methods of food preservation,* are: Drying, salting, freezing, refrigeration, smoking, air-exclusion, sterilization, and the use of antiseptics and preservatives (such as borax, boric acid, salicylic acid, formaldehyde, acetic acid, sulphurous acid, alum, salt, and sugar). Which is the *best* method, depends upon the kind of food to be preserved; but the addition of strong preservatives and antiseptics should be avoided, if air-exclusion and refrigeration, etc., are available.

8. *What is normally found in water,* depends upon the source of the water. Chemically pure water contains no solids; and it consists of hydrogen and oxygen chemically combined in the proportion of two atoms of the former to one of the latter element. Rain water, as it descends through the air, takes up nitrogen, oxygen, and carbon dioxide, also a little ammonia, and some suspended matters. The water can then become contaminated in various ways, and it may contain almost any contamination from perfectly harmless matters up to sewage and pathogenic microorganisms.

CHEMISTRY.

1. *Anesthetics* are agents which either (1) produce loss of sensibility of the tissues over a limited area, as cocaine; or (2) produce unconsciousness as well as abolition of sensation, as chloroform.

Sedatives are agents which allay excitement and functional activity, and sometimes tend to diminish pain; as potassium bromide.

Narcotics are agents which produce sleep or stupor, and allay pain; as opium.

2. The chemical antidotes to carbolic acid are (1) alcohol, or (2) the soluble sulphates, such as magnesium or sodium sulphate. With the carbolic acid these salts form insoluble sulphocarbolates. Before death carbolic acid poisoning can be diagnosed by the hoarseness of the voice, in addition to all the other signs of corrosion, such as eschars on mucous membrane of mouth, vomiting, purging, abdominal pain, cold perspiration, pinched and anxious face, collapse, etc. The urine may become dark.

3. $2HCl + CaCO_3 = CaCl_2 + H_2O + CO_2$
$Zn + H_2SO_4 = ZnSO_4 + H_2$
$Ba + 2HCl = BaCl_2 + H_2$

4. *Isomeric compounds* are substances which, while differing in properties, possess the same percentage composition.

5. The *symptoms* of chronic lead poisoning are: Wrist drop, severe colic around the umbilicus, constipation, feces clay colored, blue line on the gums at the junction with the teeth.

The *treatment* is first to remove the cause; then administer a purge of jalap and calomel combined with opium; iodide of potassium should also be given to help in the elimination of the lead.

6. The treatment of phosphorus poisoning is to administer first an emetic, then old French oil of turpentine, or solution of potassium permanganate, and avoid giving any oils or fat with the food.

7. HYDROGEN is a colorless, odorless, tasteless gas, the lightest known substance; it has a great affinity for oxygen; it supports neither combustion nor respiration; it is a necessary constituent of all acids; the gas will burn with a pale blue flame, giving little light, but an intense heat. Its atomic weight is 1; its molecular weight is 2; and it is univalent.

To prove that hydrogen is not a supporter of combustion: Introduce a lighted taper into a vessel of hydrogen; the taper will be extinguished, but the hydrogen itself will burn at the mouth of the vessel.

8. The formula for (*a*) sulphuric acid is H_2SO_4; (*b*) nitric acid, HNO_3; (*c*) carbolic acid, C_6H_5OH.

9. *Analysis* is the splitting up of a compound into its elements or into simpler compounds.

Synthesis is the building up of a compound from elements or from simpler compounds.

10. *Oxalic acid* is obtained by the oxidation of starch, sugar, wood, or other organic matter, by nitric acid or potassium hydroxide.

Antidotes: Magnesia or slaked lime; or calcium carbonate; the stomach should then be washed out, first with lime water, then with water.

MATERIA MEDICA, THERAPEUTICS AND THE PRACTICE OF MEDICINE.

1. *Silver salts, with doses:* Silver nitrate, gr. 1/5; silver oxide, gr. j; silver cyanide, gr. 1/30; unofficial salts, are: Silver iodide, gr. 1/2; argyrol, gr. vij.

2. GELSEMIUM is the yellow jasmine; its chief constituents are gelsemine, gelseminine, and gelseminic acid. *Dose,* gr. j.

Preparations: Fluid extract of gelsemium, ℥j; tincture of gelsemium, ℥viij.

Action: "When given internally gelsemium acts as a powerful depressant to the respiratory circulatory, and nervous systems. It acts as a depressant to the heart muscle and vagus nerves, and under its influence there is a diminution in the pulse force and blood pressure. It primarily depresses the sensory side of the spinal cord; but later, if given in large amount, depresses the motor side. The drug has no effect upon the spinal nerves, but the motor cranial nerves are paralyzed by large doses. In moderate amounts it causes the respiration to become slow and feeble, and in lethal quantities paralyzes the respiratory centers."—(*U. S. Dispensatory.*)

Therapeutic indications: Headache, migraine, asthma, whooping cough, nervous cough, spasmodic dysmenorrhea, torticollis, and other conditions depending upon localized muscular spasm.

3. ERGOT. *Derivation:* The selerotium of the claviceps purpurea.

The *composition* of ergot is indefinite; the chief constituents are: Ergotine, ergotinine, ecboline, sphacelic acid, ergotinic acid, cornutine, tannic acid, and other substances. Most of these ingredients contract the blood-vessels; the cornutine, in addition, is credited with the chief part in contracting the uterus.

The *official preparations* with doses are: Ergot, thirty grains; extract of ergot, seven and a half grains; fluid extract of ergot, thirty minims; wine of ergot, two drams.

Physiological action: Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vaso-constrictor, hemostatic, and oxytocic. It is also a cardiac sedative, it raises the blood pressure, it increases peristalsis, and is an emmenagogue.

Indications for the therapeutic application: To promote uterine contractions during third stage of labor; fibroids, menorrhagia, post-partum hemorrhage. Some forms of amenorrhea and dysmenorrhea, dysentery, arterial hemorrhage, congestive headaches, laxity of sphincters, of bladder or rectum, hemorrhoids, aneurysm, diabetes, urinary incontinence, direct paralysis of the sphincter vesicæ, atonic spermatorrhea.

4.

ECZEMA.	PSORIASIS.
1. Polymorphous in character.	1. Uniform in character.
2. Generally found on the flexor surfaces.	2. Generally found on the extensor surfaces.
3. The patches are not sharply defined, but gradually merge into the surrounding healthy skin.	3. The patches are sharply defined.
4. Decided serous exudation.	4. Dry scales.
5. Marked itching and burning.	5. No marked itching and burning.
6. Healing begins at the periphery.	6. Healing begins in the center.

5. *Hematemesis* is the vomiting of blood. *Reliable remedies for its relief,* are: morphine, adrenalin, ergot, and ice.

6. *Tubercular meningitis* is not generally primary. It is most common in early childhood, say from two to six years of age.

7. *Tetanus* is an acute infectious disease due to the tetanus bacillus. The *period of incubation* is from three or four to twenty days.

Differential diagnosis: In *tetanus,* the onset is gradual, is apt to begin with trismus, swallowing is difficult or impossible, the condition is persistent, consciousness is dulled or lost, and there is history of a wound or injury.

In strychnine poisoning, the onset is more sudden, the muscles of the jaw and neck are generally the last to be affected, there are marked remissions with muscular relaxation, consciousness is retained, and there is no history of a wound or injury.

10. *Treatment of postdiphtheritic paralysis* consists of: Liquid but nourishing diet, careful hygiene, strychnine, iron, quinine, massage, and the electric current.

Prognosis is, as a rule, good; except when the heart or respiratory muscles are involved.

PATHOLOGY AND DIAGNOSIS.

2. *In actinomycosis:* The skin is livid, soft in the center of the swelling, and brawny at its periphery, tends to break down, and the fluid or semifluid contents show the actinomyces or "ray fungus." The lymphatics are not as a rule involved.

In tubercular infection: There is a slow growing, circumscribed, painless, and fluctuating swelling; the tubercle bacillus may be found; and the lymphatics are involved, and eventually show abscess formation.

3. The symptoms during the first year of life that would lead one to make a diagnosis of congenital pyloric stenosis, are: Persistent, and apparently causeless vomiting; constipation, and inanition. There *may be* slight gastric dilatation, and palpation *may* show a swelling at the pylorus.

8. "In the postmostem examination, in a case of death from intussusception, the condition is very characteristic. Peritonitis may be present or an acute infection of the serous membrane. When death occurs early, as it may do from shock, there is little to be seen. The portion of bowel affected is large and thick, and forms an elongated tumor with a curved outline. The parts are swollen and congested, owing to the constriction of the mesentery between the layers. The entire mass may be of a deep livid red color. In very recent processes there is only congestion, and perhaps a thin layer of lymph, and the intussusception can be reduced; but when it has lasted for a few days, lymph is thrown out, the layers are glued together, and the entering portion of the gut cannot be withdrawn." (Osler.)

10. *The symptoms of disease of the suprarenal capsules* are: (1) General weakness, both muscular and cardiovascular; headache, vertigo, syncope, or convulsions may occur. (2) The skin is pigmented, generally bronze. (3) Nausea, vomiting, anorexia, or other gastrointestinal symptoms may be present. (4) Pain in the region of the suprarenals, and also anemia have been noticed, but they may be absent.

OBSTETRICS.

1. "The placenta is formed by the union of the chorion frondosum and the decidua serotina, and therefore is composed of fetal and maternal tissues. In the third or fourth month of pregnancy it constitutes a distinct structure, although its site is indicated at a much earlier period by the increased thickness of the chorion at that point." (Williams' *Obstetrics.*)

2. "When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility. Nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy. Pains are often very severe, with marked tenderness within the pelvis. Such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating. This tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*" (*American Text-Book of Obstetrics.*)

3. *Common causes of subinvolution of the uterus* are: Lacerations of the cervix; absorption of septic products; mismanagement of the convalescent stage of the puerperium, chiefly too early rising; tedious labors; misplacement of the uterus; retained clots or membranes; tumors of the uterus.

4. SPECIFIC VAGINITIS. *Treatment:* Rest in bed, salines, mild unirritating diet, bathing of external genitals, copious vaginal douches of bichloride of mercury 1:2000 three or four times a day; later, the vagina may be swabbed daily with a solution of nitrate of silver 1 to 5 per cent., or with a solution of potassium permanganate 1 per cent.

Sequelæ: Vulvovaginal abscess, endometritis, salpingitis, ovaritis, peritonitis, sterility.

5. *Irrigation after confinement* is done: (1) By some practitioners, as routine treatment after every labor; (2) by others only when there have been repeated vaginal examinations, or (3) in case of foul lochia; (4) or after some operative procedure; (5) in case of sepsis. *Intrauterine douche* is indicated when the hand or instruments have been introduced into the uterus, or when sepsis is suspected. The solutions for *vaginal douche* may be: Hot 1 per cent. creolin mixture in boiled water; or bichloride of mercury 1:10000 to 1:5000; or decinormal salt solution.

For *intrauterine douche:* Plain sterile water, decinormal salt solution, creolin 1-2 per cent., a bichloride of mercury 1:10000 followed by plain sterile water.

7. *Treatment of prolapsed funis* consists in: (1) Not rupturing the membranes prematurely, unless there is some positive indication; (2) postural treatment, in which the woman is placed on her back or on the opposite side to that on which the cord lies, with hips and pelvis elevated, or the knee-chest position may be adopted; (3) reposition of the cord, either manually, or with some form of repositor; (4) speedy delivery, by forceps or podalic version.

8. In cases of *shoulder presentation,* if seen before labor, version should be performed to correct the malpresentation; in case of impaction a Cesarean section is indicated; sometimes decapitation or embryotomy has been performed, but a Cesarean section is preferable. Cases of shoulder presentation have been known to terminate spontaneously, but it is not advisable to rely on this possibility.

9. By *presentation* is meant the part of the fetus which presents at the pelvic brim; examples—vertex, breech, face.

By *position* is meant the relation between a point on the fetus and a point on the maternal pelvis; examples—in a vertex presentation the position may be (1) left occipito-anterior, (2) right occipito-posterior, (3) right occipito-anterior, (4) left occipito-posterior.

SURGERY.

1. According to Robson and Moynihan, in *acute perforation:* The ulcer gives way suddenly and completely; a larger or smaller hole results, and through this the stomach contents are free to escape at once into the general cavity of the peritoneum. There may be no premonitary symptoms. Pain of a sudden, sharp, stabbing character, intolerable and spreading from epigastrium over whole abdomen; collapse, a drawn face, anxious expression, a pale cold clammy skin, livid lips, blanched face, hurried and shallow respirations, thin and rapid pulse, vomiting, intense thirst, scanty or suppressed urine, abdomen at first retracted, but later bulging—may all be present. It is more common on the anterior surface.

In chronic perforation: The ulcer has slowly eaten its way through the stomach wall, and a protective peritonitis has had time to develop at the base. The escape of stomach contents is therefore only local; barriers of lymph confine the fluid to a restrictive area, and a perigastric abscess may form. It occurs more frequently on the posterior surface of the stomach, and the perigastric abscess occasioned thereby is recognized as "subphrenic."

3. *Symptoms of adenoids:* Mouth-breathing; snoring; open mouth; a vacant, dull expression of the face; modification of the voice (nasal twang), with inability to pronounce certain letters.

Effects: Earache and other ear affections; mental deficiency; frequent attacks of coryza; nose-bleed; stunted growth; convulsions, laryngismus stridulus, and various other neuroses may also be noticed.

5. *In inguinal hernia:* The impulse is felt above Poupart's ligament; the inguinal canal may be filled; the hernia emerges on the inner side of the pubic spine (above the inner end of Poupart's ligament); and is apt to recur readily after reduction.

In femoral hernia: The impulse is felt below Poupart's ligament; the inguinal canal is empty; the hernia emerges on the outer side of the pubic spine, and does not recur so readily after reduction.

For *inguinal hernia,* Bassini's or Halsted's operation should be performed; for *femoral* hernia, Bassini's operation.

6. *Causes of vomiting which may require surgical interference:* Appendicitis, cancer or ulcer of the stomach, perforating ulcer of the duodenum, gallstone colic, intestinal obstruction, or strangulation, or intussusception, cerebral tumors, hernia.

7. *Iritis is diagnosed* by: (1) The altered appearance of the iris; it may be swollen, dull, lusterless, or changed in color. (2) The pupil is contracted, grayish, sluggish in action, and irregular. (3) The contents of the aqueous chamber may be turbid, or may contain pus, fibrin, or blood. (4) There are present pain, photophobia, lacrymation, and interference with vision.

Treatment consists in: Atropine, dionine, the application of leeches to the temples, hot fomentations, absolute rest in bed, protection from the light, light diet, purgatives, abstinence from alcohol, avoidance of all use of the eyes for near work, constitutional treatment varying according to the etiology, paracentesis, and iridectomy.—(From May's *Diseases of the Eye.*)

8. The *various dislocations of the shoulder-joint* are: (1) Subcoracoid—forward, inward, and downward. (2) Subglenoid—downward, forward, and inward. (3) Subspinous—backward, inward, and downward. (4) Subclavicular—forward, inward, and upward.

The *special diagnostic signs* are: (1) *Subcoracoid:* The head of the humerus is felt below the outer end of the clavicle; there is little or no shortening of the limb; the elbow is directed outward and backward.

(2) *Subglenoid:* The head of the humerus can be felt in the axilla; the arm is decidedly lengthened; the elbow is flexed; and there are signs of pressure on vessels and nerves.

(3) *Subspinous:* The head of the humerus is felt below the acromion process and behind; the arm is rotated inward, and the elbow is displaced outward.

(4) *Subclavicular:* The head of the humerus is felt below the clavicle; the elbow is far from the side; and the limb may be shortened.

9. Mastoid disease is characterized by: Rise of temperature (up to 103° F.), tenderness, and pain over the mastoid process, which may be remittent or persistent; redness and swelling over the mastoid; bulging of the posterior and superior wall of the auditory canal; if the periosteum is affected, the auricle is unusually prominent; there may be fluctuation if pus is present.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	
Arizona*	Ancil Martin, Phoenix	Phoenix	April 5
Arkansas*	F. T. Murphy, Brinkley	Little Rock	April 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April 6
Colorado	S. Van Meter, 1723 Tremont Street, Denver	Denver	April 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	March 9
Delaware	J. H. Wilson, Dover	Dover	June 15
Dist of Col'bia.	Geo. C. Ober, Washington	Washington	April 13
Florida*	J. D. Fernandez, Jacksonville	Tallahassee	May 19
Georgia	E. R. Anthony, Griffin	Atlanta	May —
Idaho	W. F. Edward, Pocatello	Boise	April 6
Illinois	J. A. Egan, Springfield	Chicago	Jan. 18
Indiana	W. T. Gott, Indianapolis	Indianapolis	May 25
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	D. P. Cook, Clay Center	Kansas City	Feb. 9
Kentucky*	J. N. McCormick, Bowling Green	Louisville	April 27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 20
Maine	Wm. J. Maybury, Saco	Portland	March 9
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 15
Massachusetts*	E. B. Harvey, State House, Boston	Boston	March 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	W. S. Hall, St. Paul	St. Paul	April 6
Mississippi	S. H. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	May 4
Montana*	Wm. C. Riddell, Helena	Helena	April 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Feb. 2
Nevada	S. L. Lee, Carson City	Carson City	May 3
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	July —
New Jersey	J. W. Bennett, Long Branch	Trenton	June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	April 12
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb. 2
N. Carolina*	B. K. Hays, Oxford	Asheville	June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	April 6
Ohio	Geo. H. Matson, Columbus	Columbus	June 8
Oklahoma*	F. P. Davis, Enid	Chicasha	
Oregon	B. E. Miller, Portland	Portland	
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	June —
Rhode Island	G. T. Swarts, Providence	Providence	April 1
S. Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	July 14
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Cleburne	June 22
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	April 5
Vermont	W. Scott Nay, Underhill	Burlington	July 13
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	K. Turner, Seattle	Spokane	
W. Virginia	H. A. Barbee, Point Pleasant	Huntington	April 13
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	
Wyoming	S. B. Miller, Laramie	Cheyenne	Feb. 10

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State

Books Received.

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PORZELLANFÜLLUNGEN UND DEREN IMITATIONEN. Von Zahnarzt Dr. CURT FRITZSCHE. 8vo, 58 pages; paper; illustrated: 2 marks. Verlag von Julius Springer, Berlin, Germany.

A MANUAL OF BACTERIOLOGY. By R. TANNER HEWLETT, M.D., F.R.C.P., D.P.H. (Lond.). 8vo, 638 pages; cloth; illustrated; $4.20 net. P. Blakiston's Son & Co., Philadelphia, Pa.

THERAPEUTICS OF THE CIRCULATION. By LAUDER BRUNTON, M.D., D.Sc., LL.D. (Edin.), LL.D. (Aberd.), F.R.C.P., F.R.S. 8vo, 280 pages; cloth; illustrated; $1.50. P. Blakiston's Son & Co., Philadelphia, Pa.

APPLIED PHYSIOLOGY FOR MEDICAL STUDENTS. By ROBT. HUTCHINSON, M.D., F.R.C.P. 298 pages; cloth; 12mo; illustrated. Longmans Green & Co., New York, N. Y.

SUGGESTIVE THERAPEUTICS, APPLIED HYPNOTISM, PSYCHIC SCIENCE. By HENRY S. MUNRO, M.D. 8vo, 300 pages; cloth. C. V. Mosby Co., St. Louis, Mo.

ARTERIOSCLEROSIS. By LOUIS M. WARFIELD, A.B., M.D. 12mo, 165 pages; cloth; illustrated. C. V. Mosby Co., St. Louis, Mo.

PRACTICAL POINTS IN ANESTHESIA. By FREDERICK-EMIL NEEF, M.D. 16mo, 46 pages; cloth; 60 cents. Surgery Pub. Co., New York, N. Y.

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GONORRHEA IN WOMEN. By PALMER FINDLEY, M.D. 4to, 112 pages; cloth. C. V. Mosby Co., St. Louis, Mo.

DIGESTION ET NUTRITION, APERÇUS DE MÉDECINE PRATIQUE. Par le Dr. E. MONIN. 16mo, 376 pages; paper; 4 francs. Vigot Frères, Éditeurs, Paris, France.

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INDICATIONS OPERATOIRES DANS LES AFFECTIONS DE L'ESTOMAC. Dr. A. DELANGRE. 8vo, 188 pages; paper; 5 francs. Vigot Frères, Éditeurs, Paris, France.

LEITFADEN DER HYGIENE FÜR STUDIERENDE, ÄRZTE, ARCHITEKEN, INGENIEURE UND VERWALTUNGSBEAMTE. Von Dr. AUG. GÄRTNER. 4to, 634 pages; paper; illustrated; Brosch, M. 7.60; Geb., M. 8.60. Verlag von S. Karger, Berlin, Germany.

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ANATOMIE UND MECHANISMUS DER SKOLIOSE. Von weil Dr. CARL NICOLADONI. 8vo, 58 pages; illustrated. Urban & Schwarzenberg, Berlin-Wein, Germany.

PHYSICIANS' VISITING LIST. 16mo; leather. Blakiston's Son & Co., Philadelphia, Pa.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending January 9, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	507	162
Diphtheria	394	42
Measles	538	12
Scarlet Fever	305	15
Smallpox	—	—
Varicella	206	—
Typhoid Fever	46	6
Whooping Cough	30	5
Cerebrospinal Meningitis	8	8
Malarial Fever	—	—
Totals...	2034	250

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending January 8, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Arkansas, Little Rock	Dec. 15–Jan. 2	23	..
Indiana, La Fayette	Feb. 21–28	7	..
Kansas, Wichita	Dec. 19–26	1	..
Maine, General:			
Canadian Border	Dec. 19–26	..	Present
St. Agatha	Dec. 29	15	..
Van Buren	Dec. 29	2	..
Nebraska, South Omaha	Dec. 19–26	1	..
Pennsylvania, New Kingstown	Dec. 29	..	Present
Philadelphia	Dec. 18–25	1	..
Pittsburg	Dec. 12–19	1	Imported
Tennessee, Nashville	Dec. 19–26	1	..
Texas, San Antonio	Dec. 19–26	1	..

SMALLPOX—FOREIGN.

Arabia, Aden	Nov. 23–Dec. 7		25
Brazil, Santos	Nov. 2–15	..	2
Canada, Halifax	Dec. 12–19	1	..
Toronto	Nov. 7–14	5	..
Victoria	Dec. 5–12	1	..
Ceylon, Colombo	Dec. 1–Nov. 7	25	4
Elmira, Shanghai	Nov. 7–Dec. 1	..	Present
Egypt, Cairo	Dec. 2	5	2
France, Paris	Dec. 5–12	2	..
Greece, Athens	Nov. 21–28	..	2
India, Bombay	Nov. 24–Dec. 1	..	1
Calcutta	Oct. 31–Nov. 7	..	1
Italy, General	Dec. 6–13	14	..
Naples	Dec. 6–13	18	6
Java, Batavia	Nov. 15–21	2	..
Norway, Christiana	Nov. 21–28	1	1
Portugal, Lisbon	Dec. 5–12	1	..
Russia, Riga	Dec. 5–12	1	..
St. Petersburg	Nov. 15–22	7	..
Warsaw	Oct. 31–Nov. 14	5	..
Spain, Barcelona	Dec. 5–12	..	3
Valencia	Nov. 28–Dec. 5	5	1
Vigo	Nov. 28–Dec. 5	..	1
Brazil, Para	Nov. 21–Dec. 12	9	9

YELLOW FEVER.

Cuba, San Luis	Jan. 1–2	2	1
Ecuador, Guayaquil	Nov. 7–14	..	1
	Nov. 21–28	..	2
Mexico, Maxcanu	Dec. 12–19	..	1
Merida	Dec. 12–26	4	2
Sodsil plantation (Vicinity of Merida.)	Dec. 12–26	6	4
Veracruz	Dec. 12–26	6	3

CHOLERA.

India, Calcutta	Oct. 31–Nov. 7	..	9
Madras	Nov. 14–20	..	22
Indo-China, Cholen	Nov. 9–15	1	1
Russia, General	Nov. 15–28	541	248
Straits Settlements, Singapore	Nov. 1–14	..	33

PLAGUE.

Ecuador, Guayaquil	Nov. 7–28	..	4
Milagro	Nov. 17–31	11	6
Egypt, General	Nov. 25–Dec. 8	145	28
Alexandria	Nov. 30–Dec. 7	3	..
Port Said	Dec. 7	1	..
Formosa	Nov. 7–14	17	5
India, Bombay	Nov. 24–Dec. 1	..	5
Calcutta	Nov. 1–7	..	10
Rangoon	Nov. 14–21	..	3

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Original Articles.

THE COMMON AND UNCOMMON LOCALIZATION OF OTITIC BRAIN ABSCESS, AS ILLUSTRATED BY TWO CASES, WITH RECOVERY.*

By B. SACHS, M.D.,

AND

A. A. BERG, M.D.,

NEW YORK.

Of all brain lesions calling for operative interference, brain abscess, and particularly otitic brain abscess, has proved to be the most promising. So large a number of successful cases have now been reported that we must regard the condition as one which, if diagnosticated promptly and correctly, will yield satisfactory results. It is all the more important that we should recognize the difficulties which in some instances preclude the possibility of complete recovery, so that we may some day consider the prognosis of surgical intervention in cerebral abscess as favorable, as in many abscesses located within the abdominal cavity.

The difficulties which we wish to consider in this brief communication are, first, those of localization; and secondly, those of the surgical treatment of brain abscess with special reference to the question of drainage. As to localization, abscess following upon otitic and mastoid disease is situated commonly in the temporo sphenoidal lobes or in the cerebellum. It is far less common in other parts of the brain. Ordinarily, the abscess is developed in immediate proximity to the inflamed and infected area; but if the abscess be located in the motor areas, or in other distant parts of the brain, it can only be due to infection carried from the site of inflammation to a distant point. If the abscess is situated in the temporosphenoidal lobe of the left side there will be, in addition to the general symptoms (such as headache, somnolence, nausea, vomiting, slight optic neuritis) slight hemiparesis and the symptoms of impairment of speech perception. While the patient may be able to articulate and to use language spontaneously, the perception and interpretation of speech may be more or less defective. Sensory aphasia is no doubt a very common accompaniment of otitic brain abscess situated in the temporosphenoidal lobe, more particularly if such abscess be in the left half of the brain. It is a symptom which is not always apparent unless specially examined for. It is present so regularly in temporosphenoidal abscesses following upon mastoid disease of the left side, that it is a little puzzling to know why it is so rarely reported. While the statistics may show that temporosphenoidal abscess in the right half is a little more common than abscess in the left, the difference is not so great as alone to account for the neglect of this symptom. There has been some dispute of late as to the exact character of speech disturbance in accordance with a lesion in the third frontal convolution or in the temporosphenoidal area, but all neurologists will agree that in lesion of the left temporosphenoidal lobe there must be at least some speech disturbance, and from personal experience, and for all practical purposes, it will be wise to adhere to the older distinctions between motor and sensory aphasia, and to claim that in these cases of temporosphenoidal abscess in the left half of the brain, the symptoms of sensory aphasia will be present. Right temporosphenoidal abscess is sometimes associated with dysarthria, not with sensory aphasia.

If the abscess is located in the cerebellum, there may be, in addition to the general abscess symptoms, cerebellar ataxia, a diminution or increase of the deep reflexes, abducens paresis or palsy, acoustic nerve symptoms, and possibly cerebellar seizures. If the lesion is in some other part of the brain the symptoms due to involvement of that special portion, provided it is not a silent part of the brain, will be present in addition to the general symptoms referred to before. The motor area is so rarely the seat of otitic brain abscess that Koerner doubts whether it ever occurs. Our second case is important because it proves that an undoubted otitic abscess may involve the motor area. In the diagnosis of brain abscess in this region, doubt may arise as to the site of the abscess because of the relatively slight intensity of the localizing symptoms; there may be paresis instead of paralysis, and the deep reflexes may be less exaggerated than we are accustomed to find them in cases of solid neoplasm in this motor area. The explanation of this is found in the fact that an abscess is, after all, a more or less elastic and yielding foreign body, and does not exert the amount of pressure which a solid neoplasm of the same size would. Moreover, it is very evident that an abscess may develop near brain tissue without actually destroying it. Thus, in our second case, the symptoms were so slight that it was astonishing at the time of operation to find an abscess of considerable size. If the abscess be near the surface or if it merely press upon the surface, it evidently acts as a soft substance pressing upon soft tissues and thus causing relatively slight pressure symptoms. It is also surprising to note the rapidity with which symptoms are recovered from after the abscess has been evacuated and pressure relieved.

The two cases to be reported this evening are briefly as follows:

Case I. On May 23, 1906, Dr. Sachs was asked by Dr. Chas. Goodman to see Mrs. F., 42 years old, who had suffered from left-sided chronic otorrhea

*Read at a meeting of the New York Neurological Society, December 1, 1908.

for many years. The discharge from this was never very profuse. It was intermittent and of a seropurulent character. She had never had any pain in her ear or in the mastoid region. There had been an intermittent discharge for a number of weeks prior to the present illness. The family physician stated that on May 5, 1906, she complained of headache, nausea, and vomiting. The latter did not seem to be projectile in character. She had no dizziness, fever or chills. Between May 5 and 20 she was more talkative than usual, but was always rational. On May 20 she complained of headache, and on the afternoon of that day it was evident that she had forgotten the names of people in her home. The difficulty of speech increased, and in the evening it was apparent that she did not answer questions addressed to her; it was not observed at the time that this was due, not to her inability to utter words, for she spoke freely enough, but to the fact that she evidently failed to grasp the questions addressed to her.

Her physician found her in a condition of semistupor with slight rigidity of the neck, a slight degree of right facial paralysis, and some weakness of the right upper and lower extremities, and with increased reflexes in the right arm and leg. Her pupils were equal and reacted to light. There was no paralysis of the ocular muscles, but there was a slight optic neuritis. A careful examination of her speech disturbance on May 23 showed distinctly her inability to comprehend speech. Spontaneous speech was correct enough, though she occasionally used words which she did not intend to use—a form of paraphasia—but she failed absolutely to respond to such ordinary requests as to close her eyes, to grasp the hand, to flex the fingers, to frown, etc., thus showing that she did not understand questions addressed to her.

At the time of our first examination she was slightly somnolent and had the appearance of a person suffering from intense localized headaches. There was no ear discharge at the time, but examination of the drum showed a number of old scars. The history of chronic otorrhea, the optic neuritis, the headache and vomiting, the sensory aphasia and the paraphasia, together with the weakness of the right upper and lower extremities and the increased reflexes in these, together with absence of convulsive seizures, led to the diagnosis of a deep temporosphenoidal abscess of the left side encroaching upon the motor fibers in the internal capsule. At the time of operation all these diagnostic points were fully substantiated. On May 24, 1906, the day following Dr. Sachs' first examination, the operation was undertaken by Dr. Berg. Although there was no external evidence of mastoid affection, this bone was first of all exposed and opened. All of its cells had been obliterated, and its structure was sclerosed and very dense. The sinus was exposed and was seen to be immediately behind the wall of the bony meatus. The antrum was entered with a probe, but as its complete exposure would have entailed a very slow and laborious dissection of the sinus, and in view of the fact that no evidence of disease was seen in the mastoid or antrum, it was decided at once to proceed to deal with the cerebral condition. The mastoid incision was therefore prolonged upward and forward in a curved direction, so as to expose the squamous portion of the temporal bone, and the soft parts and periosteum were retracted from this over a space of 1½ inches in diameter. Starting from the roof of the antrum and tegmen tympani, the squama was removed with chisel and forceps over an area as outlined above. There was no visible cerebral pulsation, but the dura bulged considerably. With a large-sized trocar aspirating needle, a puncture was made into the temporosphenoidal lobe. About one inch beneath the cortex, two drams of seropurulent fluid were aspirated, and this was followed by a thick, creamy pus. The needle was left *in situ*, the dura was incised for about one-half inch alongside of the needle, a curved director was passed along the needle into the abscess cavity, and then the opening was enlarged with a dressing forceps. About two ounces of thick, creamy pus were evacuated. Drainage was established at the most dependent point by a soft rubber tube and two narrow strips of plain yellow gauze. Closure of the soft parts was affected down to the emergence of the drain. A dry aseptic dressing was applied.

The patient was not at all shocked by the operation, during which there had been very little hemorrhage. The next morning the patient's sensorium was much clearer. She was able to talk and recognized familiar objects, though unable as yet to name them. In the afternoon she was able to name some things, such as glass, spoon, and the parts of her body. Rapid recovery took place and, contrary to expectations, the aphasia had entirely disappeared within 48 hours; likewise, the weakness of the extremities and the right facial paralysis. The drainage tube was removed after ten days. The abscess cavity rapidly contracted and the patient was discharged cured after three weeks.

The patient was seen repeatedly after this and was always found to be in perfect health. There is no ear-discharge; the defect in the squama of the temporal bone has been almost entirely filled in by new bone. There is no hernia cerebri.

From a neurological point of view the points of special interest in this case are these: On account of the slight involvement of fibers coming down from the motor area the subcortical location of the abscess was correctly surmised. The rapid recovery from the speech defect and the disappearance of the motor paralytic symptoms in the extremities were astonishing. This cannot be interpreted in any other way than that in a slowly growing abscess, as this one surely was, the cortical centers and the fibers leading from them to deeper parts may be either only indirectly affected; may be dislodged rather than destroyed, and with the evacuation of the pus the dislodged parts resume their normal function. Even if one were willing to suppose that the right half of the brain had assumed some of the speech functions, in the case of an abscess which must have lasted for some weeks or months, the paralytic symptoms in the right half of the body were surely due to involvement of fibers descending from the left motor area, and these must have been either compressed or slightly dislodged without having been at all destroyed, or else they could not have regained so quickly their normal function. In this instance the sensory aphasia and the paraphasia were important symptoms pointing directly to the involvement of the left temporosphenoidal lobe.

From a surgical standpoint this case is of interest because it enables one to discuss the best manner of approaching and draining temporosphenoidal abscesses, and cerebral abscesses in general. But it will be better to defer this special discussion until we shall have recorded the second case.

Case II. This patient came under our observation

at Mount Sinai Hospital, in the service of Dr. Sachs. The patient was an Austrian woman, aged 22. With the exception of the fact that an aunt had died of tuberculosis, and that three children in her immediate family had died in infancy, there was nothing of special note in the family history. The patient herself had had measles in childhood but no other acute infectious disease. She had suffered much from cardiac palpitation but had presented no other cardiac or pulmonary symptoms. It was entered upon our records that she had been operated upon three months previously at another hospital in this city for left-sided mastoid disease. On further inquiry we were told that she had been operated upon for acute mastoid disease, following which a second operation was done for sinus thrombosis. After this right hemiparesis developed, including the facial, and a brain abscess was suspected. The temporosphenoidal lobe was explored (evidently through the tympanum) but nothing was found. She was ill for six days before the operation and following this operation she made a slow recovery. One month later a third operation on the same mastoid was performed.

When she entered the hospital September 19, her chief symptoms were weakness of the right half of the face, of the right arm and leg, pains in the right arm and leg, and a distinct limping gait. We also ascertained that there had been some speech disturbance during the first eight days after one of these operations, but at the time of her entrance into Mount Sinai Hospital her speech was entirely normal. She was kept under observation for a period of two weeks until we could ascertain all the facts regarding the previous operations. During this entire period the condition remained practically unchanged. The patient was able to walk around, except that on one or two days she had distinct attacks of nausea and vomiting, with some tendency to somnolence.

The physical condition, as determined, was a distinct right facial paresis. She answered all questions distinctly and was clear mentally except that now and then she showed a tendency to slight drowsiness. She complained chiefly of "a loss of life" in the right lower extremity. Sensation in the right half of the body was unaltered. The right upper extremity was slightly contracted at the elbow; the fingers of the right hand were slightly flexed with moderate wasting of the forearm muscles and of the interossei. There was no increase of the wrist or elbow reflexes. The abdominal reflexes were lost on both sides. The grasp of the right hand was fair, showing a paresis but no paralysis. The right lower extremity was weak, not paralyzed. When lying in bed she was able to lift the leg a few inches from the bed. The right knee-jerk was lively; there was right ankle-clonus and the Achilles reflex was present. There was no Babinski. On the left side the extremities were entirely normal except that the left knee-jerk was almost as lively as the right. All the other reflexes were less marked on the left side than on the right. There was slight, double optic neuritis.

In view of the persistence of these symptoms and of the history of ear disease preceding the first operation, the diagnosis of otitic brain abscess was maintained, but the symptoms evidently pointed to an abscess in the right motor area involving chiefly the center governing the left upper extremity. The patient was transferred to the surgical wards to be operated upon by Dr. Berg. The details of the surgical procedure are as follows:

Under ether anesthesia and with the hemorrhage from the scalp controlled by a rubber elastic tourniquet, a large osteoplastic flap with its base below, was raised from the skull corresponding to the left motor and sensory areas. There was very little hemorrhage, and comparatively little shock, the blood pressure, taken with the modified Riva-Rocci instrument, remaining about 110 mm. Immediately after the flap was raised the blood-pressure fell to about 90 mm., and throughout the remainder of the operation it stayed at this point. On raising the bone flap, the dura bulged into the wound; there was neither respiratory nor cardiac pulsation. Palpitation elicited a decidedly fluctuating area, corresponding especially to the arm center, and aspiration at this point with a short, wide-calibered needle withdrew a creamy-white pus. The dura was here incised, and a large abscess cavity, holding approximately six ounces, was entered. It was entirely encapsulated and lay between the dura and the brain cortex. Its lining was a thick pyogenic membrane that could be easily wiped away from the surrounding tissues. The dura was freely incised, until the lowest point of the abscess cavity was reached; then, after a complete evacuation of the pus, a counter-opening for drainage was made through the skull and scalp, corresponding to this lowest point. The osteoplastic flap was replaced, the scalp sutured, and a dry dressing applied.

The postoperative course was entirely uneventful. The drainage of pus through the tube for the first few days was free, then the discharge became serous, and finally ceased. The bone flap and scalp healed by primary union, and the patient was discharged healed about four weeks later. Within a few days after the operation, the weakness of the right arm, leg, and face entirely disappeared, and the mental condition became normal.

The neurological interest of this case is limited largely to the question of the localization of the abscess. You will remember that in the first case described in this paper there were symptoms pointing to the involvement of the right upper and lower extremities, as well as sensory speech disturbance. In this second case the paretic symptoms of the right upper and lower extremity were distinct enough, but there was an entire absence of speech disturbance, although the original disease had involved the left ear. In view of this absence of speech disturbance it was natural to infer that the abscess was not in the temporosphenoidal lobe, where it had been looked for previously, but in the motor area; and the successful finding of the abscess at the time of the operation proved that this reasoning was altogether correct. This case also forms a marked exception to Koerner's rule that otitic abscesses are invariably in immediate proximity to the diseased bone. The only point on which there had been doubt was as to whether this abscess was subcortical or subdural. Dr. Sachs was inclined to the subcortical site because of the relatively slight degree of paralysis in spite of severe general symptoms, the general symptoms pointing to a relatively large abscess. It was instructive, however, to find that the abscess, and one of considerable size, proved to be subdural, a much more favorable site for an abscess than a subcortical one would have been, and the inference to be drawn as to the moderate development of the paralytic symptoms, is that a subdural abscess presses rather lightly upon the cortical tissues and may thus cause only very slight paralytic symptoms. It is well also to note that in this case the cortical

tissue was not extensively involved, and that the ordinary irritation symptoms, viz., attacks of Jacksonian epilepsy, were entirely wanting. This point would be one of some importance in the differential diagnosis between abscess and solid neoplasm. In this second case, as in the first, recovery was prompt and complete. The patient left the hospital after a few weeks entirely cured of her abscess and entirely relieved of her symptoms.

Surgical Comments.—When the surgeon is asked to deal with an abscess of the brain that is as accurately localized as was the case in our two patients, his concern is entirely with the technical parts of the operation. He does not have to consider those technical details that must always receive attention when we open the skull for exploratory purposes. His concern is to approach the abscess by the most direct route, evacuate the pus, and establish satisfactory drainage of the cavity. It is evident that in any case there are three main considerations:

1. A wide exposure of the area of the brain in which the abscess is supposed to lie. This is best done by raising an osteoplastic flap. Some otologists, when operating for temporosphenoidal abscess, are in the habit of removing the bone in that region with rongeur forceps, thereby creating a defect in the skull. There are numerous objections to this procedure, the chief being that the exposure of a large area demands a wide removal of bone, and further, that such a large defect predisposes to the development of cerebral hernia. Again, it is a more time-consuming procedure than is the raising of the osteoplastic flap.

2. The second, and a most important consideration, is the protection of the meninges against infection by the purulent contents of the abscess cavity. If this lies near to the cortex of the brain, or upon it, it is more than likely that the meninges will be protected from infection by a barrier of natural adhesions that have formed before the operation is done. These are the most favorable cases for surgical interference. When, however, the abscess lies deep within the substance of the brain and there is no such barrier of natural meningeal adhesions, the question arises—Is it not preferable to operate upon such cases in two stages? In the first stage open the skull and incise the dura, and by gauze packings around the margin of the dural incision establish a barrier of protective adhesions between the pia and the dura mater, and at the second sitting which might take place after twenty-four hours, incise and properly drain the abscess cavity.

3. The third consideration for the surgeon, is the proper drainage of the abscess cavity. Here we must remember that there are two entirely different kinds of abscess cavities in the brain—one, with soft walls that readily collapse when the contained pus is evacuated; and the other with rigid walls that show no tendency to fall together, and that must be obliterated by the slow process of granulation. It is evident that an entirely different method of drainage must be employed in these two types. In the former, all that is required is the establishment of drainage by a thin slip of rubber tissue at the most dependent point of the cavity. This is to be removed after forty-eight hours, and not re-inserted. The opening in the scalp and skull, however, should be maintained by a piece of gauze packing, so that if pus or other secretion be retained, it will find its way out along the tract established by the rubber tissue. In the latter type of abscess cavity, the drainage must be by a tube of some kind, whether rubber or decalcified bone, or other material—according to the choice of the operator. This tube must be inserted at the lowest point of the abscess cavity, otherwise there is bound to be retention of pus. Inasumch as gauze ceases to act as a drain a few hours after its insertion, its use for drainage of such thick-walled brain abscesses is inadvisable. When the abscess occupies the temperosphenoidal or occipital lobe, or the cerebellum, the drainage of the most dependent part of the abscess cavity is easily esetablished through the primary wound, because this already lies at a point below the most dependent part of the abscess. This does not obtain, however, when the abscess occupies the frontal or parietal lobe. In such cases the abscess is approached from the higher parts of the cranial vault, and its lowest part is often one or two inches in the depths of the brain, considerably below the lowest point of the primary wound. If we wish to establish satisfactory drainage under such conditions, it must be done through a counter incision, the site of which corresponds to the lowest point of the abscess cavity. This incision may be made at the time of the primary operation, if the patient's condition warrants it, or at a later period.

The last point is well illustrated by a recent case:

Case III. Harry I., 25 years old, during July last while at Liberty, New York, sustained a compound depressed fracture of the skull, with laceration of the dura and brain, in the left frontal region. He was operated upon at once by a surgeon at Liberty. The depressed fragments of bone were removed and the lacerated dura and brain drained. Six weeks later, when he came under Dr. Berg's observation, he presented evidences of left frontal-lobe abscess. Exploration of this part of the brain revealed an abscess in the substance of the frontal lobe about one inch below the cortex, and extending downward toward the base about one inch. The cavity was drained by rubber tube which emerged on the convexity of the skull. It was thought by placing the patient in the Trendelenburg position, with much dependent head, that gravity would aid in establishing satisfactory drainage. This was not found to be the case. In the first place, the patient could not be kept in the Trendelenburg position for any length of time, and, furthermore, such position did not succeed in preventing retention and renewed signs of abscess formation. It was therefore determined to counterdrain the cavity through an incision just above the left frontal sinus, which was the level of its lowest point. Since this was done the patient has steadily improved and is now on the road to recovery. The abscess cavity is slowly filling with granulations.

For years past we have had but one fear in the treatment of brain abscess, and that was the question of drainage subsequent to the operation. This fear was largely based upon an experience which one of us had at the hospital a number of years ago in the case of a brain abscess in the motor area, following upon empyema, in a child. The abscess was in exactly the same location as in the second case reported in this paper. The child did unusually well for three or four weeks and subsequently died of a gradual purulent convexity meningitis, due to the difficulties of protecting the meninges against infection.

Abscesses in the temperosphenoidal lobe are so fortunately located that drainage there can be established readily enough. With abscesses in the motor area the problem is a much more difficult one,

and the successful management of these cases will no doubt depend upon the points advocated in this discussion of this subject by Drs. Whiting, Dench, Gruening and others. We trust that not only the cases herewith reported, but the entire discussion of the evening, will put prominently before otologists and surgeons this one proposition, that the successful treatment of brain abscess is chiefly a question of proper drainage.

ADEQUATE DRAINAGE THE ESSENTIAL STEP IN THE SUCCESSFUL SURGERY OF BRAIN ABSCESS.*

By FRED. WHITING, M.D.,
NEW YORK.

To those practitioners of medicine who interest themselves in intracranial surgery, it has long been a source of mortification and disappointment that after a brilliant operation, resulting in the evacuation of an abscess of the brain which has been accurately located by painstaking and masterly diagnosis, the condition has none the less in a large percentage of cases resulted fatally.

In abscesses situated elsewhere about the body the evacuation of their purulent contents is, with rare exceptions, the assured means to uniform and speedy healing, and we experience no apprehensions concerning a satisfactory result; but in dealing with abscess of the brain, the situation of the lesion, and the character of the tissue involved entirely alter the nature of the prognosis and the gravity of the condition still remains acute, notwithstanding that evacuation of the abscess has been accomplished.

In the opinion of the writer, the post-operative treatment of brain abscess has never received at the hands of general surgeons and otologists the consideration to which the importance of the subject entitles it. There are few more impressive or brilliant performances in surgery than the correct localization and prompt evacuation of an abscess of the brain, and there are probably but few occasions in a surgeon's career when he feels a keener sense of complacency and selfesteem than when with apparent confidence he plunges his bistoury into the brain and sees with a thrill of satisfaction which he scarcely dares credit a stream of pus follow his fortunate stroke. But with the completion of this brilliant surgical feat, the engrossing interest in the case oftentimes wanes, and the zeal which inspired our efforts on behalf of the patient while he was still an operative problem is apt to flag during the days of weary bedside mistration which must inevitably supervene before we can reasonably expect to see the fruition of our efforts in a fully established convalescence. It is the vexatious question of after-treatment that confounds our skill and sets experience at naught.

To summarize the situation, then, we are compelled to admit that our present knowledge of the after-treatment of brain abscess is not sufficient to warrant us in anticipating recovery in any given instance, but we must regretfully acknowledge that there is still a far cry between the moment of the successful opening of the abscess and the day of the complete healing of the wound.

Several years ago I became convinced that the method employed in dressing brain abscesses added very considerably to the gravity of the patient's condition, and to the percentage of mortality as well. My attention was called to this fact because of the observation that case after case of acute brain abscess would die after appearing to be doing very well for several days succeeding an operation which had relieved the patient, temporarily, at least, of the most urgent and threatening symptoms. After a few dressings there would gradually appear the characteristic manifestations of acute purulent encephalitis, which thereafter progressed rapidly until meningitis or ependymitis supervened and death ensued. I was accustomed at first to consider that infection had spread from the abscess cavity by means of veins or lymphatics which had undergone erosion as the result of unavoidable extension of the purulent process into contiguous tissue, and I did not then appreciate that faulty technique was to any great extent responsible for the mishap.

The findings of two autopsies, however, furnished valuable food for reflection, for, in each instance when the brain was cut and the abscess exposed there appeared discolored and softened areas of brain tissue radiating from the abscess wall and the drainage channel at varying angles and extending to various depths, with infected areas corresponding to fistulous paths and sinuses which had been made in the course of dressings in attempts to introduce gauze into the abscess cavity along a canal which could not be inspected. These infected tracts had been made after the same manner as false passages are produced in the urethra by misdirected sounds, after seeing which I realized for the first time how probable it was that faulty technique had contributed to a considerable extent to the unexpected fatalities in those cases which had appeared so promising immediately after operation.

That laceration of the brain should ensue upon an attempt to introduce gauze into the abscess cavity through a narrow opening and along a channel the walls of which are collapsed and in contact when not supported and separated by retaining gauze, a careful consideration of the anatomical relations will show to be nothing more than might be reasonably expected.

An acute brain abscess has a limiting wall of fibrin of such delicate texture and scanty resistance as to offer, after evacuation of the abscess contents, little or no opposition to the tendency of the brain with its soft, pulpy consistence, to collapse the walls of the abscess and prolapse toward the opening made in the dura at the time of operation, under which circumstances any attempt to introduce gauze drainage by the usual method is attended with serious risk of making a false passage with the probe and gauze, thereby conveying infective material into hitherto entirely healthy brain structure. That such an experience is most likely to result, observations upon the autopsied brain have satisfactorily demonstrated. It is a very simple matter to introduce gauze through a small opening, beyond which one cannot see, into a cavity with rigid walls in such a manner as to entirely fill the space and so dispose the gauze as to maintain uniform pressure upon all sides; but it is an entirely different proposition to carry gauze to the bottom of a deep cavity the opening of which is small and the channel leading down to which is narrow with delicate walls which will be wounded or lacerated at any point where the probe carrying the gauze deviates in the least from the direction of the passage for discharge from the abscess cavity.

With the hope of reducing and, if possible, eliminating from the post-operative treatment of brain abscess this dangerous and unnecessary traumatism,

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I several years ago devised an instrument which was called an encephaloscope. This appliance was designed to permit, with the aid of artificial illumination, the critical inspection of the interior of a brain abscess cavity in such a manner as to avoid all violence to the brain tissue. Moreover, by the employment of this instrument the introduction and proper adjustment of gauze or other drains in the depths of the wound, both at the time of operation and during subsequent dressings, became an exceedingly simple and altogether safe procedure.

In this connection, the question naturally arises why not introduce a permanent tubular drain at the time of operation, and gradually withdraw and shorten it as the deeper parts of the wound heal, until only a shallow granulating pit remains, which requires no further drainage? Such a method would greatly simplify the after treatment, and remove the risk of infection by probe puncture. The reply to such a question revives a long and unsatisfactory discussion as to the relative merits of gauze versus tubular drains—a subject which will receive its proper consideration in another part of this paper.

Under the subject of drainage the entire consideration of the surgical treatment of brain abscess may be comprehended, for it properly includes the steps instituted for the thorough evacuation of the abscess at the time of operation, quite as much as the measures to be employed in maintaining an unobstructed outflow of the discharges from the wound during the period of convalescence and recovery.

The first essential step in abscess drainage is to secure complete evacuation of all purulent contents. That this may be properly accomplished, all obstructive bands of fibrin and necrotic tissue must be removed, and any communicating collections of pus made tributary to the drainage channel, since failure to remove such foci is responsible for the formation of the so-called multiple abscesses which are later discovered, and from the disastrous consequences of which the patients sometimes escape, when they are so situated as to admit of successful counter-drainage, but to the effects of which they more often succumb.

The careful personal study of the physical characteristics and structural conformation of brain abscess cavities, such as is readily obtainable by the use of the encephaloscope, has convinced me that great stress should be laid upon the importance of thorough evacuation of the abscess at the time of operation. We must bear in mind that in the brain we are dealing with an exceedingly soft and unresisting substance, which is disposed within a short time after an abscess has been opened to collapse upon and fill the space previously occupied by the purulent material just evacuated, and also to prolapse toward the opening in the dura and skull. As a consequence of this disposition, the collapsed fibrin-coated walls come in contact, and not infrequently adhere at one or more points between the bottom of the abscess cavity and its opening in the dura. As the result of this adhesion there becomes incarcerated in the deeper portions of the wound a certain proportion of those pyogenic products which should have been removed at the time of operation, and which with proper methods of procedure would have been removed. Such infective material walled off from the drainage canal will speedily institute further infective processes, to which the soft brain tissue falls a prey, and while the patient appears for a few days to be making uneventful progress, and the scanty discharges from the drainage canal encourage us to hope for a favorable issue, the undrained portion of the abscess continues to invade the brain more extensively and is later discovered as a result of further exploration undertaken for the relief of the patient from increasingly grave symptoms.

Or, perhaps, it is unfortunately discovered only at the autopsy, in which event we contribute to our selfesteem and to the inaccuracy of brain abscess statistics, when it is chronicled as a multiple or communicating abscess, although it is in reality nothing more than an unrecognized residual collection of pus, a mute and mortifying protest against our incomplete and unscientific technique. Those of us who have had to do surgically with abscesses extending deeply into the brain know that it is not a simple matter to ensure complete evacuation of the contents at the time of operation, for after the first gush of pus escapes the remaining contents present in the opening, and pulsate and throb, but do not escape, and although upon making expressive pressure upon the dura both laterally and from below an additional quantity is expelled, there still remains in a deep abscess a surprisingly large quantity of retained pus.

What measures then are customarily employed to accomplish the first essential step in abscess drainage—namely, the complete evacuation of the purulent contents? It has been the practice of some surgeons, after pus ceased to flow from a brain abscess, to introduce forceps of one kind or another, and by opening the blades to divulse the wound, and in this manner to assist the flow of pus which is usually retarded or obstructed by shreds of fibrin and necrotic tissue. Others, again, prefer to use the finger, considering that investigation by that member is safer and more intelligent than instrumental exploration. There are still other operators who deem it expedient to assist the removal of retained pus and other infective material by irrigating the cavity with a solution of boric or salicylic acid, or saline solution—such, indeed, being the practice of Macewen. Against each of the above-mentioned methods there is objection to be raised, and against irrigation especially, for if it be employed in acute abscesses, even with the most scrupulous care, there is danger of rupturing the walls of the abscess and of disseminating infective material into healthy adjacent structures. Irrigation of brain abscesses is, in my judgment, limited in its utility to the chronic variety with dense and firm walls, and even under these conditions the greatest caution must be observed in its employment. When the abscess cavity is very large, there is often but a thin layer of white matter separating it from the laterial ventricles, and even a very moderate force imparted to the irrigating stream might cause rupture into the ventricles. It is, indeed, no uncommon experience, when introducing gauze packing into a deep abscess without the assistance afforded by the encephaloscope, to puncture the ependyma and cause evacuation of the ventricular fluid, thus adding an unnecessary amount of risk to a condition already sufficiently grave. Exception is taken to the other above-mentioned methods of emptying the abscess cavity because they must be carried out without visual aid and are likely to cause injury, particularly if the cavity be deeply situated.

To the encephaloscope, however, none of the foregoing objections can be justly raised, for it does not subject the tissues to any traumatism whatever, requiring no greater force in its introduction than

a simple introduction of the finger demands, and being entirely free of the objectionable features of the divulsing forceps. As soon as the abscess is distended, its contents well up within the instrument and are mopped out with soft cotton or gauze pledgets, affording a comprehensive view of the interior, in the same manner as a speculum permits of an examination of the fundus of the ear. The three former methods—in addition to subjecting the brain to additional traumatism—are not by any means convincing in their dtmonstration of complete evacuation of the abscess, while the encephaloscope, introduced slowly, by degrees exposes to critical investigation every portion of the abscess, from the opening in the brain cortex to the bottom of the cavity, and if any pockets or subdivisions exist they are readily recognized and can quickly be made tributary to the principal cavity. The procedure is one of the utmost simplicity, and when properly performed offers entirely satisfactory evidence that the evacuation of the contents of the cavity of the abscess is complete.

With the aid of the encephaloscope, then, the cavity of an acute brain abscess can be quickly cleared of all gross or macroscopic infective material, but with the chronic abscess it is necessary to leave in situ the thickened capsule to slowly undergo sloughing, absorption, and organization. The temptation to use the curette upon the sloughing walls of a chronic brain abscess is almost irresistible, particularly since the encephaloscope affords so excellent a view of every part of them and the procedure, could it be performed with sufficient thoroughness, would undoubtedly materially reduce the difficulties and duration of treatment. There seems to be no positive contraindication to such a step, if undertaken with great care and delicacy, and with satisfactory illumination, except when the bottom of the abscess sac lies in close proximity to the ventricles, under which circumstances any attempt at curetting would be hazardous in the extreme. In judiciously selected cases, however, when the abscess is favorably situated—not too deep—it seems to me that curetting of chronic brain abscess where the lining membrane is very thick has little to condemn and much to commend it. In any event, when large tufts of necrotic granulations are seen upon the abscess wall, they should be scraped away lest, by remaining, they be permitted to conceal a path of infection already extending into adjacent brain tissue.

When the abscess cavity has been cleansed as thoroughly as circumstances permit of all infective material, the next step in the procedure is to determine the character of drain to be employed. What material will make the most effective drain? In this selection we are limited in our choice to tubular or fixed drains, and gauze or renewable drains—the cigarette or rubber tissue drain not being applicable to the conditions. In England and upon the Continent, tubular drains have been preferred and many varieties have been recommended, including soft and hard rubber, glass, pressed wood fibre, decalcified bone, and other materials, and each has enjoyed a certain measure of success. Macewen has shown a preference for decalcified turky bone, and most continental operators for fenestrated soft rubber. In this country, however, such drains have not been received with great favor among surgeons who have done most of the operating, and gauze has practically superseded all other materials for purposes of drainage, with recent results quite as successful as those of our European colleagues.

As regards the relative merits of gauze and tubular drains, there is in small and superficial brain abscesses but little choice—either answering the purpose admirably, although for the tubular drain the theoretical advantage is claimed that its employment admits of suturing the dural incision and the scalp as well, thereby reducing the likelihood of cerebral hernia, although under the conditions mentioned the probability of hernia is slight. As far as my personal preferences are concerned, I have discarded all other drains in favor of sterile or iodoform gauze, in the firm conviction that there is nothing accomplished by tubular drains in any abscess dressing which gauze properly adjusted will not accomplish at least as well, and in many cases a little better.

Having determined upon the use of gauze for the drain, the method of introduction becomes a very simple matter, but I am convinced that the method employed in dressing acute brain abscess should differ materially from that followed in chronic brain abscess. In acute purulent encephalitis, after the pus has been once fully evacuated, it seldom reaccumulates in large quantities except where there has been extension of the infective process into contiguous structures, and since the amount of fibrin is very scanty, not constituting in any case so far observed anything near a complete investing or lining membrane, there is but little material present in such an abscess which should unduly prolong suppuration or delay repair. It seems wise, therefore, in such an inflammation, to reduce the gauze packing to the very least thread which will maintain a pervious channel to the bottom of the abscess and conduct to the surface such scanty discharge as a healthy granulating tract supplies, but under no circumstances to introduce sufficient gauze to distend or balloon the abscess cavity, for such distension serves no purpose other than to maintain needless and harmful increased intracranial pressure, and to contribute to the risk of cerebral hernia.

The requirements of the acute condition I have found to be best satisfied by the introduction to the bottom of the cavity of a single wick of iodoform gauze, of the size of a lead pencil, which dressing is to be changed at intervals of forty-eight hours, until the surface exposed to view by the encephaloscope is seen to be covered by a layer of small pinkish granulations. As soon as this appearance, which sometimes supervenes in an amazingly short time, is manifest, the length of the gauze drain should be decidedly reduced and the depths of the abscess permitted to heal, preliminary to closure of the drainage channel from the dura inward. It not infrequently—in fact, usually—happens that a small cerebral hernia is found protruding through the dural opening, and before the encephaloscope simplified the method of treatment so materially, such an accompaniment of brain abscess constituted a decidedly annoying and sometimes most embarrassing complication. Under the present conditions, however, but little concern is occasioned by the presence of hernia, unless it be of extraordinary size, which it seldom is—for as healing progresses it gradually shrinks, being in part strangulated by the contraction of the cicatrix which closes the opening in the dura and causes sloughing, and in part absorbed by and incorporated with the scar tissue which ultimately constitutes the tegumentary coverings of the field of operation.

I would advocate in chronic brain abscess a method of post-operative procedure which is the direct antithesis of that which has afforded such satisfactory results in acute processes. In chronic brain abscess there is present a dense, firmly-resisting fibrinoplastic membrane which must slough away or undergo absorption before the abscess channel may with safety be permitted to close. The process of sloughing is apt to be protracted, and is accompanied by a profuse purulent discharge which accumulates with such rapidity and often exhibits such putrefactive properties as to render daily dressing imperative. To an operator whose experience is limited to acute processes only, the quantity of offensive pus discharged from a chroinc abscess in the short space of twenty-four hours is a source of astonishment, and must be encountered in order to be appreciated. In the first few daily dressings of a large chronic abscess the amount of discharge almost suggests the existence of a communicating abscess which is contributing to the extraordinary supply by draining imperfectly into the cavity of the abscess which is under observation, and it is not until the thick capsule-like lining of fibrin begins to slough and undergo organization that any sensible diminution in the quantity and alteration in the character of the discharge is apparent. The condition is somewhat analogous to an extensive subperiosteal mastoid abscess, the purulent contents of which have been evacuated by simple incision, leaving the walls, which are lined with necrotic granulations and fibrin to the slow process of gradual sloughing and organization, instead of opening the sac widely, everting the flaps, and subjecting the infected surfaces to a vigorous application of the curette, which would simplify the healing amazingly.

I believe that it is necessary in the operative and subsequent daily dressings of chronic brain abscesses, first to mop the cavity thoroughly with sterile absorbent cotton, and then to introduce sufficient iodoform gauze to distend or balloon it, a practice which must be perservered with until all fetor disappears, the discharge is diminished greatly, and the former fibrin-coated suppurating surface is covered with small red granulations, with the appearance of which manifestations favorable and speedy healing may be anticipated.

Concerning the dressings which are to be made during the after-treatment of the case, they are in the main simple repetitions of the practice first described, with such modifications of detail as the changing conditions of the wound demand and experience dictates. Eternal vigilence is the price of success in treating brain abscess, and the least unfavorable manifestation in the patient's condition should lead to a critical inspection of the wound.

A profuse purulent discharge, persisting more than a few days after operation, or appearing in the course of treatment of an acute abscess after there has been but a scanty discharge for some days, may be accepted as an infallible indication of extension of infection into tissues hitherto healthy, and as a rule, with the appearance of such local warnings systemic disturbances are not long delayed. An experience of the kind just described is unfortunately not an infrequent complication of brain abscess, and failure to respond favorably to frequent changes of dressings, will necessitate the performance of counter drainage. This procedure, if practicable—that is, if admitting of the necessary delay—should be undertaken after the manner suggested by Ballance, who advises that at the point selected for the counter-opening, the dura and superficial brain tissue beneath it be incised and lightly packed with gauze for a sufficient time to permit the membranes to become adherent to the brain about the opening, thus sealing the subdural space against infection, when on the following day the counter opening is carried through the deeper brain tissue and communication with the abscess established, and counter drain introduced.

The necessity for counter-drainage is greatly to be regretted, and I am fully persuaded that the employment of proper technique for the complete evacuation of the abscess cavity at the time of operation will greatly reduce the frequency of the performance of such a hazardous expedient.

I have often been asked how we are to decide when drainage of the abscess cavity may be safely discontinued. In reply, I would say that the drains should be used as long as there is any recognizable purulent discharge from the wound. As soon as the abscess wall begins to granulate nicely, which is oftentimes a matter of a few days only, the gauze wick upon being withdrawn will be found to be soaked with serum and practically free from pus. Under such circumstances only a very short strip of gauze should be introduced, and within a few days thereafter all drainage discontinued.

Another frequent inquiry is as to whether or not it is wise to employ irrigation at any stage of the treatment of brain abscess. I can only reply that in my judgment it is a dangerous expedient which had better be dispensed with, except in encapsulated abscess; and I cannot comprehend how any surgeon who has ever inspected the extremely delicate walls of an acute abscess by the aid of an encephaloscope can be willing to assume the risk of disseminating infective material into the healthy brain substance by employing even the most gentle irrigation.

Still another query which has been asked is—Does one learn much from introducing the finger into an abscess cavity? Without hesitation, I reply, No! The information elicited by digital exploration of the abscess is at best but a very unsatisfactory substitute for the unimpeded inspection afforded by the encephaloscope, and furthermore it adds to the danger of infection. I recently attempted at the Morgue to convince myself concerning the reliability of the tactile sense for the purpose of recognizing objects of different density within the brain tissue. For this purpose, I introduced by means of a long curved needle several parallel threads of different sizes within a fresh brain carefully avoiding any tension. After making an incision in the brain substance over the situation of these threads, the finger was introduced, but failed to recognize their presence until they were put upon the stretch. This experiment was repeated with coarser threads, which in turn the finger failed to recognize, until twine of the weight commonly used in stitching up the body after an autopsy was employed. Small pledgets of cotton similarly introduced could not be detected, even when the extremity of the finger came in direct contact with them. In other words, I was unable to detect the presence of any foreign material within the brain, until the density of such substance was materially greater than that of the brain in which it was embedded, which experience has not increased my appreciation of the value of digital examination for purposes of exploration in brain abscess. In this connection I would quote from a recent report of a successful operation for brain abscess done in my service at the Infirmary in 1904, by Dr. J. R. Page.

then House Surgeon. He says: "During my service at the New York Eye and Ear Infirmary, every case I saw in which the finger was introduced into the brain died." Such testimony is certainly not commendatory of the procedure.

There are many interesting and important considerations referable to the post-operative care of brain abscess cases, which the question of drainage naturally suggests, but which the allotted time and limited scope of this paper alike forbid me to mention. In closing the consideration of the subject at this point, I would emphasize the fact that three important details constitute the essential factors of successful abscess drainage:

1. Scrupulous care to be exercised in inducing complete evacuation of all pus and pyogenic material at the time of operation.

2. The establishment and maintenance of an uninterrupted communication, by means of gauze or other drains, between the deeper portion of the abscess cavity and the drainage opening, without adding unduly to the pressure upon the brain substance surrounding the walls of the abscess.

3. The avoidance not only at the time of operation but especially during the after treatment of gratuitous infection of healthy surrounding brain tissue by misdirected efforts at the introduction of gauze or other drainage material attempted without the assistance of actual inspection of the abscess path.

With a proper appreciation of the importance of these essentials, and a rigid attention to the details necessary for their correct performance, I am well convinced that we shall save many lives which, notwithstanding the promise of a brilliant operation were formerly lost, a mortifying sacrifice to the avoidable errors of after treatment.

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CLINICAL AND ANATOMICAL MANIFESTATIONS OF OTITIC BRAIN ABSCESS.*

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The occurrence of brain abscess after purulent otitis media is rather a serious complication. Its localization, as well as its early recognition, is an urgent matter, but often a difficult task. Such abscesses follow both acute and chronic otitis media purulenta, especially the latter. According to statistics as published by Grunert, in 91 per cent. of the cases the abscess was due to a chronic suppuration of the middle ear. Hammerschlag, on the other hand, finds only 75 per cent. due to this cause. In regard to their relative frequency, Jansen reports one brain abscess in 2,560 cases of acute, and six in 2,500 cases of chronic, suppurative otitis media. As to the age of the patient, we find otitic brain abscess in early childhood rather seldom. This appears strange, on account of the numerous dehiscences, fissures, and direct paths of communication in the child's skull. The largest number of otitic brain abcesses occur between the ages of ten and thirty years of age. They appear to occur more frequently on the right side, according to Koerner and Koch. On the other hand, Okada, Heimah, and Neuman, whose statistics refer especially to cerebellar abscess, place the percentage higher on the left side. Koerner explains his statistics as due to the fact that the transverse sinus on the right side is much more developed, lies deeper within the mastoid process and petrosal pyramid than on the left side. As a result of this, the bone separating an empyema of the middle-ear cavities, a carious focus, or sequestrum in the mastoid process, from the brain proper, its membranes, or neighboring blood-vessels, is much thinner on the right side than on the left. The difference in thickness between the two sides, according to actual measurements, may be between 1.05 mm. and 7 mm. All agree that cerebral abscesses are more frequent than cerebellar.

In the large majority of cases, otitic brain abscess will be found to lie in close proximity to the primary suppuration in the petrous portion of the temporal bone, very often in direct communication with it. Koerner gives to us the following table in connection with this fact: In 42 per cent. of the cases the abscess cavity in the brain was seen to be in close communication with the primary suppurative lesion in the bone by means of a fistula; 15 per cent. show the brain abscess and perforated dura in close association with the primary lesion; 26 per cent. show the membranes of the brain adherent to the diseased bone and the brain, and the abscess in the brain separated from this portion by brain substance; in 17 per cent. of the cases normal brain substance lies between the abscess and the diseased bone.

In regard to the location of these abscesses, in the majority of the cases the abscess lies in the temporosphenoidal lobe, when the suppurative process has broken through the tympanic roof. In the cerebellum, pons, or crura cerebri, when the posterior wall of the petrous portion of the temporal bone, or inner wall of the mastoid process is at fault. To speak more accurately of the location in the temporosphenoidal lobe, these abscesses are found in the posterior and inferior portion, the gyrus fusiformis, and sometimes, but seldom, in the occipital lobes.

In the cerebellum they occupy most frequently the anterior portion of the lateral lobe. They are found, however, also in the inferior semilunar and cuneiform lobes; sometimes in the tonsil, flocculus, and even in the middle peduncle of the cerebellum.

There are cases on record, two such I have personally observed, in which the abscess is located at some distance from the diseased temporal bone. I refer to the central convolutions. Koerner argues that these are really not otitic abscesses as we understand them, but caused only indirectly by the suppurative process in the middle ear. They are the result of pyemic conditions due to sinus phlebitis and to metastatic processes from purulent bronchitis. Often they are tuberculous.

Extradural abscesses are found between the bone and dura mater. In other words, a pachymeningitis purulenta is due to an extension from the ear sinuses into the skull cavity. They occur in the middle and posterior fossæ. Most frequently we meet such abscesses in the neighborhood of the lateral sinus, in which position we designate them as perisinus abscesses. Deep extradural abscesses have been found on the posterior surface of the petrous portion of the temporal bone, due usually to suppuration in the labyrinth, the infection finding its way out through the aqueductus vestibuli.

As a rule, brain abscesses are solitary. When multiple abscesses occur they usually break down into one abscess cavity. Two large abscesses close

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together are usually in communication with each other. In 100 cases collected from the literature by Koerner, fifteen showed the presence of multiple abscesses. In six of these, one abscess was found in the temporosphenoidal lobe and one in the cerebellum. In five, multiple abscesses occurred in the hemispheres. In four, multiple abscesses occurred in the cerebellum. Koerner rightly remarks, I believe, that under such conditions we are dealing with metastatic pyemic and pulmonary abscesses.

In regard to the size of the abscesses found, they vary from the size of an almond to that of a fair-sized chicken's egg. Usually they are about the size of a walnut.

The contents of most abscesses is pus. This may be of a fluid consistency or as thick as molasses. It is very often milky in color, sometimes green, sometimes yellow, and often a dark brown. At times there is no perceptible odor, and at times this is very fetid. Often there is mingled with this pus necrotic brain tissue, and at times blood in various stages of decay. Most brain abscesses are encapsulated. These are again surrounded by a softened infiltrated and edematous mass of brain tissue. The capsule is, in reality, a pyogenic membrane, usually very thin but it may be as thick as 5 mm. In old abscesses it is tough and often in a calcified condition. Leutert, as well as Bergmann, have called our attention to the fact that these capsules do not prevent the further extension of the abscess, which might occur at any stage of the affliction. In regard to the division of abscesses into parenchymatous and interstitial forms, as described by Mueller, this theoretical reasoning has been refuted by Preysing and needs only to be mentioned here.

As stated before, brain abscess is most frequently met with after chronic otitis media purulenta. In acute otitis purulenta the inflammatory process invades hardly more than the mucous membrane. Should the inflammatory condition, however, be of a severe type, and the infection a virulent one, thrombi form in the vessels of the mucous membrane, grow into the vessels of the surrounding bone, sinus, and brain membranes, and thus the infection is carried into the brain tissue. Right here I would emphasize a fact, which it would be well to remember, that we may have an acute otitis media, followed by caries and sinus thrombosis, without perforation of the drum membrane. Such a case I have seen personally, and such have been reported by Macewen, Schwarze, and spoken of by Neuman. It is well to bear in mind such cases in connection with obscure pictures of brain abscess, although no case of brain abscess is on record of ever having occurred after such a condition.

After chronic otitis media purulenta, a brain abscess is more naturally expected. First of all, the mucous membranes of the middle ear go through all the stages of a chronic inflammation. Its vessels, which are in direct communication with the bone, cause the infection to be carried to this part, and caries and necrosis is the result. The tympanic cavity, the antrum, and the mastoid process are successively involved. The inflammatory irritation causes granulation tissue to spring up, which fills the cavity of the middle ear. A stagnation of pus and secretion takes place. In spite of the fact that the antrum and tympanic cavity are enlarged through the breaking down of the bone and its septal divisions, it is nevertheless reduced in size, through the encroachment upon it of large masses of granulation tissue. In other portions there is a new formation of bone, the eburnizing process. We have therefore two processes at work, a destruction or necrosis of tissue, and a new growth or sclerosing process. Unfortunately the sclerosing process is no protection against the further advance of the necrotic process, as it does not always completely surround the necrotic area. Frequently an acute exacerbation occurs in the primary lesion through a recent infection, and the necrosis works its way through the tympanic roof or the walls of the antrum, or mastoid process, into the skull cavity. Such conditions we find most frequently with cholesteatoma, a process which, when it is known to exist with chronic otitis media, is in itself of serious import, and should be dealt with most radically. Schwarze tells us that his experience has taught him that the reason why infective processes in the middle ear at times produce diffuse meningitis, and at other times circumscript lesions like sinus thrombosis, brain abscess, or extradural abscess, is to be sought for in the virulence of the infectious agent. An infection of a mild type leads to an adhesion of the brain membranes, a shutting off, as it were, of the arachnoid space, and thus a barrier to diffuse infection. Infection produced by virulent organisms at once infect the membranes before such a barrier is formed.

Neuman believes that the preformed pathways are the cause of diffuse infection of the brain membranes, when the infection proceeds in this direction, and rarely the cause of brain abscess, unless the pathway happens to be the aqueductus vestibuli. On the other hand, when there is a destruction through caries and the formation of fistula, this rather slow process has a tendency to produce a circumscribed lesion, viz., extradural and intradural abscesses, including, of course, brain abscess. The intradural abscess or, as Macewen speaks of it, ulceration of brain tissue, occupies the median position.

Again, according to Preysing, the different courses pursued by the various brain abscesses depend not upon their anatomical localization, but upon the intensity of the inflammatory process, and the period at which it is recognized. With a high degree of virulence and a poor resistance on the part of the organism, the destruction of tissue advances rapidly, so that no encapsulation of the abscess is possible. With diminished virulence and good resistance, granulation tissue springs up and encapsulation results. Again it may be well to mention here that the infection producing a brain abscess is not always a direct one, but may be carried there through the lymphatics or by the way of the pial blood-vessels.

According to the statistics, as published by Hessler, abscess after chronic otitis media is found to be encapsulated in 65 per cent. of the cases. After acute otitis media, in 38.5 per cent. of the cases. The brain tissue immediately surrounding brain abscesses is usually found to be edematous and infiltrated with red blood cells, passing gradually into normal brain tissue. Encapsulation is not to be considered as preventing a further progression of the abscess. Such abscesses may be absorbed, or result in cystic or scar formation, or through an acute exacerbation of the original trouble or trauma, a further extension of the abscess may take place.

The clinical picture of brain abscess is a varied one. An extradural abscess may be present and not a symptom to account for it. Often these abscesses are only discovered during the process of an operation upon the mastoid bone. In extradural abscess all the symptoms of actual brain abscess may

be present, but they will usually be found to be very mild in degree. One of the most constant symptoms is headache over the diseased area, varying in quality and intensity. Optic neuritis is conspicuous by its absence. The local symptoms, when they are present, are rather more characteristic. In the region of the emissary mastoid vein, we have tenderness to pressure, edema, and at times the formation of a subperiosteal abscess. This is especially the case when the abscess occurs in the sigmoid fossa.

When the abscess occurs within the brain, symptoms present themselves which we may classify as general and local. The general symptoms establish the diagnosis that a brain abscess is present, and the local symptoms its possible location. Let us consider first of all the general symptoms. We may and we may not have a rise of temperature. Very often, in uncomplicated cases, the temperature will be normal or subnormal. Usually in the evening there is a slight rise. Oppenheim believes that continuous and marked rise of temperature speaks most probably against uncomplicated brain abscess, while on the other hand, a slight occasional rise of temperature favors brain abscess.

The pulse is usually slow and its tension increased. A pulse beat as low as ten pulsations per minute have been recorded by Schwarze. Then again, we may have a perfectly normal pulse. Jansen reports a case of large brain abscess without the slightest variation in the pulse rate. Schwarze is rather of the opinion that the pulse rate in some cases may be governed, not by increased brain pressure within the skull cavity, but by some toxic irritation of the vagus. He believes that this is also the cause of the double optic neuritis, which occurs in about one-fourth of the cases.

One of the most frequent, constant and earliest symptoms, is headache. It is usually constant, but varies in intensity. A very marked exacerbation takes place when there is a rise of temperature. As a rule, the headache usually localizes itself over the region of the abscess. But cerebellar abscesses have been known to cause frontal pain, and temporosphenoidal abscesses occipital pain. In regard to the tenderness on percussion over a brain abscess, Barker, Horsley, Macewen, and others, have frequently called attention to the circumscribed area, found just above the edge of the auricle, when an abscess exists within the temporo-sphenoidal lobe. Cerebellar abscesses have given us no hint of their presence through percussion.

Vomiting with and without nausea, upon an empty stomach, the well-known projectile cerebral vomiting, is rather characteristic of brain abscess. Vertigo is frequently met with in close association with the headache. Constipation in an individual who has not previously suffered with such a disturbance, and which proves stubborn to all cathartics, is a suspicious symptom.

Slow cerebration, with forgetfulness of important daily occurrences, a change in the character of the individual, who at one moment may be sad, silent, and morose, then suddenly becomes talkative, stubborn, and irritable, are characteristic symptoms. Frequently there is hypochondriasis with a tendency toward suicide. Delirium and maniacal attacks have also been seen.

The fundus changes, according to Macewen, are frequent but not constant. In the majority of cases a mild neuritis is present in both eyes. Seldom do we see the picture of a choked disc, as we find it in brain tumor. Usually it is more developed on the diseased side. It may be unilateral and occur only on the normal side. Optic neuritis is present in mild cases as well as in severe cases. Very often after the abscess is emptied, this neuritis may not disappear at once; in fact, it may progress for a time. There is never any marked disturbance of the vision and rarely does atrophy follow. With such symptoms we may imagine a clinical picture as follows: A patient with the history of suppurative otitis media presents himself. He appears frail, looks exhausted, and presents the appearance of a very sick man. His color is pale. He tells us that he is rapidly losing weight. His tongue is thickly coated. He is suffering with obstinate constipation. His headache is constant, excruciating, and localized. There is a slight rise of temperature with a slow pulse. He tells us that he has had several attacks of vomiting with vertigo. His slow speech, his miscomprehension at times of what is said to him, his forgetfulness, his desire to lie down and go to sleep, all these symptoms make rather a characteristic picture.

In regard to the local symptoms, we find that they present different pictures according to the location of the abscess in the middle or in the posterior fossæ. As it is not the purpose of this paper to go into this portion of the subject, the simple mention of the presence of local symptoms will suffice. It is well to call attention here to the fact that brain abscesses usually pass through four stages. These stages are recognized by most authors: An initial stage, a latent, a manifest, and a terminal one. The initial is of very short duration, and not characteristic. It shows itself by the presence of headache, vomiting, and fever, all of which symptoms might be accounted for by the primary ear condition. This stage passes rapidly into the manifest period, and not frequently into the latent. The latent period is characterized by symptoms of slight degree. Headache, depressive periods, and slight rise of temperature in the evening are in evidence. These the patient rarely notices, and the physician falsely interprets. This period may last a few weeks or as long as two years. The manifest period presents the symptom-complex of brain abscess. It usually lasts about two months, but it may continue for one year.

The terminal period is brought about by the increased brain pressure and edema with rupture of the abscess into the ventricles, or on the surface of the brain. This is often brought about through some mental excitement, or it may be due to a blow or fall upon the head.

The final outcome of uncomplicated brain abscess when uninterfered with is usually death. This is due to the increased brain pressure and edema, or progressive encephalitis followed by toxic coma, or the abscess may rupture into the ventricles or arachnoid membranes with the usual fatal consequences.

If certain matters pertaining to brain abscess in general have not been touched upon in this paper, it is for the simple reason that I wished to confine myself simply to otitic brain abscess. Furthermore, to call attention to only such conditions that bear upon and will help in directing the plan to be pursued when surgical interference is necessary. I would therefore like to emphasize the following points:

1. In those cases in which it can be demonstrated that suppuration is still going on in the middle ear, or contiguous parts, and one is reasonably sure that brain abscess complicates the condition, it is well to

remember that in 57 per cent. of such cases the brain abscess and the suppurative condition in the ear are in direct communication.

2. There are cases in which the suppurative process in the ear is active, but the abscess is separated from the primary suppurative condition by normal brain tissue. This occurs in about 26 per cent. of the cases.

3. The suppurative condition in the ear has ceased, and there is every reason to believe that a brain abscess is present and to be accounted for by this previous suppuration. The abscess may lie in close proximity to the original trouble or at some distance from it. In these cases no communication with the ear sinuses exists.

Numbers 2 and 3 are usually classified as metastatic abscesses and form about 43 per cent. of the cases that we meet with.

Finally, I would like to call attention to the fact that at times abscesses are latent and also may possess very thin walls. Furthermore, that they may be situated dangerously near the ventricles or the arachnoid space. In operating upon these cases, if the mastoid process is first attacked, the chiseling necessary to open these mastoids may lead to rupture of the abscesses with a rapidly fatal consequence.

Again, such abscesses may exist in the latent stage for a long time and become manifest after an ordinary trauma to the skull.

In all such cases, it is my firm belief that even though the abscess may be suspected, we should deal most radically with the suppurative ear condition first, and then boldly attack the abscess; my reasons for so doing being that, after all, while we are only suspicious of the abscess, and doubtful as to its exact localization, performing a radical mastoid may at once give us sufficient evidence of the presence of such an abscess and its exact location.

Taking these anatomical and clinical facts into consideration, in the treatment of otitic brain abscess, we should especially consider first the location of the abscess; second, its duration; third, its intimate connection with an existing suppurative process in the middle-ear cavity.

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PYLORIC STENOSIS.*

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The following paper is based upon the writer's experience in a class of cases which to him have been full of interest, because of the many difficulties in arriving at a correct diagnosis, viz., diseases in or about the pylorus, in which pyloric stenosis is a prominent symptom.

The surgical treatment of pyloric stenosis originated with Wolffer in 1881. Wolffer at that time was assistant to Billroth, and was engaged in operating upon carcinoma of the pylorus. Resection was found to be impossible, and Nicoladoni, who was acting as assistant, suggested the feasibility of attaching the jejunum to the stomach, so as to form a new outlet. This suggestion was acted upon, and a new lifesaving operation was given to surgeons, namely, gastroenterostomy. Because of the low mortality and the gratifying results when compared with pylorectomy, the operation at once became popular, and our present knowledge of the gross living pathology of diseases of the upper abdomen is based upon the information gained while performing this and gall-bladder operations.

The pylorus and duodenum have a fairly fixed anatomy, but the position of the jejunum varies in individuals and probably in the same individual at different times. The stomach, on the other hand, has a great motility. Its position varies according to its musculature, from a contracted organ lying back of the transverse colon in the lesser abdominal cavity, to an enteroptosis with dilatation in which it is found entering the pelvis. It can therefore plainly be seen that diseases affecting either of the organs give a great variety of misleading symptoms, and present a varied gross pathology. It necessarily requires a large number of observations and the combined work of physicians and surgeons to differentiate these various symptoms. Each year brings its store of information to the physician, gradually but surely allowing him to interpret the meaning of certain symptom-complexes. On the other hand to the surgeon each year brings experience in the gross pathology, and instead of recognizing only the late results of malignancy and peptic or duodenal ulcer, we now recognize other pathological conditions, quite distinct and apart, which produce either pyloric spasm or organic duodenal stenosis, namely, pancreatitis, appendicitis, etc. In looking back over my work, my sense of justice is somewhat shocked to find so many cases in which my inability to recognize the true condition led me into sins of omission.

Given a case with the typical picture of pyloric stenosis due to ulcer, hyperchlorhydria, dilatation, food stasis, pain, vomiting, and emaciation, with a previous history covering years or months of stomach trouble, no difficulty will be found in arriving at a correct diagnosis in a very large percentage; but unfortunately these pictures are seldom seen, and he is a wise and lucky surgeon who has not had what he considered a clear ulcer-picture before him, and operated only to be chagrined because of his inability to demonstrate a pyloric stenosis. And if he has been bold enough to do a gastrojejunostomy to cure a dilated stomach, his chagrin will deepen into despair when the patient presents himself weeks later, not only unrelieved of his symptoms, but with one added, namely, bilious vomiting due to regurgitation of bile through the stoma he has been good enough to add to the already diseased stomach.

It therefore seems necessary that the surgeon himself should be able to determine the value of symptoms. I have consequently been in the habit of studying the individual symptoms as well as the symptom-complex.

The first of these is *pain*. Upon looking over our case-notes, I find that pain was present in all cases of ulcer; in 40 per cent. of early cases of malignancy it was present; and in all the later malignant cases it was a prominent symptom.

Our experience leads us to believe that any stomach case, in which pain has been a long-continued symptom, not responding to proper diet and medicinal treatment, should be looked upon as a case to be investigated with a view of surgical interference. This does not mean that every case must be operated upon, as it is a well-known fact that the acute round ulcer will heal promptly in over 90

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per cent. of the cases when treated properly by diet and medicine. Of the 10 per cent. which do not respond to treatment at once, fully 5 per cent. heal in the hands of an expert, and the last 5 per cent. are ulcers of the lesser curvature or duodenum, and these are the ulcers that require surgical care.

The anemic dyspepsias occurring in underfed or pampered young adults, lasting over a period of time, and presenting the typical ulcer picture, must be differentiated and left severely alone.

In the so-called "hemorrhagic gastralgia" of Dawson, Herringham, Lejars, Mayo Robson, Monahan, and Frederick Smith, in which hemorrhage is added to the typical ulcer picture, as noted in the 20 cases operated on or coming to autopsy, reported by Hale White, no ulcer is found. These are possibly cases which need more investigation to determine the true pathology, like the hematemesis which was known to accompany cirrhosis of the liver and fought our best efforts for years. However, this rather rare disease, hemorrhagic gastralgia, is generally cured by gastrojejunostomy, because, as pointed out by Dawson, the alkaline secretion is added to the acid stomach through the stoma, relieving the hyperchlorhydria and also lowering stomach pressure.

It has been stated that lesions near the cardiac end of the stomach are associated with pain soon after taking food, while lesions about the pylorus produce pain long after ingestion of food. This statement, while logical, is not borne out by the facts. Of 60 cases investigated by operation or necropsy by Bertrand Dawson of London, in 23 pain occurred immediately upon ingestion of food, and in these 23 cases the lesions were divided as follows: 19 limited to the pylorus, 3 ulceration at the lesser curvature, while in one case nothing was found except pyloric adhesions (possibly pancreatitis).

In three cases where the head of the pancreas, bile ducts, and duodenum were bound by adhesive inflammation and where a tumor could be felt before operation, pain was not a prominent symptom. It may therefore be said that here, as in other regions of the body, pain depends upon the individual rather than upon the position or extent of the lesion. It may generally be said, however, that pain from chronic ulcer with stenosis is more intense than pain which accompanies early cancer.

Hemorrhage from the stomach may occur from acute round ulcer, chronic duodenal ulcer, cancer, saddle-ulcer, and hemorrhagic gastralgia. It may be alarming in amount or it may be microscopic. Its presence means erosion. Its importance depends upon its position in the symptom-complex.

Vomiting. In duodenal or peptic ulcer, pain is generally followed by vomiting; but I have notes of two cases in which operation established the diagnosis and the pain was of the most distressing kind, yet in which vomiting was a rare occurrence. Vomiting is useful only when present in a symptom-complex. It may occur in many gastric and general diseases. Last year was reported a cerebral tumor in a patient who, six months before, had been subjected to gastrojejunostomy. I am in the habit of placing this symptom last in the list for investigation.

Chronic atonic *dilatation* has no significance and must be disproven; pyloric spasm never occurs in these cases. Only when dilatation is accompanied by food stasis need it be considered, and even then the significance of these two symptoms must depend upon stomach analysis.

Stomach analysis, both microscopical and chemical, is our greatest aid in differentiation; but in order to be of value, it must be made with care and accuracy. The chemical analysis must be both qualitative and quantitative. It must be made by an expert, as in many cases his findings must be taken as final in deciding for or against operation.

Our routine is as follows: (1) Distention of the stomach to determine its position and mobility. (2) Withdrawal of contents of stomach 8 hours after ordinary meal to determine food stasis. (3) Analysis of the stomach-contents after test meal. (4) Misroscopic examination of contents of the fasting stomach. (5) Microscopic and chemical analysis of feces.

It has been stated that discretion is necessary in this class of cases in the use both of the stomach-tube and of distention. We have never had an accident and feel quite free to use either in any case where it seems necessary to establish a diagnosis. Perforation from any cause is the exception and not the rule. In 20 years of abdominal work I have seen only six cases. Dr. Edward J. Ill of Newark, who has had an extensive work for years, has seen only one. Ellsworth Eliot, Jr., of New York reported but seven at the New Jersey State Medical Society Meeting in 1908, and Monahan reports 27 cases.

We may now ask ourselves what causes the symptoms of pyloric stenosis. It may be a spasm of the pyloric outlet or an organic stenosis.

Spasm of the pyloric outlet.—Our present knowledge of stomach digestion seems to indicate that the cardiac end of the stomach acts as a pouch or retainer of food, while the pyloric end, which is possessed of great muscular power, acts as the mixer or churn; and that the pylorus remains closed during digestion, and only opens occasionally to allow a certain amount of acid (*chyme*) to pass into the duodenum. Cannon states that this action depends upon a proper acid mixture, and that when the acid stomach-contents are neutral, the valve-like aperture remains closed. This explanation coincides with our experience in cases of carcinoma and chronic pancreatitis, in which, at the time of operation, the size of the pyloric aperture does not account for the great food stasis.

The following case illustrates pyloric spasm due to a chronic obliterating appendicitis. In April, 1906, I was asked to see the wife of a New York physician who had been ill for several months. Her symptoms were those of marked pyloric stenosis, viz., vomiting and pain on ingestion of food. While her stomach was empty she was moderately comfortable, but as soon as food of any kind was taken, her agony was intense until relieved by vomiting. There had been periods, varying from a few hours to a couple of days, when the symptoms were ameliorated, and then, from some cause unknown to the patient, another attack would ensue and last several weeks. Her emaciation was most marked; she had lost 35 pounds and now weighed less than 100 pounds. Her skin was sallow and had lost its tone; the bowels were constipated. Nothing was found in a very thorough physical examination which would help in diagnosis, and there was no localized tenderness over the gall-bladder, stomach, or appendix. Gastric analysis showed a marked hyperchlorhydria. After studying the case carefully, I advised an exploratory celiotomy. At operation the stomach, pylorus, duodenum, and gall-bladder were found normal; but the appendix was undergoing a fibroid change (appendix obliterans). Appendectomy was performed, and at once the

whole picture was changed; the patient gained 35 pounds in six months, could eat anything, and there has never been a recurrence of the pyloric spasm.

A merchant 56 years old had for a number of years been treated for chronic dyspepsia—hyperchlorhydria. His physician stated that he had always been relieved by alkalines until a year ago, when mineral acid acted best. (I think the above statement an important one as an aid in diagnosis.) Twenty-four hours before I saw him, he was attacked at night, after a hearty meal, by severe general abdominal pain, followed by frequent vomiting, which continued and was not relieved by half a grain of morphine given hypodermically. When I saw him, his temperature was normal; at frequent intervals he was vomiting a dark fluid containing mucus, bile, and microscopic amounts of blood. The stomach was apparently dilated, though the degree was undetermined, since the whole abdomen was distended. There was a mild jaundice. There had been no stool for 24 hours, but he had passed a small amount of gas per rectum. He looked to be a very sick man. There was no bulging at the hernial openings; both obturator foramina were free; rectal examination was negative; leucocytes 8,000, polymorphocytes 72 per cent.; urine negative; no distinct tenderness except over the pancreas, and this only moderate; esthesiometer 10. His stomach was washed out and a large quantity of dark fluid secured, which was faintly acid and contained bile but no shreds. The stomach was washed out at four-hour intervals for three days, when the pyloric spasm subsided and food passed as usual. This man had possibly had for years a chronic duodenal ulcer, which had healed with some contraction of tissue and adhesions producing a pancreatitis (this latter condition was proved later by examination of the stools and the urine.) After unusual indulgence in food, his chronic pancreatitis became acute, producing spasm of the pylorus. He is now quite well. Formerly we were in the habit of looking upon these cases as due to intestinal paresis, now we differentiate.

Some years ago I was asked to operate upon a gentleman who had a typical picture of pyloric stenosis. On opening the abdomen, I found a large dilated stomach with pylorus admitting two fingers (certainly no stenosis). I felt chagrined at my mistaken diagnosis and closed the abdomen without doing anything. My chagrin must have been mild, however, to that of a metropolitan brother-surgeon, who, six months later, laughed at my timidity. He opened the abdomen and did a posterior gastrojejunostomy. The patient lived long enough to haunt him, and beg him to close the stoma, as his last condition was worse than the first; his pyloric spasm was made worse instead of better. I saw this case before I knew much about spasm due to pancreatitis, but think this was such a case.

It has been pretty conclusively proven by Kelling that unless there is a true organic stenosis, no food will enter the jejunum through the stoma; but it is washed time and again against the spasmodically contracted pylorus.

Just what part diseases of the pancreas play in this most interesting condition we are not in position at this time to say, but cases have been reported by Mayo Robson which, when analysed, would seem to indicate that in the future we shall look upon pyloric spasm as a symptom of pancreatitis. Our present knowledge of pancreatitis is most vague, and the reason is easy to explain. This organ is situated deep in the abdomen behind the colon and duodenum, and is frequently covered by the stomach, making palpation impossible. Its diseases are either alarmingly acute—acute suppurative pancreatitis, or very chronic—chronic interstitial pancreatitis. Until quite recently no attention has been given to its pathology, and it is now receiving only its merited attention. I shall speak later of the part played by this organ in organic stenosis.

Organic duodenal stenosis may be caused by cancer, duodenal ulcer, benign tumors, pancreatitis, gallstones, and adhesive inflammation starting in the gall-bladder or ducts.

The question: Is cancer of the stomach a curable disease? may be answered as we must answer the question in regard to cancer in other regions of the body—yes, by early operation. Rodman's operation for the removal of the pylorus is a scientific and eminently successful operation when undertaken before glandular involvement, and when the tumor mass may be raised with the pylorus. On the other hand, gastroenterostomy for the relief of pyloric cancer has proven a failure, and this in the hands of the best operators. There is an immediate mortality of 25 per cent.; Mikulicz gives 25 per cent., Kroenlein 24.2 per cent. The prolongation of life after the operation, as compared with cases not operated on, is about three months (Mikulicz, Kroenlein, Dawson, and others). Patients with cancer of the stomach, as proven by operation, do not die from stenosis as a rule, but from the asthenia and toxemia due to the disease. Dawson of Guy's Hospital made a critical analysis of eight patients who had a gastroenterostomy performed for inoperable cancer of the stomach. In seven of these the duration of life was between six weeks and six months, and in all the quality of life was bad; all symptoms were unrelieved. In one, the patient gained two stone and in every way was better, but upon inquiry this was found to be a pylorectomy with gastroenterostomy (Rodman). When cancer of the stomach is inoperable and there is no doubt in my mind about the nature of the growth, I am not in the habit of doing a gastroenterostomy. While this latter opinion was gaining ground with others, I had become convinced that the immediate risk did not compensate for the small benefit derived.

The above showing should put physicians on their guard for the early recognition of cancer of the stomach. Remember that in ulcer the total acidity is high, 0.2-0.3 per cent. Most of the acidity is due to active hydrochloric acid, and free hydrochloric acid is present in large amounts; whereas in cancer, the total acidity is low, free hydrochloric acid is generally absent, and the combined form is present in small amounts. Physicians should also recognize that from 66 to 80 per cent. of all cancers of the stomach are implantations of carcinoma upon a chronic ulcer. Early cancer of the stomach is difficult of diagnosis and cure; whereas ulcer is comparatively easy both to diagnose and to cure.

True, or organic, duodenal stenosis may be due to a disease of the pancreas, as reported by Galladet, Monahan, and Mayo Robson. Robson states that the intimate relation of the head of the pancreas to the duodenum may lead to its invasion by diseases of the gland. He says: "I have seen this on several occasions, or the converse invasion of the pancreas from the duodenum," and, further, "I recently observed a case of this kind, in which the first effect of

the disease was to produce a stricture of the duodenum, and the next effect was a glycosuria which proved fatal." In the *Annals of Surgery* for August, 1899, Galladet reports a cancer of the head of the pancreas which totally obliterated the lumen of the duodenum. When the head of the pancreas is especially thick, it overlaps the sides of the second part of the duodenum, and may embrace one-third of its circumference; in rare cases it may surround the bowel. Should the pancreas be enlarged in such a case from any cause, such as catarrh of its ducts or interstitial pancreatitis, it would produce a constriction. Six such cases were reported by Mayo Robson, and in all there were symptoms of pyloric stenosis.

Chronic duodenal ulcer furnishes the greatest number of duodenal stenoses, and these, together with the stenoses due to adhesions, furnish us our most brilliant results. I know no more satisfactory operation in surgery than a gastroenterostomy or a Finney operation upon a patient who for years has been in pain and has suffered slow starvation. The effect is immediate; the sallow face clears, the subcutaneous fat reappears, and the patient is at once restored to health and usefulness. It is not uncommon for these patients to gain 30 to 50 pounds in six months. Monahan's latest statistics on the late results of operation (*British Medical Journal*, May 9, 1908) are as follows: Number of cases, 205; cured, 148; relieved, 5; doubtful, 9; not reported, 12; not relieved by operation, 12; died as result of operation, 2; died from cancer, 7; died from other causes, 8.

THE SYMPTOMATOLOGY OF TUBERCULOSIS OF THE LARYNX.

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A GREAT step forward in diagnosis and treatment would be taken if a routine and comprehending examination of the larynx were to be made in every case of pulmonary tuberculosis. Unfortunately, the amount of patient effort, experience, and skill required to see and properly interpret the picture presented is such as to make a procedure satisfactory in the hands of comparatively few internists. Much has been said and written regarding the rôle and importance of the tonsils in tuberculosis, much that is of practical significance, and much that must always remain in the realm of pure theory. One reason for this is the comparative ease with which at least a superficial examination of the tonsils can be made. It is unfortunate that the difficulties of technique in the way of a laryngoscopic examination have prevented there being devoted to the larynx that general attention which the importance of the subject demands. As well ignore the stomach in the diagnosis and treatment of intestinal disease, or the urethra in affections of the bladder.

A case in point was seen within the last week. This patient was sent to me for a diagnosis of his laryngeal condition, with a history of hoarseness commencing eight months ago and gradually getting worse until finally there had supervened complete aphonia. Along with this there had been a slight loss of weight and a certain amount of lassitude. His physician reported to me that examination of his chest was negative, no bacilli could be found in his sputum, and Calmette's ophthalmic test was negative. With these data there was presumptive absence of tuberculosis and yet examination of the larynx revealed advanced tuberculosis of that organ, with extensive infiltration of the epiglottis and arytenoids and destruction of the vocal cords.

Should the invariable examination of the larynx become an accomplished fact much suffering would be avoided and many lives saved. This standard being at present unattainable, there are certain danger signals which should be inquired for and noted by the clinician, the significance of which should be early determined by one skilled in laryngoscopic examination. While there are undoubtedly some cases of laryngeal tubercle in which there is nothing to attract the attention of the attending physician, in the very large majority there exist signs pointing toward involvement of the voice-box. All that can be diagnosed without inspection is that there are probably present some tuberculous implantation and activity, the form, degree, situation, probable course, importance, and curability being determinable only by a view of the interior of the larynx. But if by inquiring into the symptoms an appreciation of the importance of laryngeal examination and treatment can be ascertained, not a little will have been gained.

Changes in the Voice.—These are positive indications of there being *something* wrong with the larynx and demand imperatively that the situation be cleared up. These vocal alterations may be tuberculous or nontuberculous in causation and may vary from slight transient huskiness to complete aphonia. The only deduction that can be drawn is that there is involvement of the voice-producing mechanism, the exact character, form, size, and situation of the lesion being determinable only by inspection of the interior of the larynx.

A symptom I have noted in a few cases is, during conversation, a slight rotation and twisting of the head, toward the position found in torticollis. When this has been present I have usually found a cicatrized and arrested tuberculous lesion of the voice-producing apparatus. It can be explained on the basis that the scars of the healed tubercles so pull upon and distort the intrinsic laryngeal muscles and interfere with their proper action that unconsciously the patient tries to aid in overcoming this interference by slightly changing the position of the larynx.

In this connection it should not be forgotten that while the patient is tuberculous the lesion in the larynx may be of an entirely different character, *e.g.* syphilitic, hysterical, a part of a general asthenia, or the result of mechanical interference with the nervous mechanism of the larynx, especially the inferior and external laryngeal nerves.

Cough.—As there may be pulmonary tuberculosis without cough, so may there be similar disease of the larynx without any resultant cough. As is the case with other symptoms, this is dependent upon the form and situation of the lesion. After inspection of the interior of an irritated larynx it is always difficult to determine to what extent the irritation is secondary to the cough or the cough secondary to the local disease. This can be determined only by a critical correlation of the data obtained by examination of the chest and throat, combined with an appreciation of the "habit" of the patient.

As a practical working basis it can be assumed that if the cough is harsh, "throaty" in quality, and unproductive or out of proportion to the amount of sputum, there is present more or less laryngeal irritation at whose door can be laid some of the responsibility. And, if there be absence of or but slight alteration in the pitch and quality of the voice, in all probability there will be found some involvement of the interarytenoid region.

Should there be present large infiltrations of the arytenoids the patient will have a characteristic, tubular, indescribable quality to the voice which is almost pathognomonic. After it has been heard a certain number of times it will readily be appreciated and interpreted. It is in all probability due to the alteration of the shape of the glottis by impingement on its lumen of the enlarged arytenoid cartilages.

Sputum.—Not much that is significant can be gathered from study of the sputum. Microscopical examination will afford no information whatever, for if bacilli are present the natural and reasonable assumption will be that they are derived from open pulmonary tubercles.

There is, however, one condition appertaining to the sputum, which should point at once to a searching examination of the larynx. The following history is not infrequently presented: The patient awakens with a feeling of fulness and dryness in the throat, associated with huskiness or some degree of aphonia. On arising coughing begins, frequently associated with retching or even vomiting, and continues until there is ejected a discoidal mass of inspissated mucopus, dark, hard, and dry on one side, and yellow, green, sometimes blood-flecked, and moist on the other. But before attaching special importance to a mass of this kind one should be careful to elicit clearly the fact that it is coughed up from below and not "hawked" down from the nasopharynx, whence such crusts so frequently come.

These accumulations form in the interarytenoid region and are due usually either to a desquamative process or to a hyperplasia. Occasionally they may be cast off from erosions or ulcers situated elsewhere in the larynx. The rationale of their presence is that the natural upward current of the pulmonary secretions and entangled inspired particles is interrupted and during sleep there is slowly dammed up a quantity of gummy material, which during the somnolent quiescence of the larynx thickens, dries, and becomes adherent to the subjacent tissue. In the morning its presence is appreciated and Nature's method of removal, coughing, is instituted, phonation being meanwhile completely or partially prevented by the mechanical interference of the crust with the vocal apparatus. The presence or absence of the blood specks is dependent upon the depth of the underlying erosion or the persistence with which the crust adheres. Ejection results in either immediate or slightly delayed return of the voice.

A possible source of error is that similar but usually smaller accumulations are the result sometimes of tracheal erosions, but in such an event there would be no interference with voice production.

Blood.—The presence of blood in the sputum can be but rarely attributed to the larynx. Out of many hundreds of cases of laryngeal tuberculosis examined in but one have I seen bleeding from the larynx. This case was a young woman with a huge cicatrized left arytenoid, and from the left laryngeal ventricle was trickling a slight but steady stream of blood, which tended to accumulate upon the anterior third of the vocal cords. My experience has led me to believe that in tuberculosis hemoptysis traceable to the larynx is so rare as to be practically a negligible factor.

Pain.—This is the most serious symptom of all and should always be a matter of the deepest concern. It is worthy of note that while as a rule pulmonary disease is almost painless, even in its worst phases, tuberculosis of the larynx presents at times one of the most pitiable pictures which a medical man has to face. It is probably for this reason that the laity look upon "throat consumption" as being such a terrible disease.

If the pain is transient and associated with other symptoms of acute inflammation it may be due to an acute process which will undergo prompt resolution, leaving no untoward sequelæ. If it partakes of the nature of a dull, heavy ache and is associated with the sensation of a "lump in the throat," this sensation being increased during swallowing, there is probably present some infiltration of the arytenoid cartilages, or early disease of the epiglottis. If the pain is of a more severe type and especially if agonizing during swallowing, there is likely to be found a general infiltration or marked ulceration of the supralingual portion of the epiglottis. Should the pain be noticeable only during the ingestion of acid fruits and highly seasoned food it can be assumed that there is present an ulcerative condition of that part of the larynx with which the ingesta come in contact during deglutition. This area comprises the epiglottis above the cushion, the posterolateral aspect of the arytenoepiglottic folds and the pharyngeal surface of the arytenoids.

Pain radiating toward the ear usually indicates involvement of the same side of the larynx. If it occurs when the larynx is at rest it generally indicates a lesion of the ventricular band or the arytenoid cartilage, and of the latter usually a late form. If it occurs during deglutition, advanced disease of the epiglottis is probably present, in addition to a possible involvement of the arytenoid or the ventricular band.

Odynphagia.—This is a symptom of decided importance and varies in degree from a mere evanescent discomfort to a degree of suffering so agonizing as to practically prevent the taking of food. When this is present there can usually be found involvement of some portion of the oblique periphery of the larynx, which includes the epiglottis, the arytenoepiglottic folds, the arytenoid cartilages, and the interarytenoid region. The most severe forms are usually dependent upon disease of the epiglottis, which may be either infiltrative or ulcerative in character.

Dysphagia.—This is rarely present unless associated with odynphagia. It is infrequent that one finds a swelling of sufficient size to cause difficulty in swallowing without there being some degree of pain. In other words, in laryngeal tuberculosis in which the patient experiences trouble in deglutition, it is usually due to the pain and rarely to purely mechanical obstruction.

Dyspnea.—This symptom may occur early or late and may be of so slight degree as to create the impression in the mind of the internist of being pulmonary or cardiac in origin. It may be due to an acute process, to a true hyperplasia or infiltration or to a rapidly or slowly advancing edema. In one

case of mine in which tracheotomy finally had to be done, there was noticed a gradual failure of motility at the cricoarytenoid joint and a slow approximation of the vocal cords. A transient form is often seen in which either moist or dried sputum catches in the larynx and causes terrifying interference with the passage of air.

In connection with the above summary of symptoms there are one or two points that should be mentioned. One is that the enumerated symptoms have been considered only in their relation to the larynx, to the exclusion of possible diseased conditions in other parts of the upper respiratory tract, and in analyzing them the tonsils, pharynx, uvula, etc., should receive proper consideration. Another point is that these symptoms are being elicited from the patient and not from the disease, and therefore the nature of the patient, his personal equation, and all other concomitant conditions should enter into the calculation before attaching the proper value to the information that may be received by questions as suggested in this article.

330 South Sixteenth Street.

Urobilinuria not a Sign of Hepatic Insufficiency.—A. Gilbert and M. Herscher tell us that all the clinical facts show that the kidney rather than the liver has to do with the production of cholemia. The kidney acts as a chemical reducer whose power can be increased or diminished. Urobilin is not the pigment of a diseased liver but is derived from normal bile pigments, produced by reduction in the kidney. Urobilinuria is not a sign of liver insufficiency, but an indication of cholemia which allows us to judge of the kidney condition. The authors give illustrative cases in three groups: urobilinuria with normal liver; absence of urobilinuria with hepatic insufficiency; and absence of urobilinuria when there is hepatic insufficiency, followed by urobilinuria when the liver begins to function normally.—*La Presse Médicale.*

Rapid Artificial Dilatation by Bossi's Method.—Joaquin Cortiguera considers Bossi's dilater the best instrument for dilatation of the cervix when rapidity is desired. The various other methods are much slower and expose the patient to the dangers of infection for a longer period of time. The various instruments used are more apt to become septic while in use. To apply the different forms of rubber bags a preliminary dilatation is necessitated before they can be introduced. Deep incisions require suture, Bossi's dilator is easily made aseptic and easily applied. There is no need of serious tears or hemorrhage if it is applied slowly, from three-quarters to one and one-half hours being used in completing labor. This method should be used only when there is serious danger to the mother. Dilatation should reach a little more than the diameter of the head, since some contraction takes place after the withdrawal of the instrument. It is indicated at all stages of pregnancy when it becomes necessary to terminate pregnancy for the sake of mother or child. It is contraindicated whenever the pelvis is too small to permit of natural delivery. It is indicated when the fetus is abnormally large, as when labor is delayed more than nine months; when the shoulders are very large; when the internal os is contracted; in eclampsia; and in placenta normally implanted, but prematurely separated. In placenta previa it is doubtful if it is as efficacious as version.—*Journal de Médecine de Paris.*

Contribution to the Study of Oppenheim's Disease.—Simonini describes a case of Oppenheim's disease observed by himself. This disease consists of a flaccid paralysis involving most of the muscles of the body, more markedly those of the arms than of the legs, accompanied by absence of reflexes and of contractures. The muscles of the neck and back are affected so that the patient is unable to sit erect or hold up the head. Sensation is perfect. The affection is congenital. There is no atrophy of the muscles and those of the face are not affected. Electric excitability varies and may be diminished. Intellect is not affected, nor the special senses. The affection seems to be a miatonia rather than a paralysis. There seems to be no central nervous lesion but rather a non-development of the muscular system. The affection is susceptible of amelioration by treatment.—*Rivista di Clinica Pediatrica.*

Aphasia and Broca's Convolution.—A recent editorial notice in the *British Medical Journal* refers to Marie's observations of the left cerebral hemisphere of a case of complete motor aphasia which seemed to show that Broca's convolution was unaffected. This surmise was verified by numerous sections which revealed an area of softening in Wernicke's zone in the temporoparietal region. At the same time he showed the brain of a right-handed patient who during life had been affected with word-blindness, word-deafness, agraphia, and jargonaphasia, without anarthria (inability to articulate words), which is the complex of symptoms known as Wernicke's aphasia. There were two foci of softening in the left hemisphere; one of these involved a large part of the foot area, and orbital part of the third, and the posterior third of the second, left frontal convolutions. The other involved the upper half of the posterior third of the first temporal convolution, and of the middle part of the inferior parietal lobule sparing the angular gyrus. Horizontal sections showed that the frontal lesion was very deep, and that besides the injury to the third frontal convolution the destruction had involved the anterior portion of the island of Reil; the posterior two-thirds of the island of Reil were intact, as were also the external capsule, the internal capsule, the central gray ganglia, and the deep temporal. The temporoparietal focus of softening although extensive was superficial, and did not penetrate deeply into Wernicke's zone. These lesions explain the symptoms quite satisfactorily on Professor Marie's theory, as Wernicke's aphasia is due to softening of the temporoparietal gray matter; the integrity of the temporoparietal isthmus and of the lenticular region explain the absence of anarthria, while, in spite of the extensive and deep lesion of the third frontal convolution, there was no motor aphasia, which is inconsistent with the generally accepted doctrine.

Pathogenesis of Nervous Complications in Pertussis.—Durando Durante finds that nervous complications of pertussis are not rare. He has made a study of the cause of the occurrence of these symptoms. The clinical picture is very various and differs in intensity and extent. The commonest symptom is convulsions. There are various forms of paralysis, bulbar, spinal, and peripheral, polyneuritis, and troubles of the special senses. The pathogenesis is not well defined. The rapid onset, short duration, and recovery indicate that there is no permanent lesion. They may result from hemorrhage, and changes in the circulation due to the violence of the cough, and increase of blood pressure. Another explanation is that they are due to carbonic acid poisoning from asphyxia. Predisposing causes are weakness, loss of sleep, and inability to retain food. The specific toxic element of the disease is an important factor. The author has made a study of the expectoration in these infants. He finds that there is marked increase in virulence of sputum from such cases.—*La Pediatria.*

A Safe Method of Opening the Abdomen.—The Vienna correspondent of the *Lancet* calls attention to Lihotzky's method of opening the abdomen—the supra-symphyseal transverse section of the fasciæ. The incision is from three to four inches long, slightly curved, and extending transversely over the pubes, dividing the skin, subcutaneous tissue, and fasciæ. The latter are then detached from their base upward and downward so that the recti and pyramidales muscles are free. The recti muscles are then divided in a longitudinal direction so that they are held only by a thin layer of connective tissue and the transverse fascia and the peritoneum are subsequently incised. This method gives a very ample access to the abdominal and pelvic organs. Tumors reaching up to the umbilicus can be easily removed through the opening. All operations on the uterine adnexa as well as the total extirpation by Wertheim's method and the operative treatment of extrauterine pregnancy can be easily performed. The closure of the wound is effected in the following manner. The peritoneum and the recti muscles are sutured in the longitudinal direction and the fasciæ and skin in the transverse direction. The sutured wound is covered with gauze, held down by two strips of adhesive plaster. After eight days the sutures in the skin are removed, after which the patient may be out of bed without any abdominal belt. The cosmetic defect of the scar is soon concealed by the hair growing over it, especially if the incision is not very large, while the transverse scar is not liable to become stretched with formation of ventral hernia. This functional superiority of the horizontal incision over the vertical one has been proved by many hundreds of cases in Germany and also in Austria. The method is also available for a bilateral Bassini operation if the angle of the incision is drawn well to the side by means of a blunt hook.—*The Lancet.*

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MODERN CONCEPTIONS OF TYPHOID FEVER.

VIEWS as to the origin of various diseases are changing constantly, or rather, it should be said, developing. Knowledge in regard to their causation is ever on the increase, and the more that is learned concerning them makes those whose life work is research realize how much more remains to be discovered. The past few years have been especially fertile of valuable work, both in true scientific research and in placing the discoveries already made on a proper footing. At the present day, for example, to isolate and make known a germ which has been invariably found in those suffering from a certain disease, does not always warrant the discoverer in the absence of other evidence in stating with confidence that this germ is the sole causative agent. For instance, but a few years ago it was believed that the *Bacillus typhosus* of Eberth alone was the causal agent of typhoid fever, but such is not the general belief at the present time. Major I. C. B. Statham, writing on the complex nature of typhoid etiology in the *Journal of the British Royal Army Medical Corps,* for October, 1908, says that the knowledge of recent years has forced us to realize that there are quite a number of allied but distinct species of bacteria, any one of which is capable of originating typhoidal disease, that in fact the etiology of this condition is as complex as its symptomatology. Again he says that we now also know that this group of bacteria, while at one time originating a disease with all the clinical symptoms of typhoid fever, may at another time cause pathological conditions utterly unlike it. Typhoid fever is, in fact, a group disease produced by a group of organisms. Major Statham gives a list of five subgroups of bacteria capable of originating disease in man indistinguishable from typhoid fever. These are: (1) *Bacillus fecalis alcaligenes;* (2) *Bacillus typhosus;* (3) *Bacillus paratyphosus A;* (4) *Bacillus paratyphosus B;* (5) *Bacillus coli.*

In connection with Major Statham's paper, Mr. Leonard S. Dudgeon, in the course of the Horace Dobell lecture, delivered before the Royal College of Physicians of London on November 12, 1908, referred to the persistence of the pathogenic bacteria causing typhoid fever, and he would not limit the term "typhoid carrier" to the carrier of the typhoid bacillus, but to one who harbors any of the organisms mentioned by Major Statham. The persistence of the germs of typhoid fever for longer or shorter periods is manifestly of the utmost importance, and this fact has been known for only a comparatively short time. But that the feces or urine of patients who have recovered from typhoid fever may be infective and a wide source of danger for months or even years is now a matter of common knowledge. It is stated that from about 3 to 4 per cent. of typhoid convalescents become chronic carriers and of those who have been associated with typhoid cases a small proportion may excrete the bacillus temporarily; and moreover it has been shown that those who never had any illness which had been regarded as typhoid fever may have bacilli of the typhoid-paratyphoid group in their feces. Mr. Dudgeon in his lecture gave numerous instances of the persistence of germs causing typhoid fever amongst individuals who had either suffered from the disease or whose illness had not been diagnosed as such, or who had not suffered from typhoid fever or from any disease resembling it. In conclusion, he drew attention to the point that the latent persistence of the typhoid-paratyphoid group of organisms in the tissues is of considerable importance from whatever aspect the subject is considered. That organisms which are known to be capable of giving rise to serious epidemics may practically live as saprophytes in our tissues, with or without occasional periods of activity, or be discharged from our bodies and thus be the source of acute infection in a fresh host, must be regarded as a reason for reconsidering our views concerning these infections.

Many epidemics of typhoid fever have been mysterious in their origin and some impossible to trace. The persistence of the bacteria causing the disease in the bodies of those who have undergone an attack will explain to a large extent the origin of many untraceable epidemics. Probably of all the "typhoid carriers" those termed temporary or acute carriers, who excrete the typhoid bacilli for a short time only, are the most dangerous to the health of the community. It may be mentioned as an interesting fact that many writers on the subject have noticed the far greater frequency of typhoid carriers among women and also that in women biliary calculi are of very common occurrence.

THE INTERPRETATION OF BLOOD PRESSURE RECORDS.

THE estimation of blood pressure has assumed such importance in the practice of medicine that a sphygmomanometer now forms a part of the equipment of many physicians, and charts of blood pressure as affected by drugs and other treatment compose a part of the routine records in several hospitals of New York City and elsewhere. On the other hand, the essential meaning of the records thus obtained is not completely agreed upon. In the first place, the accuracy of the instruments used and their comparative uniformity has been widely questioned by experienced clinicians whose fingers often fail to appreciate greatly increased tension in the arteries which is shown to exist by the manometer reading. Then again the readings given by the machines have

been widely looked upon as depending only upon the pressure existing within the vessels, and but little if at all affected by the condition of the vessels themselves. It is this latter teaching that is seriously questioned by William Russel in his recent monograph on the subject (Arterial Hyperotonus, Sclerosis, and Blood Pressure," Edinburgh, 1908). According to him at least three elements enter into the production of the record that is usually spoken of as blood pressure. They are the soft tissues surrounding the artery, the arterial wall, and the pressure of the blood within it.

The first factor is practically negligible and has been so treated by all users or designers of blood pressure machines. The second factor, on the other hand, is of the utmost influence upon the production of the reading, a fact which Russel has demonstrated by an ingenious apparatus in which tubes of different thickness were used to represent blood vessels. The pressure within these tubes was carefully kept at a uniform point, yet it took widely different external pressures to obliterate their lumina. The conditions of these experiments closely approached the circumstances existing in the blood-vessels of the animal, so far, of course, as dead material could imitate the living vessels; the conclusion drawn from them by Williams is that not a small part of the record usually designated as blood pressure is due to the thickening of the arteries, whether this is caused by a permanent change in their substance or is due simply to the temporary contraction of their muscular walls. The best clinical evidence of this he finds in the enormously high reading obtained in some chronic cases. If these readings were to be taken to indicate the existence of such blood pressure in the arteries the conclusion would be unavoidable that the vigor of the heart could rise to something like 200 per cent. above the normal in a disease like chronic interstitial nephritis. The assumption of Williams that the tightening of the arteries is responsible for these high readings certainly seems much more probable.

At the same time, though the interpretation of the readings obtained with the sphygmomanometer must be changed if the conclusions made by Dr. Russel are to be accepted, the value of the instruments is not at all diminished. The only thing to do is to devote careful study to the separate elements responsible for the manometric reading; the effect of illness, medication, or any other factors upon the different elements may then be learned and the phenomena of circulation both in health and in disease be better understood. The vascular phase of disease in contradistinction to the cardiac element has recently attracted much earnest attention, and Dr. Williams' contribution is an extremely valuable addition to that subject.

BOVINE TUBERCULOSIS.

The effect of milk and meat obtained from cattle suffering from tuberculosis is assuredly one of the most burning questions of the day, from the point of view both of the general public and of the medical profession. However, it is now more or less a matter of agreement among the majority of medical men that tuberculosis can be transmitted and spread by infected milk. As for the danger to be feared from the consumption of meat from a tuberculous animal, opinions are far less decided, and perhaps the view generally held is that infected meat is not often, if ever, a means of transmitting tuberculosis. In a few words, it may be stated that milk from tuberculous cows may be looked upon as a grave menace to the health of the community, but that sufficient is not yet known concerning the danger to be apprehended from tuberculous meat to warrant definite statements being made. The whole subject of bovine tuberculosis affects this country more probably than it affects any other country of the world, owing to the enormous business done in the rearing of cattle. Consequently, at the recent international congress on tuberculosis, held in Washington, great prominence was given to this question. It is known that, or rather it is a matter regarding which there is but little doubt, that the tuberculous cow is a source of much danger to the community. The object now is how to minimize this danger as far as is possible. It may not be feasible wholly to eradicate tuberculosis from dairy herds, at any rate not for a very considerable period of time, but it is feasible to place things on a more satisfactory footing than they stand at present in this respect. A great difficulty in the way of successfully solving this problem lies in the fact that it is not known or nearly known how many cows in this country are tuberculous. Estimates as to the prevalence of tuberculosis among dairy cows vary very widely. By some authorities it is given at 10 per cent., and others put it at 90 per cent. Doubtless both estimates are erroneous, but it is certain that very large numbers of tuberculous cows exist in all parts of the world. Cows may seem to be in splendid condition and yet may suffer from tuberculosis. All those that react to the tuberculin test have tuberculosis, however slightly, and the question is what is to be done with them.

It used to be an article of belief that the only cows which were distinctly dangerous were those which had tuberculosis of the udders, but it is thought now that this limitation is not sufficiently stringent. Dr. E. C. Schroeder, for instance, points out in Bulletin 118, issued by the United States Bureau of Animal Industry, that many tuberculous animals expel tubercle bacilli in the feces and in consequence are liable to contaminate the milk during the process of milking. It would not be practical or practicable to destroy all animals that showed a reaction to the tuberculin test. Further, it must be borne in mind that cattle that have been tested frequenly fail to react, although they may have become tuberculous in the meantime. Dishonest methods also may render testing abortive, and mistakes are not infrequently made even when great care is taken. In certain cases the use of tuberculin may have assisted to spread the disease, as cattle thus shown to be tuberculous, as a rule are sold at once and may carry the disease to other herds into which they are admitted.

The entire matter simply bristles with difficulties

and must be approached in a cautious manner. Dr. J. G. Rutherford of Canada, speaking on the subject at the congress at Washington, thought that some sort of legal control was absolutely necessary and that all milk from cows that reacted to the tuberculin test should be pasteurized. He was also of the opinion that one or more clinical cases occurring in a herd should suffice to justify Governmental interference, together with the compulsory preparation of a report. On one point probably all who desire to check the spread of tuberculosis by means of infected milk will be agreed, namely, that all cows which have tuberculosis of the udder should be destroyed. Segregation of diseased animals would be another step in the right direction. After all, the most obvious method of eradicating tuberculosis from dairy herds and from cattle generally is to keep the animals under good sanitary conditions. As long as cattle and cows are massed together in ill-ventilated, unhygienic sheds so long will tuberculosis flourish among them. Open air treatment is as much indicated for tuberculous cattle as for tuberculous human beings, and if cattle and men were reared in a hardy way there would be less of the disease among both.

The tuberculin test is valuable, and clinical diagnosis is valuable, and methods of dealing with the disease when discovered are absolutely necessary if its dissemination by the agency of milk is to be stopped. But preventive measures are even more important. The question of bovine tuberculosis in all its bearings needs practical discussion. The fringe of the subject has been as yet only touched. It is a healthy sign that in almost all civilized countries the matter is receiving close attention.

Glycosuria in Pregnancy and the Puerperium.

The presence of sugar in the urine of pregnant women has been so variously interpreted by physicians that an authoritative statement of conclusions warranted by a careful study of this question would be very welcome. Such a study founded upon personal experience and a review of the literature of the subject is presented by Dr. J. Whitridge Williams in the *American Journal of the Medical Sciences* for January, 1909. He has grouped all the cases under the headings of lactosuria, transient glycosuria, alimentary glycosuria, recurrent glycosuria, and diabetes. So far as the first is concerned, the presence of moderate amounts of lactose in the urine at the beginning of mammary engorgement in early pregnancy and in the beginning of the puerperium is to be looked upon as a nautral physiological phenomenon. The slight difficulty of identifying this variety of sugar should not be sufficient cause for neglecting such identification and making a prognosis upon the mere presence of sugar. The usual test for sugar, the reduction of copper salt solutions such as Fehling's, should not be used alone in the examination of the urine of women during these periods, for the prognosis depends almost wholly upon the identification of the variety of sugar present. Neither transient nor alimentary glycosuria has been satisfactorily explained, but the prognosis of these conditions is not at all a serious one. The appearance of these forms of sugar excretion may simply show some abnormality in the carbohydrate metabolism that is not productive of any serious effects upon the organism, and this is partly true even of recurrent glycosuria. Real diabetes, that is, the excretion of glucose in the urine for long periods of time, the amount of the fluid being markedly increased, and constitutional effects being present, is quite another matter and forms a very serious complication of pregnancy. Even here, however, the usual gloomy views of physicians are not borne out by the study of Williams. His conclusions are that many patients do perfectly well in spite of this condition, though a small proportion run the danger of dying in coma or collapse at the end of pregnancy or at the beginning of the puerperium. If the amount of sugar is large and cannot be markedly diminished by dietetic and medicinal treatment the induction of abortion is indicated even though no serious symptoms have yet appeared. On the other hand the appearance of small amounts of sugar may be explained by the existence of transient or alimentary glycosuria, and the diagnosis, therefore, should be deferred to the end of the puerperium when a careful study of the sugar excretion should be made. The main point, Williams maintains, is the necessity of examining the urine of pregnant and puerperal women at much more frequent intervals than usual, if sugar has been once demonstrated. Any measure taken will not of course cure the underlying disease, if the diabetes exists, even though abortion is induced. Yet the mortality of mothers may be very much diminished by suitable dietetic and medicinal treatment in some cases and by more radical procedures in others.

The Toxic Effects of Physiological Salt Solution.

The beneficial effects of infusions of salt solution in many pathological conditions are so well known that there is little tendency to seek for any untoward manifestations that may accompany this procedure. That the introduction of this fluid is not at all an indifferent matter to the organism is shown, however, by the observations of Meyer and Rietschel, reported in the *Berliner klinische Wochenschrift* for December 14, 1908. These authors confirm the findings of Schaps, who showed that infants reacted with a distinct rise of temperature to the injections of even very small amounts of physiological salt solution; this rise of temperature was quite specific in character, appearing four to six hours after the injection and either dropping suddenly on the same day or continuing for a somewhat longer period of time. This phenomenon agrees very well with the facts observed by Jaques Loeb, who has shown the toxic effects of physiological salt solution upon the low forms of organized life. The addition of a minute amount of potassium or calcium chloride was, however, all that was necessary to overcome the harmful effects of the solutions of salt, the eggs of *Fundulus*, for instance, being capable of living in such a solution though they promptly died in a solution of salt alone that was quite isotonic with sea water. Meyer and Rietschel have applied the results of Loeb's researches in their own work and have likewise found that the addition of the salts of potassium and calcium to the solutions of sodium chloride led to the disappearance of the reaction in many infants and to the diminution of its intensity in all. It was possible, indeed, to produce a febrile reaction by the injection of plain salt solution, then

to inject the potassium or calcium fluid without any untoward manifestations, and again to cause the return of the febrile movement by a repeated administration of plain salt solution. Of course the adult human being is not nearly so sensitive to the subcutaneous injections of salt as the infant; yet the reaction produced in the case of the latter probably means that the adult organism is likewise not perfectly tolerant of the solution. The wide use of salt solutions for the purposes of subcutaneous and intravenous injections would make it advisable, therefore, if these experiments are confirmed, that the proper amount of calcium and potassium salt necessary to inhibit its toxic action should be added.

Surgery and Fulguration Combined in the Treatment of Cancer.

The first use of fulguration was by Keating-Hart, in 1907, the results of his treatment being presented by Pozzi to the Paris Academy of Medicine. It had been used in several inoperable cases of cancer, with such a measure of success that other surgeons were urged to make use of the method and report their results. An operation was done in these cases which in itself would not have been sufficient to prevent recurrence, such as curetting, or removal of the ulcerated surface, and after it a current of high frequency and high tension was applied to the operated surface. The results were relief of pain, amelioration of all symptoms, and a firm cicatrization of the operated surface. C. Juge, in the *Archives Provinciales de Chirurgie* for September, 1908, reports the use of this method in forty cases with excellent results. The immediate effect of the electrical treatment is a certain amount of destruction of tissue followed by a lessening of the tumor, called by the author *sideration*, and a firm cicatrization. Hemostasis is immediate, and relief of pain is almost immediate after the recovery from anesthesia. In cases in which the cancer is not cured its development is indefinitely retarded. The immediate effect is a reddening of the surface, and with a continued application a destruction of tissue, that is not cauterization. Another effect is the pouring out of a copious serous fluid. An eschar is formed, sloughs off, and is followed by granulation and cicatrization. The fibrosis that occurs at the site of the tumor radiates in all directions and contraction ensues. This method is especially applicable to inoperable cancers. It enables a good result to be obtained in cancer of the breast without cleaning out the entire axilla. In cancer of the cervix, which has or has not invaded the broad ligaments, excellent results are obtained, which, so far as can be judged at present, will be permanent. In some cases, Juge asserts, a cure has undoubtedly been obtained.

News of the Week.

Health of the Canal Zone.—During November, 1908, the death rate in the Canal Zone was 23.71, as compared to 28.86 in November, 1907. Among employees alone the decrease was 9.10 per thousand, the total number of deaths being forty, thirty-one of which were from natural causes and nine from violence. The number of cases of malaria admitted to the hospitals during November was considerably less than in October. There has been no case of yellow fever since May, 1906, and no bubonic plague since August, 1905, though both of these diseases have existed on the Atlantic and Pacific coasts within three days' sail.

Scarlet Fever Outbreak.—Eleven students in the agriculture course at Cornell University are ill with scarlet fever, and are confined in the contagious ward of the hospital. The rapid spread of the disease is giving considerable concern to the health authorities.

Diphtheria Epidemic.—An epidemic of diphtheria has broken out in the State village for epileptics at Spillman, N. J. The State Board of Health has taken charge of the situation, and physicians and nurses from outside the institution have been called in. Nearly 400 inmates have been treated with diphtheria antitoxin, and all suspects have been quarantined.

Increase in Tuberculosis.—In spite of the systematic work carried on for the past few years in combating tuberculosis, there were in New York State during November, 1908, 1,101 deaths from the disease, an increase of 31 over the same month of 1907, and six more than the average for the last five years. The number of deaths from pneumonia decreased from 838 in November, 1907, to 683, in November, 1908, the average number for the last five years being 1,119. There was a decrease also in the deaths from typhoid fever.

Street Car Accidents.—During the year 1908, according to the report of the Public Service Commission, 444 persons were killed by the steam, subway, surface, and elevated railway lines of New York City, and the total number of accidents was 56,481. Of this total number, the surface roads were responsible for 42,391; while the fatal accidents on the surface lines numbered 248, on the subway and elevated, 89, and on the steam railways within the city limits, 107.

A Conference on Dependent Children.—On February 2, at Albany, will be held the annual meeting of the State Charities Aid Association. This meeting will take the form of two conferences on the prevention of public dependence, not only of children but also of the blind, insane and the tuberculous; one in the afternoon at Centennial Hall, and one in the evening at the Assembly Chamber. Hon. Joseph H. Choate will preside, and Governor Hughes, Judge Ben. Lindsey of Denver, and others will speak. It has been authoritatively estimated that there are 30,000 dependent children in New York State who are maintained at an annual cost of $5,000,000. The placing of many of these children in private homes would be of so much advantage, not only to the children, but to the taxpayer, that it should arouse the interest of every citizen of the State and country.

Damages for Leaving Gauze in the Abdomen.—A judgment of $4,000 was recently entered against Dr. M. L. Harris of Chicago in the Federal Court in favor of a man of Bowling Green, Ohio. It is said that four years ago the man came to Chicago and entered the Policlinic Hospital as a charity patient, where Dr. Harris removed one of his kidneys. After the operation was performed the patient was attended by the regular staff of the hospital, and it is claimed that a large piece of gauze was left in the wound. The jury was instructed by Judge Landis to the effect that it made no difference whether or not Dr. Harris personally

made the mistake, that he was responsible for anything that happened to the patient, he having been the operating surgeon. A notice of appeal from this judgment has been entered.

The New Milk Law for Chicago, which requires the pasteurization of all milk and milk products other than those from cows which have passed the tuberculin test, became effective January 1, but it is thought it will require several months for its complete enforcement. In the meantime, the city health officials are adopting routine measures to procure pure milk.

The International Tuberculosis Exhibit, which had been opened to the public daily at the American Museum of Natural History since Monday, November 30, 1908, closed last Sunday night at 10 o'clock, after having been seen by 753,301 persons. The exhibit almost in its entirety will be taken to Philadelphia as soon as practicable and shown under the direction of that city's Department of Health.

"Health Month" for Negroes.—During the month of February practically every church, lodge, and society for colored people in Chicago will hold meetings to consider the subject of "Tuberculosis Among the Negroes: What Are We Going to Do About It?"

Clean Beds in Nebraska Hotels.—A bill has been introduced in the Nebraska Legislature providing that all hotels in that State shall be inspected annually, that all bedding therein must be aired and disinfected at least once every three months, that in every wash room a clean individual towel shall be furnished each guest. Another provision is that hotels shall provide each bed with pillow slips and under and top sheets of white cotton or linen, and all such pillow slips and sheets after being used by one guest must be washed before they are used by another guest.

A Public School for the Blind.—The New York Board of Education has authorized the city superintendent to make arrangements for starting a school for the blind in connection with the public schools. It will be the first of the kind in this city and will begin with four classes.

Dr. Francis J. Murray has been appointed to fill the position of police surgeon made vacant by the death of Dr. J. J. Quigley recently. Dr. Murray is a graduate of Yale and of the College of Physicians and Surgeons in New York.

Dr. Arthur William Meyer, at present professor of anatomy in the Northwestern University, has been called to the chair of human anatomy in the Leland Stanford University of California. It is expected that he will take up his new work in August, 1909.

Women's Medical College.—Plans have been filed with the Building Department for a solarium to be erected on the roof of the Women's Medical College at the northeast corner of Livingston Place and Fifteenth street, New York, overlooking Stuyvesant Park. It will be of iron and terra cotta, with a large skylight of wired glass, having a frontage of twenty-three feet and a depth of forty-five feet.

Gifts to Charities.—The will of the late Louis A. Heinsheimer, who was for some time treasurer of the United Hebrew Charities, provides for the bequest of one million dollars to certain Hebrew charitable institutions, provided that they form a corporation to administer the fund. Among the institutions named are Mt. Sinai Hospital, the Montefiore Home, the Hebrew Orphan Asylum, and the United Hebrew Charities. If the institutions refuse to consolidate the money reverts to the residuary estate.

The Waltham (Mass.) Hospital has received the gift of $5,000 to endow a bed in the children's ward to be known as the "Sally Hope bed."

Beth Israel Hospital.—The plan for a new building for Beth Israel Hospital was put into definite form recently when a meeting was held at the Hotel Savoy to discuss the matter, and a General Building Committee was appointed. Gifts to the building fund amounting to $100,000, in addition to $60,000 previously contributed, were announced.

New Amsterdam Eye and Ear Hospital.—According to the annual report of this institution, 4,623 cases were treated during the year ending September 30, 1908, and 3,349 prescriptions were dispensed. The total number of visits made was 7,777. The slight reduction in the number of cases from those treated last year is due to the fact that applications for free treatment have been more carefully investigated, and many have been considered unworthy.

Lincoln Hospital.—It has been suggested the Lincoln centennial year might be appropriately celebrated by the endowment of the Lincoln Hospital in New York as a perpetual monument. Half a million dollars is required, and plans for raising the amount are under consideration.

Memorial Hospital.—Port Arthur, Texas, is soon to have a new hospital, which will be erected by Mr. John W. Gates as a memorial to his mother who died recently at her home in that city.

New Head for Bellevue.—Dr. Winford Henry Smith, superintendent of the Hartford Hospital, of Hartford, Conn., was selected as general medical superintendent of Bellevue and Allied Hospitals at a meeting of the trustees on January 16. Dr. Smith, who is only a little over thirty years of age, was graduated from the Johns Hopkins Medical School in 1903. He has had hospital experience at the Lakeside Hospital in Cleveland, and the Kingston Avenue Hospital in Brooklyn. In March, 1906, he became superintendent of the Hartford Hospital. It is hoped that Dr. Smith may take up his new work in New York by the first of February.

The Duty on Surgical Instruments and Scientific Apparatus.—The president and secretary of the American Hospital Association have issued a circular requesting the cooperation and assistance of hospital superintendents and trustees towards securing a reduction in the tariff on surgical instruments and scientific appliances. A petition has been made to the Chairman of the Ways and Means Committee of the House of Representatives, suggesting the following amendment to Paragraph 638 of the present tariff act. The section in italics is new. Philosophical and scientific apparatus, utensils, instruments, and preparations, including bottles and boxes containing the same specially imported in good faith for the use and by order of any society or institution incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use or by order

of any college, academy, school or seminary of learning in the United States, or any State or public library, and not for sale, *and all medical and surgical instruments, appliances, and apparatus specially imported in good faith for the use and by order of any incorporated hospital, asylum, or other institution rendering medical or surgical aid to the public or any portion thereof free of charge, and whose expenses are borne wholly or in part by public funds or by private subscription, said articles to remain the permanent property of such hospital, asylum, or other institution,* subject to such regulations as the Secretary of the Treasury shall prescribe.

Fire in Insane Asylum.—A fire which broke out in the laundry of the hospital for the insane at St. John, New Brunswick, recently, caused a loss of about $60,000. The 400 patients were removed without loss of life, only one receiving minor injuries.

Emergency Accident Relief Stations.—Plans are being devised for establishing accident relief stations in the downtown districts of Chicago, to be known as the Iroquois Memorial Stations. At the meeting between Health Commissioner Evans and Dr. George J. Tobias, the latter president of the Iroquois Memorial Association, plans were discussed for remodeling the city property at 87 Market street, so that the first station may be begun in May next, and turned over to the city on the sixth anniversary of the Iroquois Theater Fire.

Hospital Saturday and Sunday Association.—The annual meeting of this association was held on January 12, at the United Charities Building, New York, and officers were elected for the ensuing year as follows: *President,* George Macculloch Miller; *Vice-President,* Isaac Stern; *Treasurer,* Charles Lanier; *Recording Secretary,* George P. Cammann; *Corresponding Secretary,* the Rev. Dr. George S. Baker. Andrew C. Zabriskie and Julius Robertson were elected to fill vacancies on the board of trustees. The general agent reported that the indications were that the collection now in progress would exceed by several thousand dollars that of last year, when $83,765.90 was realized.

The Illinois Board of Health, at a meeting held January 15, passed a resolution recommending to the governor the creation of a State sanatorium for consumptives, providing cities and villages did not take advantage of the power conferred upon them to erect municipal hospitals, and asking for an appropriation for the creation of a State colony for epileptics. The board also determined to continue its crusade against consumption during the coming year and to make a thorough investigation into the milk supply of the State, with the view of determining how far milk was responsible for the dissemination of various infectious diseases. The following officers were elected: *President,* Dr. George W. Webster, Chicago; *Secretary and Executive Officer,* Dr. J. A. Egan, Springfield.

The Chicago Ophthalmological Society, at its annual meeting, held January 11, elected the following officers: *President,* Dr. Frank Allport; *Secretary,* Dr. Willis O. Nance; *Councilor of the Chicago Medical Society,* Dr. Thomas Faith.

The King County (Wash.) Medical Society, at its annual meeting in Seattle, on January 4, elected the following officers: *President,* Dr. Grant Calhoun; *Vice-President,* Dr. Robert M. Stith; *Secretary,* Dr. Louis H. Redon; *Treasurer,* Dr. H. C. Ostrom.

The Lane County (Ore.) Medical Society held its annual meeting on January 2 and elected the following officers for the ensuing year: *President,* Dr. W. Kuykendall; *Vice-President,* Dr. A. W. Kime of Cottage Grove; *Secretary and Treasurer,* Dr. J. F. Titus; *Board of Trustees and Censors,* Dr. L. W. Brown, Dr. F. W. Prentice, and Dr. L. E. McDougal

The Tremont County (Col.) Medical Society, at its annual meeting on January 4, elected the following officers: *President,* Dr. J. D. Cummings of Florence; *Vice-President,* Dr. Clark of Canon City; *Secretary,* Dr. Goodlow of Canon City. Dr. J. W. Rambo of Portland was chosen as delegate to the State Medical Society meeting.

The Quinebaug (Mass.) Medical Society was organized, on January 6, with the election of the following officers: *President,* Dr. Reed; *Vice-President,* Dr. Olin; *Secretary,* Dr. Page; *Treasurer,* Dr. Webster.

The Scott County (Ia.) Medical Society held its annual meeting on January 7, at which the following officers were elected: *President,* Dr. William H. Rendleman; *Vice-President,* Dr. G. F. Harkness; *Secretary and Treasurer,* Dr. John V. Littig; *Delegate to the Iowa State Medical Society* in Dubuque in May, *Dr. Edward F. Strohbehn.*

The Holt County (Mo.) Medical Society, at its annual meeting on January 7, elected the following officers: *President,* Dr. J. M. Tracy; *Vice-President,* Dr. B. F. Quigley; *Secretary,* Dr. J. T. Chandler; *Treasurer,* Dr. C. L. Evans.

The Polk County (Ia.) Medical Association, at its meeting on January 5, elected the following officers: *President,* Dr. A. R. Ames; *Vice-President,* Dr. R. L. Parker; *Secretary,* Dr. Osbourne; *Treasurer,* Dr. Eli Grimes.

The New London (Conn.) Medical Society held its annual election and banquet on January 7. The following officers were elected: *President,* Dr. Daniel Sullivan; *Vice-President,* Dr. William M. Hill; *Secretary-Treasurer,* Dr. H. H. Heyer; *Librarian,* Dr. F. W. Hewes.

The Fayette County (Ala.) Medical Society, on January 5, elected the following officers for the ensuing year: *President,* Dr. Claud Bell; *Vice-President,* Dr. W. A. Graham; *Secretary,* Dr. C. B. Blackburn.

The New York Pathological Society.—At the annual meeting of this society, held on January 13, the following officers were elected for the ensuing year: *President,* Dr. Horst Oertel; *Vice-President,* Dr. Richard M. Pearce; *Secretary and Editor,* Dr. Karl M. Vogel; *Treasurer,* Dr. George C. Freeborn. Dr. Harlow Brooks and Dr. F. C. Wood were elected trustees of the Society for the term of three years.

Dr. Douglas Argyll Robertson died recently in India, at the age of seventy-two years. He was born in Edinburgh, in 1837, and was the son of a well known Scottish surgeon. He was a graduate of the University of Edinburgh and was later lecturer there on ophthalmology. He was at one time president of the Royal College of Surgeons, Edinburgh. Of late years he had resided, on account of his health, in the island of Jersey. His name is known to every practitioner of medicine through the Argyll-Robertson pupil, which he was the first

to describe, or at least of which he was the first to recognize the significance in tabes dorsalis.

Obituary Notes.—Dr. Henry D. Sill of Cooperstown, N. Y., died at his home on January 11, after a short illness, with typhoid fever, aged 42 years. Dr. Sill was graduated from the College of Physicians and Surgeons in New York in 1892, and after serving as an interne in St. Francis' Hospital for nine months began the practice of medicine at Cooperstown. He was a member of the American Medical Association and attending physician to the Thanksgiving Hospital of Cooperstown.

Dr. Horace C. Geyer of New York died on January 9, of diabetes, at Frankfort, Germany, where he had gone for treatment. Dr. Geyer, who was thirty-one years of age, was a graduate of the College of the City of New York and of the College of Physicians and Surgeons in New York, and a member of the Alumni of the Roosevelt Hospital.

Dr. Charles Denison died at Denver, Col., on January 10, of gangrene of the liver and septicemia following perforation of the gall-bladder by a gallstone. Dr. Denison was born in 1845, at Royalton, Vt., and was graduated from Williams College in 1867, and from the medical department of the University of Vermont in 1869. Because of pulmonary trouble, he removed to Denver in 1873, and for fourteen years held the position of Professor of Diseases of the Chest and of Climatology in the University of Denver, being made professor emeritus on his retirement. He had written largely on the subject of tuberculosis in the fight against which he was much interested. In 1890 he was elected president of the American Climatology Association; in 1901 he served as honorary vice-president of the British Congress on Tuberculosis, and was American corresponding member of the International Central Bureau for the Prevention of Tuberculosis in Berlin in 1902.

Dr. Henry Louis Goodman of New York died suddenly on January 12, aged 36 years. Dr. Goodman was graduated from Washington University, St. Louis, in 1893, and had studied also in Vienna and Heidelberg. Since 1899 he had been connected with the Department of Health as a medical inspector. He was a member of the American Medical Association and of the Alumni Association of the City Hospital. Dr. Goodman had been in poor health for some months past.

Dr. Andrew Henry Getty of Athens, N. Y., died at his home on January 14, aged 60 years. He received his medical degree from the University of the State of New York in 1897.

Dr. James Andrews De Wolf, surgeon-general of Trinidad since 1901, died on January 2, at Port of Spain, Trinidad. Dr. De Wolf was graduated from Brown University in 1861, served through the Civil War with the First Rhode Island Volunteers, and later was on the staff of St. Luke's and the Women's Hospitals of New York.

Dr. Arthur Ward King of Cleveland, Ohio, died suddenly on January 8, aged 26 years. Dr. King was graduated from the Cleveland Homeopathic College in 1905.

Dr. Irving B. Hayes of Florence, Mass., was instantly killed in El Paso, Texas, on January 3, while attempting to alight from a moving train. Dr. Hayes was on his way home from a journey to California. He was a graduate of Dartmouth College in the class of 1888, and of the Long Island College Hospital in 1899. He was 47 years of age.

Dr. Roscoe E. Brown of Everett, Mass., died on January 7, after several months' illness, aged 57 years. Dr. Brown was graduated from Bowdoin College in 1876, and ten years later settled in Everett, where he had since practised. He was a member of the Massachusetts Medical Society and the first president of the Everett Medical Society, attending physician to the Whidden Hospital, a member of the Board of Health and a former city physician.

Dr. George W. Lewman of Louisville, Ky., died of uremic poisoning on January 6, aged 75 years. He was graduated from the Cincinnati College of Medicine in 1858, but had been largely engaged in business activities. He was a veteran of the Civil War.

Dr. William B. Anderson of Vincennes, Ind., died at his home on January 4, aged 69 years. Dr. Anderson was graduated from the medical department of the University of Louisville in 1859, and served through the Civil War as a surgeon in the Confederate Army.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CHRISTMAS IN HOSPITALS—THE POLYCLINIC—DEBATE ON WHOOPING COUGH—UNIFORM ACCOUNTS FOR HOSPITALS—LONDON CHARITIES—OBITUARY.

London, January 1, 1909.

My last letter was sent off on Christmas eve. Now we began a new year. The week so far as hospitals are concerned has been occupied with very vigorous efforts to bring cheerfulness and courage to the patients. The children's wards and children's hospitals have generally been scenes of mirth. Christmas trees loaded with toys and other gifts have delighted many of the little sick ones. But adults have not been forgotten. Entertainments of various kinds—concerts, theatrical, and so on—have been gotten up by the students and nurses and the staffs, both medical and administrative. Benevolent visitors joined their exertions to relieve the tedium of a Christmas in hospital. Subscribers and others interested in the several institutions sent turkeys, game, choice fruits and other delicacies for those patients who could partake of them, and altogether the season must have brought a considerable degree of happiness to the afflicted patients.

The polyclinic is in a bad way—financially. It is said to be some £500 in debt, and for this sum is to be closed, at any rate partially. Various rumors about it have been in circulation for a few weeks, but the crisis seems now to have come, for Sir Jonathan Hutchinson, at his last demonstration, made a statement on the matter, from which I gather that those associated with him, the council or committee, are not inclined to take any share of the burden of debt or to encourage further expenditure. Accordingly, as the building is taken in his name, Sir Jonathan is responsible for the rent. It seems rather hard that he should be left in the lurch, especially as he has been the mainstay of the institution and has presented it with his remarkable museum. It would be a disgrace for that collection to be distributed, and if the council do nothing for its preservation the profession might well come to the rescue. I hope there may be no need of this, for Sir Jonathan stated that whatever happened he should continue to be present on his days to give demonstrations on cases brought before him for the purpose. All who have attended these demonstrations know how every minute detail of a case is investigated by him and how valuable are his clinical remarks.

Whooping cough has been the subject of a discussion at the Section for Children's Diseases of the Royal Medical Society. It was opened by Dr. Porter Parkinson, who said two-thirds of the deaths from this disease took place in the first year of life and most of them were due to lung complications. He thought there must be a specific organism, though the real one has not been isolated. Epidemics on board ship seemed

to show that the virus remained active for weeks. Half the cases occur under two years of age and it is not uncommon under six months. He mentioned a case in a child of twelve days, whose mother was suffering from it. The primary disease may be overlooked when bronchitis or pneumonia has set in, as then the whoop may disappear. Paroxysmal cough arising otherwise may also be mistaken for it. Dr. Parkinson referred to treatment by diet and drugs. He could recommend bromoform in solution, 1 minim to 1 ounce of water, with a few drops of alcohol. Of this he gave from 1 to 6 drams.

Dr. L. Guthrie, referring to the history of the disease, said the term "chin-cough" survived in some places—perhaps from "la quintaine" or "tussis quintana," by which it was known in Paris in 1578, as it was supposed that the paroxysms occurred at intervals of five hours. He thought that paroxysmal coughs due to enlarged glands mostly occurred in those who had had whooping cough. He had seen a death after a paroxysm in a boy of three who died in the out-patient's waiting room. Bromide and belladonna were his favorite drugs.

Dr. Walter Carr said in doubtful cases the diagnosis lay between influenza, enlarged bronchial glands, and bronchiectasis. In the last the cough stopped just short of the whoop. Fresh air at a temperature of 60° was of great value. Too much drugging interfered with the alimentary canal. He had tried vapors and fumes, but doubted their efficacy. He thought potassium bromide had a value and rubbing with a liniment. Belladonna was useful in the late stage. When a child was vomiting constantly it was well to give it a little food to bring on a paroxysm and immediately after that a little more food, which would often be retained.

Dr. J. D. Rolleston gave some statistics of the asylums board hospitals. He did not think the disease had a very unfavorable effect on other acute infections with which it might be associated. Indeed, such association is rare. In diphtheria the laryngeal effect is greater if whooping cough is concurrent. He could not confirm Trousseau's observation that whooping disappeared during scarlatina.

Dr. Ewart pointed to the serious sequelæ and recommended systematic hygiene of the upper air passages, with a view of inhibiting the growth of microorganisms. He had seen relief follow instillation of oil into the nostrils. Potassium iodide was useful, so was terebene, both as inhalation and in liniment. A respiratory belt as advocated by Kilmer was good.

Dr. Milner Burgess said little had been added to our knowledge of the disease during the last eight years. In an experience of over thirty years he had only met with one case of meningeal hemorrhage. Why was this so infrequent? He laid stress on liquid food in small quantities, given immediately after the paroxysms.

Dr. Spriggs replied to the last speaker's inquiry and said it had been shown experimentally that blood-pressure might be enormously increased without injury to healthy vessels.

Dr. Francis Nunn recalled the old popular plan of sending a child to the gas works and actually suggested that the gas might be turned on for a few minutes in the patient's room! Dr. Biernachi approved of taking children to gas works and thought the benefit probably due to waste products rather than to escaped gas.

Dr. Russell Wells thought the symptoms due to increased excitability of a portion of the nervous system connected with the vagi and probably originating in a toxin. He had therefore tried cocaine by the mouth, calculating the dose according to age on the basis of 1 grain three times a day for an adult. He had seen no ill effects. In children there was no danger of forming a habit.

Dr. Parkinson thought this treatment risky.

Dr. L. Goffe, after syringing the ears with boric lotion, painted the external auditory meatus with a strong solution of cocaine.

Dr. B. Bailey said in the Shadwell Hospital the experience pointed to the disease ceasing to be infective after six weeks.

Dr. Meredith Richards thought the risk of infection was greatest in the early stage. He excluded children from the schools for five weeks and contacts for a month.

Dr. George Carpenter said of 466 out-patients chiefly below the school age only one was associated with varicella, two with scarlatina, and a few with measles. Among complications he noted hemoplysis, hematuriaa, subconjunctival hemorrhages, purpura, black eyes, and enlarged cervical glands. Four cases developed the whooping habit, which persisted for years. He doubted if papillitis indicated meningitis. The unconsciousness associated with the convulsions might last twenty-four to forty-eight hours. He had no faith in any specific treatment.

Mr. Clement Young presented for inspection a young man of twenty-one with a remarkable deformity of the chest and dwarfing of stature originating in whooping cough at the age of four. The thorax below the level of the nipples on both sides, apparently due to collapse of the lung in childhood. He is only 5 feet high and weighs 60 to 100 pounds. He has fair health, but dyspnea on exertion or mounting stairs is a difficulty for him.

The three hospital funds have again directed attention to the revised uniform system of accounts. A circular has been issued dealing with the questions that have arisen out of the first year's experience of the system. It includes too amended forms of income and expenditure accounts, balance sheets, and statistical tables of expenditure upon in- and out-patients. The amended regulations will have to be complied with by all institutions that apply for grants from either of the three funds.

The thirty-fourth Directory of the Metropolitan Charities has appeared. The total contributed during the year 1907-1908 is estimated as £7,743,000. Out of the amount contributed to hospitals, dispensaries, and nursing institutions, which was £1,252,542, that which was for the general hospitals amounted to £641,628.

Surgeon-General John Edward Tuson, M.D., F.R.C.S., died on the 24th of December, aged 79.

Dr. Robertson of Glasgow died December 16, aged 75. After serving for a long period as superintendent of the City Hospital, he was elected physician to the Royal Infirmary. He had served as president of the Glasgow Pathological and Clinical Society and held other offices. His health failed of late and he died suddenly from cardiac failure.

Progress of Medical Science.

Boston Medical and Surgical Journal, January 7, 1909.

Some Aspects of Psychotherapy.—J. J. Thomas says, among other things, the following on the so-called "Emmanuel Movement." He does not wish to be understood as opposing the broadening of the work of any church, feeling that this particular idea is one for the churches to consider according to their individual needs and situations. It seems to him, however, that the moral bearings which arise in certain cases of functional nervous disease are better treated by physicians than by clergymen, just as the moral bearings of venereal disease and the sexual relations can be and are better handled by the physician as they are being handled in the broadest and best way by many conscientious Christian physicians, every day of their lives. The introduction of religious sentiment, not to say religious sentimentality, into the treatment of psychic disorders is distinctly harmful. Finally the careful individual study required for the proper selection of the method best adapted to the cure of the parbenten case precludes their being treated and handled in numbers in classes. All methods of treatment of disease are with greater safety left in the hands of medical men, and by cooperation with clergymen in the future as in the past, the often perplexing moral and religious questions that may arise in these curious functional nervous disorders can be best met. This presupposes, however, that medical men, at least those fitted for the work, shall interest and inform themselves of methods of study and treatment of such cases or the latter will fall into the hands of quacks and pretenders to treat, and because of the possibility of cure by suggestion, will spread the fame of this unscrupulous class.

New York Medical Journal, January 9, 1909.

Puerperal Sepsis.—H. Weil says that at the present time the following facts are definitely assured: (1) The uterine walls can and do absorb, and this power is greater following abortion and labor with its more numerous veins and lymphatics. (2) The products of germ metabolism are poisonous; these poisons called toxines, when derived from pathogenic bacteria, are capable of producing violent symptoms and death when injected into animals. (3) The

lochial discharges of a puerperal infection are loaded with pathogenic germs and toxine. Each of these facts is easily demonstrated and incontestable. This being the case, it only remains to demonstrate that, (4) absorption plays an important part in the disease. Of this there can be little doubt. Perhaps the most convincing proof lies in the fact that we produce identical symptoms by the injection of isolated toxine easily obtained in this disease by repeatedly filtering the lochia. Again, there are diseases, such as diphtheria and tetanus, in which the bacterial growth is comparatively limited, yet absorption of the toxin causes profound symptoms, or even death. The entire theory of serum therapy is based upon toxine absorption. If these four hypotheses are conceded, it is our clear duty to apply active drainage to every case that resists curettage, and we fail in our duty if we stand idly by and permit our patients slowly to poison themselves, while we pin our faith to such procedures as high enemas and intravenous injections, which every physician realizes are useless except that "they cannot possibly do any harm—besides impressing the patient and her friends," etc. Intrauterine irrigation also possesses these latter virtues.

Myocarditis.—A general description of the disease is given by P. H. Markley, who notes that besides the infections, the etiological factors concerned in the causation of fatty degeneration include all prolonged nutritional disorders, such as phthisis, carcinoma, and the primary anemias; and evidences of cardiac enfeeblement occurring during the course of these affections, should always arouse suspicion. In fatty degeneration the symptoms are negative, until dilatation occurs, which is generally early, when, instead of the increased arterial pressure, so constantly present in the fibroid form of myocarditis, we have a lowering of blood pressure, and in place of the angenoid attacks of fibrosis, apoplectiform seizures are more frequent, closely resembling true cerebral hemorrhage, even to hemiplegia, stertorous breathing, unconsciousness, and Cheyne-Stokes respiration. In such cases the distinction from true cerebral apoplexy depends almost entirely upon the fact that in cerebral hemorrhage the pulse is of high tension, so that it becomes important to keep constantly in mind the low tension pulse of fatty degeneration. Other than these exceptions, the symptoms of cardiac enfeeblement found in connection with the two forms of degeneration do not materially differ, and may be combined because of the possible coexistence of the two conditions, nor is their distinction important as regards the treatment, while the prognosis is equally unfavorable in each.

The Relationship Between Dental Caries and Systemic Disturbances.—W. J. Lederer refers to the various disordered bodily states accompanied by dental caries and other lesions. He notes that from various circulatory disturbances the teeth and alveolar structures are more disposed to disease than many other tissues because they are end organs, traverse solid bone structures ,and cannot yield as do the peripheral vessels of other end organs. They therefore fall a prey to disease quicker than do other end vessels. All systemic disturbances which modify the circulation of the gums and teeth,all diseases attended by increased arterial tension are liable to set up dental lesions. A list of the common causes affecting vascular tension is given by the author. He speaks of the dental lesions excited by pregnancy and menstrual disorders, and calls attention to the dental symptoms of tabes as follows: (1) Painless pulps; (2) atrophy of gum; (3) absorption of alveolar process; (4) spontaneous, painless shedding of teeth; (5) spontaneous suppurative conditions of the maxillæ with necrosis; (6) patients sometimes experience a sort of drawing facial neuralgia, which is followed by a sensation as though the teeth are elongated and the gums and lips are swelling, but there is no sign of inflammation. Finally in treating buccal conditions which resist local treatment, one must remember the possibility of underlying circulatory disturbances, nervous disorders, nutritive diseases, infections, and various other abnormal physiological conditions.

Spontaneous Absorption of Incipient Cataract.—S. Moschkowitz reports the case of a draughtsman of thirty-one years whose vision had been failing him for two months, especially in the left eye. Examination showed a cataract situated in the center of the lens close on to the anterior capsule, occupying nearly the whole surface of the lens. It was determined to wait for the ripening of the cataract and then operate. There being a rheumatic history, sodium salicylate was given and later the iodide. Two applications of galvanism were made and were followed by very slight reaction. In about a month from the first visit, the lens was perfectly clear.

Journal of the American Medical Association, January 9, 1909.

Functional Neuroses.—Speaking of the modern tendency to nonmedical treatment of disease as shown in Eddyism, the so-called Emmanuel movement, etc., J. Collins considers the medical profession to be, to some extent, responsible. He thinks that until recently the general practitioner has had little instruction in regard to disorders of the nervous system, and more especially the so-called functional diseases. He thinks that there is still a trace of the old idea of moral perversion in these cases—a sort of relic of the old idea of demoniacal possession. The idea of reflex influence has also its part and still another reason is the fact that psychology is still an unknown department of knowledge to the majority of general practitioners. The average physician, moreover, is at a loss how to proceed with the necessary examination with these functional cases. He undertakes their treatment with a very indefinite diagnosis, if any. If medical students, he says, were given even an elementary course in psychology their attitude towards their patients and toward the psychic symptoms they present, not only in nervous diseases but in many other diseases, would be different from what it frequently is. He takes up especially the Emmanuel movement, which is having such a vogue in certain quarters at the present time, and thinks that the clergymen engaged in it are going beyond their proper province and that they might more becomingly display some little measure of the quality displayed so prominently by the Founder of our religion, viz., humility. He quotes from the utterances of Dr. Worcester and Bishop Fallows to show that they misunderstand the position of physicians on these subjects and, in fact, the whole subject on which they claim to be experts, especially as regards the frequency of functional nervous diseases in modern times. Their claims of success, too, he considers very extravagant and their zeal not all according to knowledge.

Psychotherapy.—R. T. Edes discusses the present status of psychotherapy. He says that the boundary line between functional and organic disease is yet far from settled. New discoveries are constantly narrowing the list of maladies of which the organic substratum is unknown. At present the doctrine of the dependence on bodily health of correct mental action which is far the most potent theory for good, he says, is now in the minds of hundreds of thousands being reversed and mental action is supposed by them to control bodily structure. He does not deny the influence of the will, but it has its limitations and he shows how many physicians depend more or less on moral effect in their practice and how essential is faith as a factor in all psychic cures. He analyzes the methods of reaching the lower consciousness and shows how improbable it would be to lead a sincere, well-instructed student without tact, to become a successful mind healer. His sensitiveness and care for his scientific reputation would be liable to be insuperable obstacles. Among the elements of psychotherapy or the avenues of approach, Edes includes deception and placebos, which can only be employed, at least, to a very limited degree, by the conscientious physician, though there is nothing in the other methods enumerated which may not be legitimate. Hypnotism is considered by him of a certain value and the disadvantages of its possible use for criminal purposes, the impairment of the patient's will, and the liability of inducing too great dependence of the patient on the mere personality of the physician are not regarded by him as objections of great weight. There is more peril, he seems to think, in the impairment of the physician's influence for legitimate persuasion by unsuccessful attempts at hypnotism. Only a certain proportion of persons are hypnotizable. Freud's method is noticed at some length. It has, he thinks, probabilities in its favor, but the vast amount of time and patience that it requires may put it out of the power of many to employ it, even those otherwise qualified. In conclusion he notices briefly the movement for the alliance of the church and medicine, which he does not disparage and considers that in some cases it may be helpful.

Cranial Technique.—F. Hartley enumerates the following as the prime requisites for avoiding the dangers of shock and sepsis in operations on the brain: 1. Instruments which will open the skull quickly over any desired area and to any extent. These are the motor saw and guard, osteotone, drill, fraise, and meas-

ure. 2. A method of craniocerebral topography permitting an accurate exposure of the desired area. Chipault's is the best method, adapted to the skull of all ages, races or individual peculiarities. 3. Osteoplastic flaps cut so that they will expose the desired area in the easiest manner. 4. The replacing of the bone flap in every possible case or the covering the defect with an accurately fitting foreign material (celluloid or aluminum). He prefers autoplasty when possible. 5. The most perfect hemostasis in the preliminary as well as in the final steps of the operation. The operation he divides into two steps, the first concerned only with the skull, the final with the dura and brain. All drugs should be given up several days before operating, and a record of pulse rate and blood-pressure should be taken twenty-four hours before operation. The patient's head is raised on the table between 15 and 30 degrees, which Hartley has found sufficient to stop venous bleeding and lower arterial pressure. He has not been able to compare the effects of Crile's rubber suit and carotid compression or of Dawbarn's sequestration-anemia with this, but if they will improve the arterial pressure better than elevation and with no greater danger of inducing sudden syncope, he will certainly use them. During the operation he would have the blood-pressure recorded by the anesthetist by a sphygmomanometer on the arm, as a sudden fall will warn the operator of any impending sudden collapse, and will probably enable us to avoid the 25 per cent. of sudden deaths following prolonged operations. The details of the two steps of the operation are given and the necessity of careful hemostasis during the second stage emphasized, as well as the importance of avoiding infection of the lateral ventricles. Possible later complications are: 1. Shock, in prolonged operations with hemorrhage or after large tumors have been removed and the cerebral statics disturbed by the space left. In such case the acute cerebral edema of von Bergmann occurs. To avoid this Hartley tampons and gives counter-pressure through the flap. 2. Hyperpyrexia: This occurs after both severe and moderate handling of the brain, especially if the ventricles have been opened, and is due to toxicity of the neoplasm secretion, infection or irritation of thermic centers in the bulb. 3. Encephalomeningitis may be due to injury or to infection from the patient's blood or without. It usually appears during the first month after operation, coming on slowly with localized convulsions, contractures, paralyses, somnolence, mental torpor or delirium. 4. Hernia may be present at the time of operation as a tumor of the base or as a voluminous tumor of the centrum ovale, or at a later period in the form of encephalitis. The latter part of the article is given to the recently reported results.

Nasal and Sinus Brain Affections.—C. G. Coakley says that nasal infection can extend to the brain through the blood, the lymphatics, or by necrosis or perforation of the sinus walls. There is a small portion of the venous blood from the nose that passes into the superior longitudinal sinus through the foramen cecum, and the perineural lymph spaces around the branches of the olfactory nerve are so arranged that it is easy to understand how infective meningitis may arise from infection along this route. He goes, with considerable detail, into the possibilities of brain infection through sinus disease, either suppurative, polypoid, or otherwise. Direct perforation of the posterior wall of the frontal sinus is rare according to his observation, but necrosis of the inferior or orbital wall is quite common. Ethmoidal brain infection may occur through necrosis or rupture of the cribiform plate and the thinness of portions of the superior and outer wall of the sphenoid cavity make it easy to understand how they may become ruptured from obstruction of the outlet for a purulent secretion. These causal conditions are sometimes difficult to detect, and Coakley points out why this is the case. There is an acute form of meningitis, he says, involving the cord as well as the brain, which is nearly always fatal, in which his sinus examinations have been unsatisfactory and in which he has never felt willing to advise operation. In the less acute type, commonly called serous meningitis, if sinus disease exists he believes operation is justified as in otitic infection. When sinus disease has long existed in some chronic cases, if other source of infection can be excluded, he would advise operation as in serous meningitis. The operative technique he finds most satisfactory in exploring the sinuses as by what is known as the ethmoidal route, opening at once into the anterior group of ethmoidal cells alongside the orbit. By following this back through the whole of the ethmoid labyrinth and opening and enlarging the sphenoid sinus, one traverses and explores very thoroughly the region from which most infections reach the cranial and orbital cavities. One is working by this route parallel with the floor of the cranium and is much less liable to perforate it than by the maxillary operation advocated by some. It is a bloody operation and should be undertaken only by one able to reflect light into the cavity so as to see into the depths of the ethmoid and sphenoid regions. The floor of the frontal sinus can be removed and the cavity probed to find whether it is the seat of trouble. If so it can also be operated on by working through the frontal bone from an incision through the eyebrow and reflection of the periosteum. A short operation is usually advisable in these desperate cases, and Coakley does not recommend the thoroughness used in suppurative sinusitis without cranial complication, but would exenterate the cells as quickly as possible, introduce iodoform gauze drainage through the opening, and leave the wound open without any attempt at suture. Should the patient recover from his acute symptoms, secondary suturing may be done in the course of a few days with but little more scar than if the wound had been closed at the time of operation.

Diphtheria "Carriers."—M. Solis-Cohen believes that the latent and "carrier" cases are mostly responsible for the spread of diphtheria in cities where the usual precautions are taken as to notification, etc. He gives his own results in the examination of those who had come in contact with diphtheria and quotes those compiled by Graham-Smith which correspond fairly well with his own, which showed an average of over 60 per cent. infected. The infected "contact" is, therefore, as great a menace to public health as the convalescent from actual diphtheria. He defines as "latent" diphtheria the condition in which positive cultures are found in persons showing some pathological condition, local or general, unassociated with pseudomembrane. Some of those cases may possibly be only tonsilitis. The fact that nonvirulent diphtheria-like bacilli are found in the mouths of healthy persons complicates the question, but Solis-Cohen thinks that health officials would be justified in demanding bacteriological tests of those who had been in contact or inmates of the same house or institution with a diphtheria patient, and, if found infected, isolating them till the bacilli disappear. But, owing to the possibility of the organisms being nonvirulent, inoculation tests should be made when requested on guinea-pigs, and restrictions removed if the animal survives. He has followed this plan in his practice, and as medical inspector, whenever possible, since September, 1906, with good results, and relates a number of instances showing its utility.

Prophylaxis of Infectious Diseases.—D. L. Edsall considers the duty of the practitioner in relation to the prophylaxis of infectious diseases. He points out that the education of the public in regard to this matter is largely in the hands of the practising physician, who not only has it in his power to disseminate expert knowledge, but also holds the key to the defense against disease at the critical moment. A little neglect at a favorable time for spreading infection may convert what should have been an isolated case into an epidemic. The reality of the danger of infectious disease is evident, the question is how it is transmitted and how readily, and how such transmission can be prevented. Edsall gives illustrations of contact infection and of other often unsuspected methods of transmission of serious disorders, and points out the necessity of restricting intercourse with sufferers from these ailments. We should take earnest care, he says, to acquaint those who come in contact with the sick, and especially those in attendance on them, with the ways in which they may acquire the disease or convey it to others, not merely giving hasty directions that will be neglected, but insisting on their importance and seeing to their observance. Even in hospitals there is too much laxity in this regard. Lastly, he insists on physicians themselves adopting all due precautions, not only for their own safety and that of others, but also because their example is what the laity will look up to and follow.

The Lancet, January 2, 1909.

Family Tendency to Relapse in Scarlet Fever.—Four instances of this tendency are recorded by C. Beards, three of them illustrating the complementary nature of the

primary and secondary attacks. In many cases of scarlatinal relapse the secondary attack is severe after primary has been mild, and vice versa. A sample history is here summarized, all the cases here recorded being in the same family. A boy of eleven was admitted to hospital October 11, 1907, on the fourth day of the disease, with a fading rash, swollen tonsils and fauces, tender cervical glands, and a peeling tongue. Four days later the temperature was normal and disquamation appeared. This continued in a normal manner till November 10, when the symptoms of invasion returned in a more severe form than in the primary attack, and were attended with well-marked secondary adenitis and rheumatism. Two days later a secondary desquamation began and followed the usual course.

A Prospective Cure for Elephantiasis.—W. S. Handley commends the operation of lymphangroplasty, in which a number of stout silk threads running the entire length of the limb are introduced into the subcutaneous tissues of the swollen part and are completely and permanently buried. Their capillary action enables them to replace the trunk lymphatics and to transfer the excess of fluid from the area of lymphatic edema to regions in which the lymphatic circulation is normal and from which consequently the excess of fluid is absorbed and carried off into the general circulation. Elephantiasis differs from the lymphatic edema seen in connection with mammary cancer in that the lymph of the swollen arm is a sterile fluid, while in elephantiasis there is a chronic infection of the tissues with micrococci. Vaccination against the infective micrococci, although powerless in itself to reduce the edema, would appear in elephantiasis to be an essential preliminary to the operation of lymphangioplasty. One favorable case is reported on the plan of treatment above referred to.

Acromegaly with Illustrative Cases.—G. Rankin and R. O. Moon give a general description of this affection, with photographs of two cases. Regarding treatment, they note that at the present time reliance is placed almost exclusively on pituitary and thyroid extracts. Thyroid extract must always be given cautiously, lest it accelerate the decline of strength and induce a permanent glycosuria. Pituitary body extract is preferable and good seems to follow in some cases. Except in cases with a definite specific taint, the iodides and mercurials are useless. The general health of the patient must be carefully watched. Dietetic measures may rid the patient of glycosuria. Constipation calls for simple aperients, fruit, and vegetables. The coal tar preparations will relieve the headaches. For the sweating, atropine, zinc oxide, and picrotoxin may be given. Frequent change of scene, massage, electricity, and hydrotherapy should all be resorted to under proper conditions.

Why and How Should the Surgeon Attempt to Preserve the Vermiform Appendix?—C. B. Keetley discusses this question, with special reference to the value of the appendix in the surgical treatment of constipation. He gives his personal experience with appendicostomy, appendicotomy, and appendix transplantation, states the uses, advantages, justifications, and drawbacks of these operations, and finally analyzes 36 personal cases. He aims to show (1) that transplantation of the appendix so that the whole or greater part of it from its root in the cecum lies permanently imbedded in the abdominal wall will produce the good results of excising it; (2) that the operation is practicable and safe, and (3) that in many cases the operation should be preferred to appendicectomy. His technique is described in full. Appendicostomy, he believes, to be the best surgical treatment for constipation yet devised. Strictly speaking, it is not a remedy for constipation, but an operation which facilitates the employment of remedies. It insures the enormous value of taking enough water into the alimentary canal and taking it at proper times. It can be further used to teach the advantage of not drinking copiously at meals. Many people, says the author, dilate the stomach, indirectly irritate the pylorus, and ultimately bring about constipation by taking too much beer or whisky-and-soda at meals, imagining that the food protects them from injury by alcohol.

British Medical Journal, January 2, 1909.

Adhesion of Soft Palate to Nasopharynx.—F. J. Hall refers to two children, aged 6 and 11 years, with every sign of adenoids, but examination under anesthesia revealed none, but there was a complete adhesion between the soft palate and pharynx. No instrument could be passed into the nasopharynx, but the adhesions were finally broken down with the finger. Bleeding was considerable, but the result was eminently satisfactory. The condition was probably congenital.

Persistent Thymus and Sudden Death.—S. H. Dankes reports the case of a woman who, pursued by her husband after a quarrel, suddenly fell dead. Autopsy revealed an enlarged thymus two and three-quarters inches long, two inches wide, and weighing one and three-quarters ounces. The coroner's verdict was that the woman died from excitement, mental and physical, causing heart failure, the persistent thymus being in some way a predisposing factor. The author notes that an enlarged thymus has frequently been found in cases of sudden death from apparently insufficient causes. The explanation of death in such instances is more likely to be found in the physiology rather than in the anatomy of the gland.

The Results of Operations for Carcinoma of the Tongue.—H. T. Butlin analyzes 197 cases, operated on by him in the course of twenty-seven years (1881-1908). His paper is largely a series of tabulations, not lending itself to abstracting. We may summarize a few of his most important statements. Died of operation, 20; lost sight of after operation, 1; died of recurrence in the mouth, 26; died of affections of the glands without recurrence in the mouth, 29; died of recurrence in the glands without recurrence in the mouth, 10; died of recurrence in mouth and glands, 7; died of recurrence uncertain whether in mouth or neck or both, 10; died of affection of the glands uncertain whether recurrence in the mouth, 3; died of recurrence in the glands uncertain whether recurrence in the mouth, 1; died of affection of glands on the other side of the neck, 2; died of secondary disease of lungs, 1; died of cancer of opposite border of tongue, 2; palliative operations (glands too advanced for removal, cancer of tongue only removed), 3; operation in tongue abandoned, 4; operation on glands abandoned, 1; cases not countable (operations performed within three years, the patients either died of other diseases within three years or are still alive and well within three years), 22; successful (all these patients lived for from three to twenty-two years, free from recurrence, most of them are still alive and well), 55; of the 20 deaths from operation, 10 died of septic pneumonia, 3 from subsequent bleeding, 2 from shock, and 1 each from sepsis of wound, acute mania (wound doing well), heart failure after some days, suffocation, and unknown cause.

Treatment of Chronic Rheumatic and Rheumatoid Arthritis by Radiant Heat and Cataphoresis.—Two cases are detailed by C. F. Bailey, who uses a heat apparatus consisting of a large lamp in a funnel-shaped projector lined with a reflecting surface. The lamp is powerful, using as much current as 24 of the ordinary 32 candle-power lamps. With this apparatus a dry heat of 400° F. can be obtained without damage to the skin. The general result of exposure is that the cutaneous and deeper vessels are dilated, the lymphatics are filled, the local arterial pressure is diminished, and the local metabolic processes are increased. The effects do not pass off at once and after repeated exposures they are more or less permanent. Besides their influence on the tissues, the rays also exert an influence on microorganisms and increase leucocytosis. The subjective effect is a relief of pain. Probably the anesthetic effect of the ultraviolet rays is responsible for this result. As soon as the application is over, cataphoresis with iodine "ions" immediately follows. Thus if a wrist is to be treated, it is immersed in an arm bath containing a 2 per cent. lithium iodide solution and either a large indifferent pad is placed on the back or the other hand is immersed in another arm bath, muriate of ammonia or common salt being used for the indifferent pad or bath. For the knee, lint wet with the lithium solution is wrapped around the joint. It is necessary to work with large currents.

Münchener medizinische Wochenschrift, December 29, 1908.

Deposition of Calcium Salts in the Shoulder Bursæ. Bergemann and Stieda have reported eight cases of acute inflammation of the subacromial and the subdeltoid bursæ, all of the cases showing marked shadows on examination with the *x*-rays. The symptoms consisted of pain and tenderness in the region of the bursæ and limitation of motion because of the pain; most of the patients did not

give any history of gout and no signs of this disease were present. The authors now report three new cases of the same symptom-complex in which they succeeded in obtaining the permission of the patients for removing the affected bursæ. In all cases areas of calcification were found so that gouty deposits were completely excluded. They think that the disease described is an independent affection having nothing in common with gout or rheumatism and only slightly dependent on trauma, which may lead to exacerbations of the symptoms already present.

Tuberculosis in Childhood.—Hamburger says that tuberculosis is properly to be considered as much a disease of childhood as measles. His tests with the new cutaneous reactions and with the old subcutaneous test have given positive results in over ninety per cent. of cases. The bacilli entering the organism of children may be confined in their action to local sites or more rarely may produce a tuberculous process throughout the body. Even if the disease enters a latent stage soon after its beginning in the organism of the child the appearance of tuberculosis in adult age simply means the flaring up of the old process and not at all a new infection with the bacilli. This explains the differences in the clinical pictures of tuberculosis in the young and in the adult. The former very seldom are attacked by chronic pulmonary disease but show localized lesions in the glands or a few separate lesions in the lungs. The typical tuberculosis of the lungs on the other hand is due to the long stage of preparation for the spread of the infection by the existence of latent disease or of a localized lesion. In a word, pulmonary tuberculosis must be looked upon simply as a recurrence of the tuberculous infection of childhood, and all the phenomena of the disease as due not to the original influence of the bacilli alone but much more to the changes in the organism produced by their presence for a long time.

Deutsche medizinische Wochenschrift, December 17 and 24, 1908.

Treatment of Acute Rheumatism.—Plehn says the findings of Lutjes according to whom the administration of salicylates leads to great irritation of the kidneys, which often is intense enough to call forth characteristic changes in the urine, have not been substantiated. The value of the drug as a specific in rheumatism, too, outweighs any possible injury to the kidneys, especially as the irritation of the kidneys is usually very transient in character, lasting no longer than the stomach symptoms that are sometimes produced by the salicylates. The success of salicylates in rheumatism depends upon two factors: the correctness of the diagnosis of the disease as acute articular rheumatism and the sufficiently large doses of the remedy. The acute onset or the history of such onset in the past is almost a *sine qua non* for the diagnosis in question. The treatment should consist in the immediate administration of salicylic acid in powder form in the dose of one gram every two hours so that the patient receives from three to five grams of the remedy by the evening of the day of diagnosis. No medication is given during the night, but on subsequent days about six grams of salicylic acid is administered each day; after the temperature has been normal for three days and the pain has disappeared the dosage is reduced to four grams per day for seven days; three further days in bed without the drug are insisted upon before the patient is allowed to get up. The painful joints are wrapped in cotton during the treatment and placed in the most comfortable position by means of pillows, etc. The drugs should be administered after meals whenever possible. No injury to a healthy heart has ever been observed by this treatment; no disturbances took place even in the presence of old valvular lesions. But little use has been found in the action of salicylates after a fresh endocarditis or a myocarditis.

French and Italian Journals.

Prognosis and Indications for Hebotomy.—Cyrille Jeannin and V. Callala give the prognosis of hebotomy as influenced by early and late accidents. Early accidents are hemorrhage, thrombosis, vulvovaginal tears, and urinary lesions; late accidents are impotence, genital prolapse, incontinence, persisting sciatica, and inguinal hernia; they are fortunately rare. The only cause of maternal mortality is infection; the mortality percentage in 5.7 for the mother, 7 for the child. Comparing symphyseotomy and hebotomy the authors find that hebotomy is the more satisfactory; the prognosis for both mother and child is better than in symphyseotomy. The only logical method to use in hebotomy is the open method, owing to the danger of perforating the bladder in the subcutaneous method. It is to be preferred to cesarean section only in diameters of more than 8.5 centimeters conjugate, when labor has begun. When dilatation is already complete cesarean section is to be preferred, unless there are signs of infection, when hebotomy is the method of choice.—*L'Obstétrique*, October, 1908.

Causes of Mortality of Cancer of the Uterus and Its Treatment of Hysterectomy.—F. Jayle states that localized cancer of the uterus may always be cured by a wide removal. It is rarely observed because of the belief of women and of physicians that hemorrhage is natural at the menopause, causing the patients to go to the surgeon too late. The best prophylactic measure is for women over thirty-five years of age to submit to an examination every three months. Cancer that has been propagated from the uterus to other tissues in a certain proportion of cases gives a preservation of life that is of value and that may last for a long time. The periuterine induration may be inflammatory, especially in infected cancers, and operation should be undertaken whenever there is any hope of obtaining a cure. In almost all cases extirpation should be done by the abdominal route, and should include the removal of the adnexa, perinterine cellular tissue, upper part of the vagina, and iliac ganglia.—*La Presse Médicale*, December 2, 1908.

Nitrogenous Hyperalimentation.—L. Zola says that it is not difficult to define hyperalimentation and hypoalimentation when they are extreme; when, however, we have nearly reached their confines it is difficult to tell when sufficiency ends and repletion begins with regard to nitrogenous substances. It is possible to maintain a comparative well being on not more than one-half the amount prescribed by Voit, that is with about fifty grams. If the organism introduces more than enough nitrogen to repair the cellular loss of daily life the excess of nitrogen is deposited under the form of proteid substances. A large part is rapidly re-eliminated by the liver and kidneys, giving them excessive work. Uric acid is the principal product. When the body must repair the ordinary wear of life or that of disease, or has to grow, a relative hyperalimentation with nitrogen is useful and necessary. It is not necessary and is even harmful in the healthy adult, because without being of any use to him it exposes him to immediate and remote dangers. Superalimentation with meats in tuberculosis is not a simple therapeutic measure, and should be superintended and watched over with the greatest care.—*La Riforma Medica*, November 23, 1908.

Pathogenesis of Hematuria During and After Purpuric Eruptions.—R. Del Vecchio describes a case of influenza with follicular tonsillitis in a girl of twelve years of age, followed by a symmetrical perpuric eruption of the lower extremities, and hematuria occurring in crises, each crisis of renal albuminuria being accompanied by a fresh eruption and gastro-enteralgia. The periods of hematuria then became less frequent. The general condition was at all times good. Frequent examinations of the urine showed a quantity of albumin always proportional to the amount of blood, a normal elimination of urea, constant presence of hyaline, granular and epithelial casts, and absence of neoplastic elements and tubercle bacilli. Specific gravity was 1011-1020, daily quantity 1300-1500 cubic centimeters. The author accounts for this condition by a disseminated vasomotor stasis of toxi-infective origin, due to a process analogous to that found in the disseminated cutaneous stasis and the purpuric eruption.—*La Riforma Medica*, October 10, 1908.

Digestive Troubles in Rickets.—A. B. Marfan discusses the digestive disorders found in rhachitic children. There may be a preceding gastro-enteritis with relapses and intervals of freedom from disease, or there may be dyspepsia with repeated vomiting, either condition preceding the enlargement of the bones. The form that occurs later, coincident with the bony enlargements, is a chronic dyspepsia, with variable appetite alternating with voracity. Flatulence is present and the large flaccid abdomen develops with elongation and true atony of the intestine. This condition is essentially chronic and lasts throughout the disease. The loss of weight is inconsiderable. There are cases in which there is no preceding gastrointestinal trouble. The author believes that the chief predisposing causes of rickets are improper feeding, heredity, and living in dark, damp, sunless surroundings. In a child thus predisposed there are several kinds of exciting causes: toxi-infective digestive troubles, hereditary syphilis, pyodermitis, broncho-pneumonia with relapses, and infectious diseases of children. All these operate to bring about rickets in the predisposed child.—*La Presse Médicale*, November 18, 1908.

Book Reviews.

Diseases of the Heart. By James Mackenzie, M.D., M.R.C.P. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton, 1908.

All practitioners of medicine, and especially those particularly interested in cardiovascular pathology, will welcome eagerly this most interesting and novel treatise on diseases of the heart. The work is no text-book, and those who are looking for an ordinary guide to the physical diagnosis and treatment of heart troubles will be pleased with something more elementary. Those, however, who are more or less familiar with the modern methods of study of the circulation will find here a careful and most lucid presentation, and to those who know little or nothing of the recent advances in cardiodiagnosis and in the physiopathology of the heart the work will be as a revelation; they will find here a new science of absorbing interest, and one which promises to increase immensely our power over diseases of the heart and vessels. In the matter of diagnosis, for example, a study of the venous pulse, as seen in the jugulars, gives far more information regarding what is going on inside the cardiac chambers than does the radial pulse, which gives us knowledge only of the action of the left ventricle, and then only during the period that the aortic valves are open; yet it is within a very short time that the jugular pulse has been looked upon other than in the light of a curious but unimportant phenomenon.

The book opens with a discussion of the general principles underlying heart failure, and this is followed by a brief summary of the development, anatomy, and physiology of the heart and considerations on the general symptomatology and diagnosis of heart disease. The irregularities of cardiac rhythm are then discussed, and after this the muscular and valvular troubles, cardiac diseases, and the senile heart are described. Chapters on general prognosis and treatment end the body of the book. In the appendices are discussed the pulse in angina pectoris, the "nodal" rhythm, irregularities in cardiosclerosis, and the effects of digitalis on the heart. There is an excellent modern bibliography, and a full index completes the work. Dr. Mackenzie has written a great book—far and away, with the limitations above noted, the best work on the heart in existence to-day.

Quain's Elements of Anatomy. Editors, Edward Albert Schäfer, LL.D., Sc.D., F.R.S., Professor of Physiology and Histology in the University of Edinburgh; Johnson Symington, M.D., F.R.S., Professor of Anatomy in Queen's College, Belfast; Thomas Hastie Bryce, M.A., M.D., Lecturer in Anatomy, University of Glasgow. In Four Volumes. Vol. I, Embryology, by T. H. Bryce. Illustrated by more than 300 engravings, many of which are colored. Eleventh Edition. London, New York, Bombay, and Calcutta: Longmans, Green & Co., 1908.

This book, though the first volume in the series of four which will constitute the new edition of Quain's Anatomy, is in reality an independent treatise on Embryology, and is not a new edition, but actually a new book by a new author. This section in the former edition was written by Prof. Schäfer, but in the present one has been entrusted to Dr. Bryce, who has practically rewritten it, incorporating many additions made necessary by the advance in our knowledge of human embryology in the seventeen years since the tenth edition was issued. The work is divided into two parts dealing respectively with general embryology and with the development of the individual organs. The author is evidently thoroughly familiar with his subject, and possesses the happy faculty of imparting his knowledge to others in a very clear and readable style. In his descriptions he is aided by a large number of excellent illustrations, many of them original, well drawn and well printed. The work begins with a description of the somatic and sex cells, followed by a consideration of segmentation, the formation of the germinal layers, and the evolution of the embryo and its envelopes. There is some confusion here and the author does not clearly distinguish between human and comparative embryology; this is, however, often difficult, if not impossible, and is moreover not always necessary.

In the second section the development of the various systems and organs is treated of on the basis of the germinal layers from which they are derived, the order being: Skin, nervous system, eye, ear, and nose; alimentary canal, genitourinary system, suprarenal bodies, vascular system, lymphatics, and spleen; body cavity, muscles, and skeleton.

In the interest of economy of space, Dr. Bryce has omitted the bibliography which formerly closed each section. For the ordinary student this is a matter of no consequence, but it will perhaps be regarded as a serious omission by the more advanced student and specialist. On the whole, however, we think the author was wise in not burdening his pages with lists which could only be a copy from other works to which the specialist would have ready access. The multiplication of bibliographies is wasteful, for such lists are really necessary only in treatises on new subjects before there has been time for their publication in the Index Medicus and catalogues of the large libraries. To the student especially this excellent treatise on embryology can be confidently recommended.

General Surgery. A Presentation of the Scientific Principles upon which the Practice of Modern Surgery Is Based, by Ehrich Lexer, M.D., Professor of Surgery, University of Königsberg. American Edition edited by Arthur Dean Bevan, M.D., Professor and Head of the Department of Surgery, Rush Medical College in affiliation with the University of Chicago. An Authorized Translation of the Second German Edition by Dean Lewis, M.D., Assistant Professor of Surgery, Rush Medical College in affiliation with the University of Chicago. With 449 illustrations in the text, partly in color and two colored plates. New York and London: D. Appleton & Co., 1908.

Lexer's Surgery is well known in Germany, where it is recognized as perhaps the best of the modern works on general surgery in that country, and we doubt not this translation will enjoy considerable popularity here, though there is no lack of works in this branch in the English language. The book is not a mere translation, for much has been added to the original by the editor. There is a chapter on Blastomycosis by Ormsby, and in the appendix are an abstract of Crile's work on direct transfusion of blood and a brief note by Rosenow on bacterial therapy; Rosenow also contributes a chapter on surgical hematology, and the editor has made numerous changes and additions throughout. These additions, though plentiful, are judiciously made, and greatly increase the value of the work to the American reader. There are additions also among the illustrations, the subjects of these being from the editor's clinic.

The translation is excellently done, and is free from all teutonisms. Curiously, a paragraph on the diagnostic value of the presence of spirochetes in congenital syphilis is left untranslated. The volume is neatly printed on only moderately calendered paper, and is well bound. It is a commendable introduction to the science of surgery, and practitioners, as well as students, may read it with profit.

A Manual of Natural Therapy. By Thomas D. Luke, M.D., F.R.C.S. (Edin.), Lecturer at the University of Edinburgh; formerly Physician at Smedley's Hydropathic and Sanatorium, Matlock; Assistant Visiting Physician, Smedley's Memorial Hospital; Physician to Hazelwood Hydropathic Establishment, Grange-over-Sands, etc. Fellow of the British Balneological Society; Member of the Electro-Therapeutic (Royal Society of Medicine). With 30 plates and 125 illustrations, many of which are original. New York: William Wood & Company, 1908.

This volume deals with the most useful of the modern methods of physiological therapeutics. The author's intentions are not to go into infinite detail of any special method, but to portray the chief points and principles in the use of several. The first section deals with hydrotherapy, and in it may be found valuable details of technique carefully given, together with the limitations and dangers which should be known and not ignored. Sections II and III deal with Heat, Light, Massage, and Rest, all valuable means to restore health and too little understood. A specially good section on Electricity describes Galvanism, Faradism, Sinusoidal Currents, Electric Baths, Static Electricity, and High-Frequency Currents. To those contemplating the use of these methods, many valuable hints are offered. The concluding sections deal with Diet and the Modern "Cure."

Throughout the work the author shows his personal knowledge of the procedures he describes. He also understands their uses and limitations, so that the book may be considered a safe, concise, introductory guide to the use of physiological therapeutics.

A final word in approbation of the many well-selected pictures is in order. These plates are time-saving to the reader, and make clear at a glance what would take a much longer time to understand from the text. It also obviates mistakes in technique, a common cause for the neglect of these methods, since results are not good where the mode of application is not thoroughly understood by the physician in charge; and each year the doctor is entering further into this field, too long left to the care of attendants and empirics.

Society Reports.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held December 28, 1908.

Dr. J. Riddle Goffe in the Chair.

Resolution on the Death of Dr. McCosh.—Dr. Sturgis moved that the President appoint a committee of three to draw up proper resolutions regarding the death of Dr. Andrew J. McCosh. This was unanimously carried. Dr. Goffe said he would appoint this committee later.

Exhibition of an Improved Gas Ether Inhaler.—Dr. James Taylor Gwathmey made this exhibition. The improvements consisted mainly in a much larger reservoir and larger valves than in those he had previously used.

Treatment of the Opium Habit.—Dr. W. Duncan Silkworth said that when the governments of the world were considering the advisability of the complete suppression of the opium and morphine trade, and our own country was making every effort to solve this great problem, a striking contrast was offered by the seeming apathy and indifference of the medical profession to the growing prevalence of the drug habit. If they were to delegate to the government the task of suppressing the growth of the drug habit, they should be deeply interested in caring for those who, now numbering among the thousands, seemingly depended on the drug for their daily existence. As the habit of using morphine was very often introduced, directly or indirectly, through the medium of the physician's prescription, it would seem that the responsibility of caring for those addicted to the drug rested primarily with the medical profession. A general classification of the habitué should be of some assistance to the physician; for example, first, the morphinomaniac; second, those surrounded and pampered by friends in their own homes; third, those who were either dependent on their own efforts to live, or possessed some responsibility which they could not shirk, and who often continued the use of the drug for years without very disastrous results; fourth, a class among whom the use of the drug formed a part of the social life. The value of such a classification could be recognized in determining the possibilities of successful treatment and the method to be pursued in each case. With the first three, the morphine habit was acquired generally to relieve a discomfort, and not from wrong motives. Fear and distrust follow after, induced largely by the attitude of the public and the profession. On all sides they were confronted with pessimistic views of their ultimate recovery. Dr. Silkworth believed that every physician of integrity and sound judgment had the ability to treat successfully any normal case of drug addiction that came to him. One such physician in every community willing to devote his time to the subject would actually solve the problem. The physician must have the entire confidence of the patient and keep it. This he could not emphasize too strongly. Again he must exert to the utmost encouragement, tact, sympathy, and perseverance. The patient must be imbued with the idea that the physician had confidence in him. The withdrawal of the drug must be undertaken according to the judgment of the physician in each individual case, the tendency being to hurry and to overmedicate the patient for the purpose of relieving unavoidable or natural symptoms.

The Pathology of Suppurative Otitis Media.—Dr. H. O. Reik of Baltimore said that suppurative otitis media was an infectious disease caused by any one of the pyogenic microorganisms which might gain entrance to the tympanic cavity and which found there suitable soil upon which to feed and proliferate. It was always an infection, but had no specific causative germ. Under ordinary circumstances the middle ear was an aseptic cavity, its sterility being due to the fact that nature had established a guard against the admission of germs and, to a lesser degree, to the presence of a mildly antiseptic secretion from the mucous membrane lining the tympanum. The epithelium of the tympanopharyngeal tube was of the ciliated variety and the cilia waved towards the pharynx, thus obstructing the progress of invading bacteria. Added to this physiological process the force of an outpouring secretion from the irritated mucous membrane, which naturally sought exit by this channel, and one had a fairly efficient protective power. Should these sentinels be passed, the germs gaining entrance to the tympanum had still to do battle with the bactericidal properties of the mucous membrane and its secretions. Any injury to the lining membrane of the tube or any disease which impaired the function of the cilia of that membrane favored the attacking foe; likewise, invasion by a host of bacteria, or by specially virulent microorganisms, might overcome all protective powers and establish a local disease. Irritating substances might be conveyed from the pharynx to the tympanic cavity by an act of forcible inflation of the tympanopharyngeal tube. A perforating injury of the tympanic membrane might be the means of introducing pyogenic microorganisms, or they might gain admission by what was known as the hematogenous route. Equally important elements in the etiology and pathology of the affection were the predisposing causes. First among these should be considered the effect of exposure to cold, producing disturbances of the normal vasomotor balance within the tympanum. Depleting diatheses favored infection through weakening the resistant powers. More important than systemic debility or simple exposure were the common affections of the nose and throat. Dr. Reik then pointed out the highly important rôle that nasopharyngeal disease played both in the causation and continuance of suppurative otitis media. Not only did adenoids and diseased tonsils predispose the ear to attacks of inflammation, but their removal was often absolutely essential in the treatment of aural disease. Repeated attacks of rhinitis, pharyngitis, or tonsillitis, or the existence of abnormal developments in the nose or throat, with their attendant conditions of persistent congestion of the tympanopharyngeal tube and tympanum, were most favorable to an infection of the middle ear. Just the conditions most conducive to the growth and activity of bacteria were obtained in this way, namely, a lowered resistance of the tissue cells and a serous pabulum in a protected chamber that was heated to the proper degree of temperature. Ulceration was probably constantly associated with suppurative otitis media. The extent of the ulcerative process varied considerably. The most frequent result of ulcerative inflammation in the tympanum was erosion of the membrana vibrans. This portion of the external wall of the tympanum, the so-called drum head, was the weakest of all and the only one that could give way before the pressure of an accumulating exudate. But spontaneous rupture of the drum head was not the invariable result; this fact was deserving of the greatest consideration when dealing with middle-ear inflammations in young children; the diminution of pressure within the tympanum was sometimes possible through the escape of excretions, by way of the tympanopharyngeal tube into the nasopharynx. Many of the cases of obscure febrile affections in infancy and early childhood were really due to undetected middle-ear inflammations and the diagnosis might have been very easy had any examination of the ears been made. While in the vast majority of all cases of suppurative otitis media the pathological changes were confined to the tympanum it must be remembered that the most serious aspect of the disease had to do with the possible invasion of important neighboring structures. Dr. Reik presented drawings of sectioned temporal bones and frozen sections of the head which explained very graphically and

impressively certain anatomical factors, showing why some cases tended to become the seat of chronic purulent inflammation and why others invited the invading bacteria to travel beyond the confines of the middle ear.

The Non-operative Treatment of Suppurative Otitis Media.—Dr. EDMUND PRINCE FOWLER read this paper. He believed that if there existed the slightest obstruction to nasal respiration or to a free ventilation of the Eustachian tube, it was surely a crime to neglect the removal of conditions which were so prone to be etiological factors in the causation of ear disease. The most effective measures to be employed during the onset of an otitis were those brought to bear on the nasopharyngeal condition and on the Eustachian tube. He always administered calomel, put the patient to bed on a fluid diet, avoided all stimulants, and secured as perfect rest for the body and auditory apparatus as was possible. Dover's powder and hot drinks were serviceable to produce perspiration and to diminish the fever often present in adults and almost without fail in children. A properly adjusted cold compress about the throat seemed to be of real service in relieving the throat and nose inflammations and if this was supplemented by an overlying constriction of elastic webbing, the patient usually experienced a sense of rest and well-being that was difficult to explain. Various local applications were of use if there were definite indications for their employment, but by gargling little was gained. During the past year he said he had seen several acute inflammations of the ear run their course without rupture of the drum, and in all of these he had made use of a new method of treatment. He referred to what he called suction-bell irrigation, which was applied to the ear every two hours, and when a hot solution was used therewith, it seemed to exert a beneficent action not only upon the middle ear, but also reflexly on the Eustachian tube, and the pain was usually relieved. As soon as the tube was able to take care of the exudate he instituted gentle inflation. From first to last the tympanic membrane must be carefully watched, for it was the appearance of this membrane that gave valuable guides to diagnosis and treatment. If the pain and tenderness did not subside it was probable that the inflammatory reaction was beyond control and that the tension within the auditory apparatus must be relieved by a free incision of the drum membrane. The drum should be freely incised if there was pus retention in the middle ear or adjacent cavities. Unless there were contraindications he preferred to do the operation with the patient under the influence of gas. If a local anesthetic was to be used he preferred the following mixture: Cocaine, two drams; carbolic acid (95 per cent.), one dram; menthol, one dram. Ten minims was dropped into the canal and allowed to remain five or ten minutes; this should be followed by the instillation of alcohol and drying the canal. The frequent removal of the discharge was usually necessary for cleanliness and comfort. In some cases hydrogen peroxide might be useful to loosen mechanically an inspissated discharge, but care should be used not to cause damage by the explosive action of this substance. If troublesome granulations occurred about the perforation, or in the canal or middle ear, they should be removed by caustics. If, with the cessation of the discharge the perforation healed, he stopped gradually all irrigations and instituted daily politzerization, or simultaneous inflation of the middle ear and external auditory canal. In a series of over one hundred cases with chronic running ears he obtained positive reactions to the tests of Calmette or von Pirquet with but few exceptions. Whereas in actute cases the percentage was small and as a rule the reaction was obtained only in those who gave tuberculous histories. Antiseptic solutions seemed to exercise a beneficial influence on the purulent processes. Dr. Fowler usually used boric acid and salt solution, or bichloride of mercury in strengths from 1-1,000 to 1-10,000. Solutions for introduction into the ear should never be cold.

Operative Treatment of Purulent Otitis Media.—Dr. WENDELL C. PHILLIPS read this paper. He said that the bulging of the drum membrane, intense pain, and fever constituted a syndrome of sufficient import to warrant paracentesis of the drum membrane. The drum membrane should be opened as soon as the diagnosis of purulent tympanitis became positive. The incision should be clean cut and the patient should remain in bed until all the acute symptoms had subsided. A simple method of removing large polyps was by means of a small aural snare; this should be followed by cauterizing the stump. Ossiculectomy was employed as a means of curing chronic purulent otitis media by the removal of diseased tissue and the promotion of drainage and of rendering the tympanic walls more accessible to local treatment. ecrosis of bony areas which were closely related to vital structures, the prolonged and constant danger of serious labyrinthine and intracranial complications, and loss of hearing were deleterious and dangerous results which followed an acute mastoiditis and which a mastoid operation quickly terminated. The radical mastoid operation was performed for the cure of chronic purulent otitis media.

Dr. EDWARD B. DENCH wished to emphasize more fully what had been said regarding the presence of fever in cases of acute otitis media; frequently in young children this was the only symptom present. It was therefore very important that the ears should be examined carefully in every case of unexplained fever. He protested against performing myringotomy under local anesthesia, because general anesthesia was so much more efficient. It was not always necessary to wait for bulging of the membrana tympani before doing this operation: when there was pain present with a little redness, he incised the drum. He endorsed what was said regarding ossiculectomy; in a small proportion of cases this operation had a place, but it was simply a preliminary stage to other operations. In reference to the simple mastoid operation fever in children was one of the best indications for its performance. A purulent ear with high temperature was an indication of great value. As to the radical mastoid operation, he disagreed with what had been said regarding the effects upon the hearing, for he had performed this operation and hearing had been improved in some cases, but not in all.

Dr. JAMES F. MCKERNON said he did not believe that granulations followed an acute otitis media unless there were dead bone present. He objected to the term paracentesis; it was a term that should be relegated to the past. It was far better to speak of an incision of the drum membrane. He echoed what was said regarding the removal of polypoid growths in cases of chronic otitis media; it was a dangerous procedure to remove those granulations in the canal, and particularly so if the patient was not immediately placed in bed and watched carefully. A blood count was to him a help as showing a low grade of vitality. In all but possibly one case the hearing had been diminished after the complete radical mastoid operation.

Dr. SAMUEL J. KOPETZKY did not think it was conservative surgery to incise the drum membrane when there was no pus present: such an incision would make infection more liable to happen. He said he could not emphasize too strongly the dangers of the postnasal douche; this was one of the great causes of mastoid suppuration. Chronicity in some of these cases was not a matter of time; many cases were chronic from the start. Dr. Fowler's douche would rob the observer of a certain number of symptoms in some cases; by its suction action it relieved the intramastoid process; it would eliminate certain symptoms, but the process would go on nevertheless. Causing a sudden cessation of pain was to deprive the surgeon of one of the most valuable symptoms. He was sceptical

regarding the absorption of pus in the middle ear when the process had reached a state where the drum membrane bulged. He said that he believed inflation of the ear when there was pus present was a more or less dangerous procedure.

Dr. Joseph A. Kenefick confined his remarks to the occurrence of ear disease in children, and said he wished to emphasize the importance of the influence of adenoid vegetations upon the causation of otitis media. He believed three forms should be considered, viz., those cases in which the breathing spaces, as well as the tubes, were occluded; those cases in which the breathing spaces were occluded and the tubes open; and those cases in which the fossa of Rosenmueller was occluded. The best treatment of acute mastoiditis was the removal of adenoid growths from the fossa of Rosenmueller before the otitis media began. In children he would not use Fowler's douche. With regard to the incision of the drum membrane, he said that it should be remembered that in children this membrane was at an angle of forty-five degrees when the child was looking at the ground; therefore, he went in close to the bottom of the floor and made his incision from below upwards.

Dr. Robert C. Myles said he had had from ten to fifteen years' experience in operations upon the mastoid on the cadaver and believed that he was quite an expert at it, but the men of modern times should consider the mastoid operation more from the clinical and pathological standpoint, as well as from the surgical. An abscess there should be considered as as abscess in other parts of the body and treated as such by free drainage and free ventilation.

Dr. Hill did not believe that the operation of ossiculectomy would cure the cases referred to; the operation he believed to be indicated when the bones were keeping up the chronic otorrhea and interfering with drainage. In certain cases this operation had its place. The radical operation should be performed in young children as in adults; age made no difference.

Dr. Reik said that the otologist should convey to the family physician certain definite points, and three of these he wished those present to take home with them: (1) Suppurative otitis media was a dangerous disease; (2) if a suppurating disease was neglected, it might lead to serious complications; (3) one should realize that practically all cases of suppurative otitis media, whether they had been in existence forty days or forty years, could be cured. He said that sixty per cent. of the number of abscesses about the ears originated from neglected middle-ear disease. Lateral sinus thrombosis cases, with the exception of a very few, started from neglected cases of suppurating otitis media. A large number of the cases of meningitis, and practically all the cases of extradural abscesses, originated in the same way. In the treatment of otitis media he preferred using a solution of formalin, believing it to be superior to boracic acid solutions. One-half a dram of formalin to the pint would give a solution of the gas of the strength of 1-600, and this was stronger than a 1-5,000 solution of bichloride of mercury from a bactericidal standpoint. He urged the observance of caution in the use of peroxide of hydrogen as a cleansing means, for he said he had seen a number of cases which went on to the development of a mastoiditis as the result of the careless use of this agent.

Dr. Fowler said that he meant to imply in his paper that polyps and granulations should be removed by caustics. He was of the opinion that the use of the snare in the middle ear was dangerous. With regard to the nasal douche, however, he believed its dangers had been exaggerated. Thousands of people used the nasal douche every day, and yet there were very few who ever suffered from middle-ear disease in consequence.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, December 1, 1908.

The President, Dr. B. Sachs, in the Chair.

A Case of Otitic Brain Abscess Operated on Thirteen Years Ago.—Dr. Gorham Bacon presented this patient, a man of forty, who was operated on by Dr. Bacon thirteen years ago for a temporosphenoidal abscess of the left side. At that time he gave a history of chronic otorrhea of sixteen years' standing. Four days prior to coming under Dr. Bacon's observation he complained of a severe pain in the left ear, with profuse discharge, and it was said that during this time he acted rather queerly. On December 5, 1895 (four days after the onset of his pain), he had a general convulsion lasting twenty minutes, with loss of consciousness, violent twitching, and frothing at the mouth. Prior to this he had never had any convulsive seizures. The patient was removed to the New York Eye and Ear Infirmary and was operated on first for mastoid trouble. Within forty-eight hours he developed an amnesic aphasia which was quite marked. On the ninth day after the operation he had a severe chill during the night, with profuse perspiration and severe headache. His symptoms at this time were very suggestive of sinus thrombosis. The skull was thereupon opened in the left temporal region and an ounce and a half of pus was evacuated from an abscess in the temporosphenoidal lobe. Shortly after the operation he had several convulsive attacks. His aphasia gradually improved, and on January 29, 1896, had entirely disappeared. During the thirteen years that had elapsed since the operation, this patient had had twenty-two convulsive attacks. The last one, which occurred in April, 1906, as well as the one occurring two weeks prior to that time, were very mild. The attacks were occurring at gradually increasing intervals, and were apt to come on after severe fatigue. The patient had been taking bromides irregularly.

Dr. E. Gruening, who was present and assisted Dr. Bacon at the operation, said he was particularly struck by the aphasia, as this was one of the first cases in which he had observed that symptom. The patient was able to describe objects that were shown him and he knew their use, but he could not name them. Since that time, Dr. Gruening said, he had successfully operated on five cases of temporosphenoidal abscess, and four of these he had been able to keep track of. In one of them, a child of five years, there were convulsive seizures accompanied by a leakage of cerebrospinal fluid from the ear. The child improved after spinal puncture. The four patients whom he had been able to follow had recovered completely and had had no epileptic seizures.

Dr. E. B. Dench referred to a case of temporosphenoidal abscess upon which he had operated four years ago. That patient, who was now in Cuba, had had two epileptic seizures; both, it seems, occurred after violent exercise about a year after the operation. He had now been free from convulsions for over eighteen months.

Dr. Edward D. Fisher thought it rather unusual that this patient should have suffered from amnesic aphasia instead of auditory aphasia, which we would expect to find in such a case.

Dr. Gruening said that this was the usual form of aphasia that was met with in abscesses of the temporosphenoidal lobe on the left side. In fact, instead of being unusual, it was pathognomonic of abscess in this location.

Dr. William M. Leszynsky said that several years ago he saw a patient in whom he made the diagnosis of otitic brain abscess. This patient had had a number of epileptic attacks. While being prepared for operation, she died suddenly from rupture of the abscess into the ventricles. At autopsy it was found that the abscess had involved the motor cortex as well as the temporosphenoidal lobe.

Adequate Methods of Drainage, the Essential Step in the Successful Surgery of Otitic Brain Abscess.—Dr. F. Whiting read this paper. (See page 133.)

The Common and Uncommon Localization of Otitic Brain Abscess, as Illustrated by Two Cases, with Recovery.—By Drs. B. Sachs and A. A. Berg. (See page 129.)

The Critical and Anatomical Manifestations of Otitic Brain Abscess.—Dr. Alfred Wiener read this paper. (See page 137.)

Dr. Gorham Bacon said he was fully in accord with the plan of treatment outlined by Dr. Whiting, and he had little to add to what had been said. He agreed with Dr. Wiener that abscess in the temporosphenoidal lobe was more frequent than in the cerebellum, and he recalled one instance which was on record where he had found an abscess in both locations in the same patient. The diagnosis of temporosphenoidal abscess was at times extremely difficult. Pain was the most constant symptom, and usually we obtained a history of chronic purulent otitis media.

Dr. Gruening said the symptom of optic aphasia in these cases had been known to otologists for a long time. Dr. Wiener stated that most of these abscesses were located near the diseased bone, but that in a small percentage of cases they were located at some distance from the bone and apparently separated from it by normal brain tissue. Personally, he did not believe that this intervening brain tissue, through which the infection had been carried by the lymphatics and vessels, was entirely healthy. For drainage material he preferred gauze, and he was opposed to irrigation. He had never found it necessary to use the encephaloscope, and was afraid that it might be the means of producing a false passage.

Dr. James F. McKernon said he had found the optic aphasia a prominent symptom in all of his left-sided cases of otitic brain abscess. In dealing with a brain abscess with thickened walls and containing a large amount of detritus, he saw no objection to the employment of a gentle, warm irrigation. It was certainly less harmful than curetting. In addition to four successful cases of the chronic type in which he had irrigated, he had also resorted to it in two cases of acute onset, one following the radical Stacke operation and the other after the opening of the mastoid and sinus. He had now given up irrigation in the acute cases, and simply mopped out the cavity with a bit of sterile gauze. In discussing the value of blood examination in the diagnosis of brain abscess, Dr. McKernon said that in one case of suspected abscess of the chronic variety, the differential blood count gave little or no information, because there was but little absorption taking place. The leucocytosis was about 12,000, with a polymorphonuclear percentage of forty-five. Upon operation he found an abscess at the posterior tip of the temporosphenoidal lobe, and evacuated about two ounces of pus. In another case the polymorphonuclears were ninety-four per cent. and the leucocyte count 34,000, which confirmed the diagnosis. The blood count was a valuable measure in differentiating between the acute and chronic type of abscess. The speaker said that he had discarded the use of the rubber tube a number of years ago as a mean of drainage, and now used either iodoform or plain gauze rolled up in the shape of a pencil.

Dr. E. B. Dench said he had operated in eighteen cases of otitic brain abscess, twelve of the temporosphenoidal type and six of the cerebellar. Of the former, six patients had died, five had recovered, and one was still under treatment. Of the cerebellar cases, five patients had died and one had recovered. Among his acute cases, some had shown an increase in the polymorphonuclears to above eighty per cent., yet that was not the invariable rule. In the chronic cases, the polymorphonuclear percentage was not usually very high. Dr. Dench said he agreed with what Dr. Gruening had said in regard to the encephaloscope. He could not appreciate how the educated finger could do as much harm as the uneducated encephaloscope. Ballance, in his operative work, used the finger regularly to gain access to the abscess cavity. Personally, Dr. Dench said, he employed two rather long retractors by which the brain substance was elevated, and this gave a very good view of the interior of the abscess cavity—better, he thought, than the encephaloscope—and there was less danger of traumatism.

Dr. W. Sohier Bryant said the spread of infection from the ear to the brain was accomplished in four ways: (*a*) Through the tegmen tympani into the middle fossæ; (*b*) through the internal auditory meatus and aqueducts into the posterior fossæ; (*c*) through the inner table covering the sigmoid groove over the sinus into the posterior fossa; (*d*) the infection in one fossa may spread into the next. All varieties of brain abscesses were of infectious origin. They occurred in all gradations, from an encapsulated abscess with a distinct pyogenic membrane and a minute connection with the original source of infection, to the other extreme—a diffuse softening; a mere enlargement of the original infection. After discussing in detail the diagnosis of otitic brain abscess, Dr. Bryant said the diagnosis was positive when focal brain symptoms occurred with a peripheral infection. A blood count was useful to determine the presence of active infection and the resistance offered to it by the patient, but it was of no value in locating the infection. Treatment was operative, and of two kinds: (1) Peripheral exploratory operations to confirm the diagnosis and to locate the abscess; (2) central operation for evacuation and drainage after the abscess had been located. It was best to follow the path of infection in planning the location of drainage. An operation should be undertaken the moment the diagnosis was made. An exploratory operation for brain abscess should be done as soon as indications of mastoiditis, sinus thrombosis or meningitis were present. Dr. Bryant said that during the past two years he had had eight cases of brain abscess, three cerebral and five of the cerebral and cerebellar type combined, with fifty per cent. of recoveries after operation. All the cases which were fatal were treated under special disadvantages, either from complications, lack of opsonic resistance, or delayed operation.

Dr. Joseph Fraenkel said that to the neurologist these cases of otitic brain abscess were comparatively rare. Personally, he had seen perhaps four or five, and he would limit himself to a discussion of the optic aphasia, to which several of the speakers had referred. Marie had recently shaken our old-time conception of aphasia, and to-night, the speaker said, he had received another shock along that line. What the otologists had described as optic aphasia was better known to neurologists as anomia, which was the loss of power to give objects their correct names. This did not, in his opinion, constitute an optic aphasia. In a case of this kind that was under the observation of Dr. Charles L. Dana and himself, the autopsy showed a minute lesion in the temporosphenoidal lobe. A true optic aphasia would point to a lesion in the occipital lobe or commissure.

Dr. J. Ramsay Hunt said the more he saw of otitic brain abscess the more pessimistic he became regarding the difficulties that surrounded not only their diagnosis, but their treatment. During the past eight years he had seen fifteen cases; all of the patients were operated on and all of them died. The operations were done in various hospitals throughout the city, and these unfavorable statistics could not be laid at the door of any one surgeon or group of surgeons. All were cases of cerebral abscess, and not extradural; of the latter, he had seen several end in recovery.

Dr. Fisher said that in dealing with otitic brain abscess,

or even suspected abscess, he was in favor of an early exploratory operation, preferably by a surgeon specially qualified in that field.

Dr. William M. Leszynsky said that during ten years' experience as consulting neurologist to the Manhattan Eye and Ear Hospital he saw quite a number of these cases, which he thought were less frequent now than formerly. He said that the experienced neurologist could often be of much assistance to the otologist during the earlier stages of otitic brain abscess, before the symptoms had become so unmistakable that any tyro could make the diagnosis. He recalled one case, seen several times in consultation, in which the otologist could not be convinced that a cerebellar abscess was present until it was shown to him at the autopsy. No mention has been made of one of the dangers attached to cerebellar abscess. Cases were on record when at the moment such an abscess was punctured, death occurred suddenly from respiratory paralysis. Such an instance had occurred under his observation. In view of that fact, it seemed logical to infer that in cases of brain abscess attended by sudden death from respiratory failure, the lesion was located in the cerebellum rather than in the temporosphenoidal lobe. Neurologists had long been familiar with the type of aphasia, which was of value in the recognition of otitic temporosphenoidal abscess when it was present. Most of the abscesses, however, did not occur on the left side, and it was invariably absent when the abscess occurred on the right side unless the patient was left-handed.

Dr. Felix Cohn said that in obscure cases of otitic brain abscess, a blood count should never be neglected, as it might aid in differentiating the condition from various forms of meningitis. The speaker reported a case of cerebellar abscess in which the condition of the increased reflexes led to the correct diagnosis.

Dr. Whiting, in closing, speaking of the encephaloscope, said it was simply a question of using the instrument with which one was familiar. It was an instrument which, with a very moderate amount of practice, gave a remarkably clear view of the abscess cavity, and could be used with great precision.

Dr. Berg, in closing, said he was inclined to agree with those who preferred rubber tissue to gauze in the drainage of an acute brain abscess. For drainage of a chronic, thick-walled abscess, some form of tube drain must be used, for when gauze became saturated it no longer acted as a drain, but as a tampon blocking up the pus in the cavity. In cases where drainage was really demanded, we could not rely on gauze; we had to resort to a tube of some material.

The President, Dr. Sachs, said that a common error made by surgeons and otologists was that they were inclined to attempt a brain operation through relatively small openings. If there was one factor that would lead to better results in brain surgery it was to do the operations through a large osteoplastic flap. The symptoms of sensory aphasia had not been carefully observed, and it was easily overlooked. The type of the aphasia in these cases depended on the location of the abscess.

Contribution to the Study of the Blood in Malaria.—Samuel Sereni has made experiments to ascertain whether the increased specific gravity of blood corpuscles containing malarial parasites has not something to do with their agglutination and deposit in certain organs. He has ascertained that an increase in specific gravity does exist. He considers it altogether probable that this condition favors the stagnation of the corpuscles containing parasites in the tissue meshes of certain organs, especially the brain, the normal corpuscles being found almost absent. Here on account of the small size of the capillaries, the circulatory resistance is great, and the degenerative changes of the endothelia are great. Stasis becomes marked and the circulation is so slow and imperfect that these heavy cells are deposited.—*Il Policlinico.*

Special Article.

THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.

By J. AUER, M.D.,
NEW YORK.
ASSOCIATE OF THE INSTITUTE.

Development of the Institute.[1]—In 1901 the enlightened philanthropy of Mr. John D. Rockefeller rendered possible the incorporation of the first institution in the country devoted entirely to research in medicine. The purpose of this Institute was to further medicine in its various branches by establishing laboratories and by awarding money grants to trained investigators in other laboratories. The government of the Institute was and is still vested in a Board of Directors formed of the following eminent medical men: William H. Welch, T. Mitchell Prudden, L. Emmett Holt, Christian A. Herter, Theobald Smith, Herman M. Biggs and Simon Flexner.

During the first three years after incorporation the Institute had no home of its own, and restricted itself to aiding investigators both here and abroad by money grants. At the end of the first year, however, it became evident to the Board that greater progress in research could be obtained if the larger part of the investigations were carried out in one place and under the general direction of one head. This conclusion led Mr. Rockefeller to place still larger means at the disposal of the Board for the realization of this idea. After careful deliberation the Board decided to locate the Institute in New York City, upon the East Side. Many months were spent studying the leading institutions abroad before the final plans of the Institute were completed and the erection of its permanent home begun. In order that productive work be not delayed during the necessarily long time which would elapse before its final quarters were ready for occupancy, the Institute Board leased a small building, formerly a private house, at the corner of Fiftieth Street and Lexington Avenue, and equipped it roughly for research in experimental pathology, physiology and chemistry. Work was begun in this building in October, 1904, with Dr. Simon Flexner as director of the laboratories. Though the facilities at the disposal of the small staff of nine workers[2] were necessarily inadequate, a number of investigations were completed during the two years that these temporary quarters were occupied.

Present State.—At present three buildings form the Institute: the main laboratory building, the animal house and the power house. They are located upon rising ground at Sixty-sixth Street and the East River and are surrounded by a large free space. The laboratory building stands at the head of East Sixty-sixth Street, facing west, and is connected with it by a broad driveway flanked by a footpath. This building is a fireproof structure of steel and yellowish-gray brick. Its simple façade shows five full stories and a basement which is half above ground.

The basement is subdivided into a number of rooms of various sizes which contain the machinery

[1] This section is largely based on Dr. L. Emmett Holt's address, delivered at the opening of the Institute laboratories and published in the Institute Studies, 1907, viii, p. 17.

[2] The original staff consisted of Drs. S. Flexner, S. J. Meltzer, E. L. Opie, H. Noguchi, J. E. Sweet, P. A. Levene, W. A. Beatty, H. S. Houghton, and J. Auer.

Fig. 1.—General View of the Building.

of the building and also the heavier laboratory apparatus, such as centrifuges, steam evaporation basins, shaking apparatus, etc. Two of the rooms serve as storage rooms for laboratory supplies. In addition a machinist's repair shop, the laundry and living quarters for the janitor, are located in the basement.

The first floor contains the administrative rooms, offices, the library and an assembly room. The library is formed of four rooms and occupies about

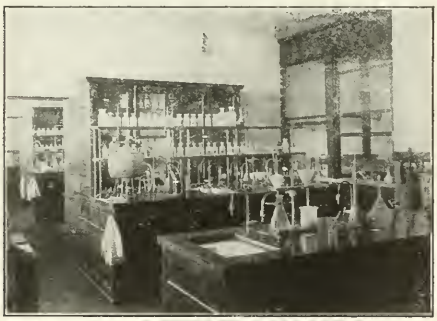

Fig. 2.—General Chemical Laboratory.

one-half of the floor space. The assembly room seats about one hundred people and is supplied with all connections necessary for demonstration purposes, including a stereopticon. This room is used for society meetings and for the weekly conferences of the Institute staff.

The entire second floor is occupied by the department of chemistry, and is divided into large and small rooms. The larger rooms are fitted out as general laboratories for a number of workers, while some of the smaller ones are used for special purposes; for example, the distillation room where alcohol and ether are redistilled, the hydrogen sulphide room, combustion room, etc. Recently a laboratory has been equipped for work in physical chemistry.

On the third floor are laboratories for experimental pathology, bacteriology and protozoology, all equipped with everything needful for general and special work. Besides these laboratory rooms, the private study of the Director is located at the north end of the floor. The south end of the floor is occupied by a suite of rooms designed especially for aseptic surgical work. This suite is composed of three rooms: in the first is a bathtub and a hot air drying chamber; here the animal is prepared for operation. In the second room are autoclaves and other steam connections for the sterilization of dressings and instruments. The inner room on the east side of the building is the operating room. There is also in connection with this suite, a fourth room paved with cement, which serves as an animal room. Here animals after operation and other procedures are conveniently kept under observation. As only small animals such as mice, rats, guinea-pigs, rabbits and monkeys are kept in this room, their presence is not noticeable in the main hall. These four rooms are connected by a corridor which also separates them from the main hall of the building.

Fig. 3.—Section of the Library and Reading Room.

The large general laboratory for bacteriology, on the western side of this floor, contains a built-in hot-air room whose temperature varies from 35 to 39 degrees C, depending upon the level at which this temperature is taken. This room serves for cultiva-

Fig. 4.—One of the Preparation Rooms—Bacteriological Clean ing Room.

tion and digestion experiments. In this room there is also a small shaking machine.

On the fourth floor are special laboratories for experimental pathology, for physiology and pharmacology; preparation rooms and a centrifuge room. The laboratories for pathology are formed by a series of four communicating rooms at the north end of the floor. They are equipped not only for ordinary pathological work but also for work in chemistry, including gas analysis.

The south end of the floor space is occupied by the department of physiology and pharmacology. The preparation rooms are two rooms on the western side where bacteriological media are made up; here also most of the hot-air and steam sterilization for bacteriological purposes are carried out. In an adjoining cement-floored room some of the smaller centrifuges are placed. These centrifuges are anchored on rubber and produce very little vibration when in action. There are two other laboratories upon this floor which are designed for individual workers.

All the laboratory rooms are equipped with hoods containing gas, electricity, hot and cold water, and vacuum connections. The hoods of the chemical floor, in addition, are supplied with steam.

The fifth floor contains the photographic studios, a special incubator room, a suite of two rooms for workers whose experiments demand night observation, a kitchen and dining room, and some unassigned and partly undivided floor space.

The photographic suite comprises five rooms fully equipped with cameras for ordinary and photomicrographic work. The dark room is entered through an S-shaped passage, with black walls—a great convenience as it obviates doors.

Each floor is provided with a large refrigerator which communicates with the main refrigeration plant in the basement. The refrigerators in the basement and in the kitchen are arranged for constant temperatures, while those on the second, third, and fourth floors are divided into three tiers of compartments so connected that each tier may be maintained at an independent temperature.

The various floors of the building including the roof communicate with each other by two stairways at the northern and southern ends of the building. There is also an electric elevator.

The water supply of the building is all filtered. Ventilation is secured by means of the "fan plenum" system.

All the various floors and departments are connected with each other by a house telephone, and on each floor is a telephone booth for city and long distance connections.

The roof really forms a sixth floor, for a considerable portion of the space has been covered by an iron house sheathed with copper. This house has been subdivided into a number of small rooms in which dogs are kept. Each of these rooms has a concrete floor and communicates with an outside, tiled runway. This runway is separated by heavy wire fences into as many compartments as there are rooms. Most of these dog rooms are located on the eastern side of the roof; only a few are on the western side. A separate room is utilized as a "dog kitchen"; there an attendant prepares the food for the animals.

At each end of this roof house is a suite of operating rooms similar to that on the third floor. The northern suite is at present used for work in experimental tuberculosis. In the southern suite, all the operations of experimental surgery are carried out. The operating room of this suite faces north, and its north wall and roof are constructed of glass so that sufficient light is secured for the most delicate work.

The animal house is a two story building of semi-fireproof construction and is connected with the main laboratory building by a covered passageway. The first floor contains stables for horses, sheep, and

Fig. 5.—Photographic Studio.

goats. A special room, whose temperature is kept constant, contains various species of monkeys and poisonous snakes. On the second floor are large, well-lighted spaces where cats, rabbits, guinea-pigs, and birds are housed. A small room provided with

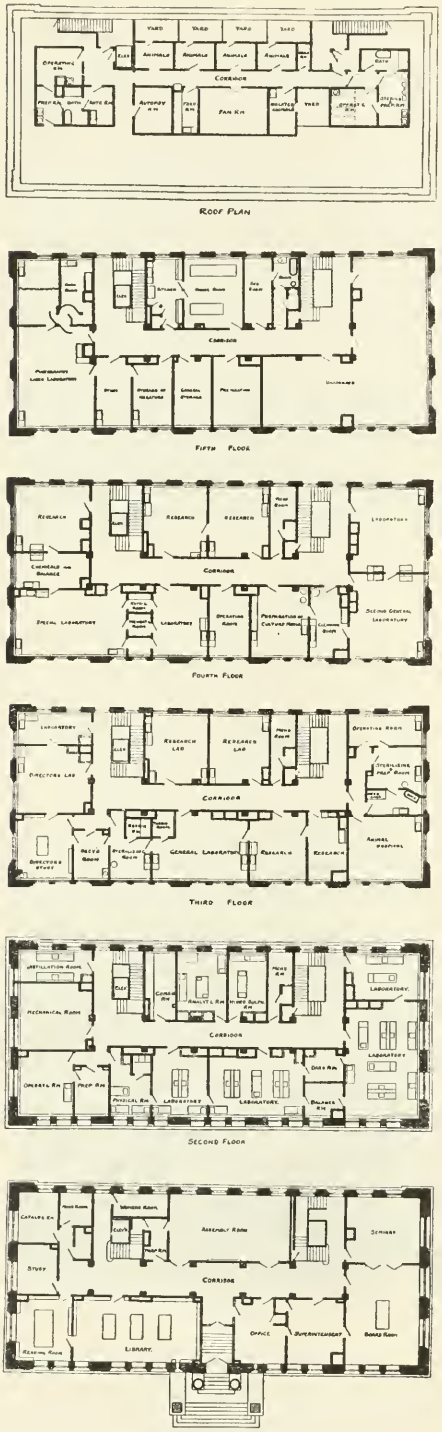

FIG. 6.—Floor Plans of the Institute.

a series of tanks is used for the storage of frogs. There is also a large loft for the storage of grain and hay.

The Institute has recently purchased a small farm of about one hundred acres in New Jersey. This farm serves a variety of purposes. Operated animals, horses which furnish the antimeningitis serum, are kept on this farm for various periods of time, especially during the hot summer months. Here also rabbits and guinea-pigs are bred. Moreover, part of the hay and grain used for the animals is furnished by this farm.

The power house contains three sixty-horse-power boilers which furnish the steam necessary for heating the buildings, for operating the pump, sterilizers, etc., etc. There is also a crematory for the destruction of carcasses, and a steam vat for their previous sterilization by steam, if infected.

These three buildings which have been briefly described above are the only ones at present completed. As yet there is no hospital in connection with the Institute, but this deficiency will be remedied shortly. At the time of writing this, ground has been broken for a hospital comprising two buildings, a main hospital of seven stories with a capacity for about fifty patients and a smaller two story building which is to be used as an isolation pavilion. These structures will be located south of the main laboratory building.

Organization.—As already stated the government of the Institute is vested in the Board of Directors, of which Dr. William H. Welch is president, Dr. L. Emmett Holt, secretary, and Dr. Christian A. Herter, treasurer. This body meets three times a year. Its immediate representative in the daily work of the Institute is the Director and Chief of the Laboratories, Dr. Simon Flexner.

As the work carried out in the Institute extends over a large and varied field, different departments have been created each with a more or less complete staff. This subdivision into departments is as yet incomplete, but at present there are three: experimental pathology, physiology and pharmacology, and chemistry. Of these the department of pathology is the most fully equipped and its work the most varied. Its staff is formed by Dr. Simon Flexner, head of the department, and Dr. E. L. Opie. With Dr. Flexner are associated Drs. Noguchi, Jobling, Carrel, Lewis, Wollstein, Lamar, and Terry. Dr. Opie is assisted by Miss Barker and Dr. Dochez.

The staff of the department of physiology and pharmacology is formed by Dr. S. J. Meltzer, head of the department, Drs. Auer, Joseph, and Shaklee.

In the department of chemistry the staff is formed by Dr. P. A. Levene, assisted by Drs. Heimrod, Van Slyke, Jacobs, Clarke, and Meyer. In addition there is a special laboratory for pathological chemistry under the direction of Dr. E. K. Dunham, assisted by Dr. Jacobson.

The photographic studios are in charge of Dr. Leaming.

The Institute staff is composed of workers holding various grades or titles which are conferred by the Board of Directors. These titles and their holders are as follows:

Member of the Institute: Drs. Simon Flexner, S. J. Meltzer, E. L. Opie, and P. A. Levene.

Associate Member of the Institute: This title is held at present by no one.

Associate of the Institute: Drs. Hideyo Noguchi, J. W. Jobling, A. Carrel, and J. Auer.

Assistant of the Institute: Drs. G. Heimrod, P. A.

Lewis, B. T. Terry, D. R. Joseph, D. D. Van Slyke, and W. A. Jacobs.

Fellow of the Institute: Drs. Martha Wollstein, R. Lamar, A. R. Dochez, G. M. Meyer, C. A. Jacobson, A. O. Shaklee, and Miss Bertha Barker.

Scholar of the Institute.

Student of the Institute.

Social Relations of the Institute Staff to Each Other.—During the early period of the Institute, especially during the occupancy of its temporary quarters on Fiftieth Street, there was opportunity for little intercourse between the workers in the different departments, and the three little communities of pathologists, physiologists, and chemists, though close neighbors, worked without really coming into daily contact with each other. To remedy this undesirable state of isolation two measures were introduced. First, a weekly conference was established at which designated members reported upon some contribution to their particular field or upon some completed investigation of their own. These reports were then open to an informal discussion by the Institute staff. The second and more effective measure to bring about personal con-

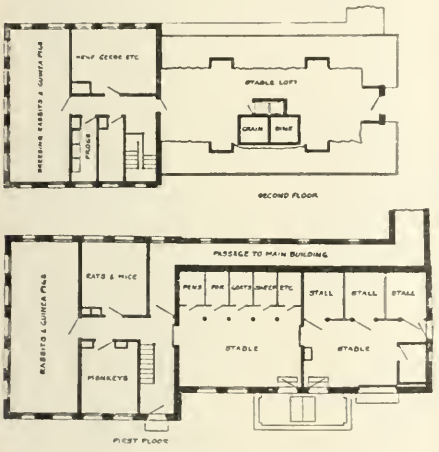

FIG. 7.—Floor Plans of Animal House.

tact between members of the staff was luncheon in common. This luncheon is served in the dining room of the Institute and here the workers now meet each other daily with mutual benefit.

There is also a well kept tennis court, located east of the main laboratory building, which gives opportunity for outdoor exercise to the Institute staff.

Character of the Problems Investigated.—As the title of the Institute indicates, the problems investigated by the Rockefeller Institute for Medical Research bear a close relation to and often are identical with the problems of medicine. Questions of purely scientific interest, which necessarily arise during the course of any investigation, are, however, not neglected. It is fully realized that all biological facts are valuable, but it is also realized that some biological problems are of greater immediate benefit to the art of medicine than others. These latter problems are the ones investigated chiefly by the Institute.

Some of the subjects at present being studied will illustrate the statement made above. The department of pathology, for example, is studying some of the problems of protective sera, of cancer, of tuberculosis, of trypanosomiasis, or anaphylaxis, of the transplantation of organs, of the bacterial flora of the intestine, and of the specific serum reactions in syphilis and other diseases, all of vital interest to medicine.

In the department of physiology and pharmacology attention is paid only to the functions of the animal organism, both normal and when experimentally modified by operation or by drugs. Some of the questions whose answers are being sought are the rôle which the inorganic salts of the body play in its economy; the motor-phenomena of the gastrointestinal canal; some aspects of the physiology of the heart; some of the problems of absorption; influence of mechanical agents upon ferment activity.

In the chemical department the subject of study is the identification of tissue fragments; the rôle which these tissue components play in the building-up of tissues, that is, their nutritive value in normal and abnormal conditions.

Scope of the Institute.—The investigations of the Institute are by no means limited to those carried out within the walls of the Institute proper. Throughout the United States and also in the medical centers of Europe there are numerous workers whose researches are supported by grants from the Institute. Nothing perhaps will illustrate the extent of this extra-mural aid more than the index of the last volume (VIII) of the "Studies of the Rockefeller Institute"; out of forty-five papers almost half were contributed by investigators who were not members of the resident staff of the Institute.[5]

Publications.—The published results of investigations which have been aided by grants or which have been carried out in the laboratories of the Institute are collected into volumes of about 300 pages. So far eight volumes of these "Studies from the Rockefeller Institute" have appeared. These "Studies" are sent to the leading laboratories, libraries, and learned societies both here and abroad.

In addition to the "Studies," the Rockefeller Institute publishes under the editorship of Dr. Simon Flexner and Dr. E. L. Opie, *The Journal of Experimental Medicine*. Its pages are not devoted exclusively to work conducted under the auspices of the Institute, but are open to any suitable article written in the English language.

[5]Detailed information regarding grants is contained in the "Circular of Information," which may be obtained from the clerk of the Institute.

Treponoma Pallidum in Syphilis.—Fouquet gives an account of the characteristics and life history of *spirochæta pallida* as far as it is at present known. It is noticeable that cultural experiments have so far failed in securing growths. The organism is probably a trypanosome. Its localizations are known in both hereditary and acquired syphilis. In the acquired variety it is present in the chancre deeply situated and frequent toward the periphery. In general it is found in the connective tissues along the blood-vessel lesions. It is carried by the lymphatics to the ganglia. It is found in the secondary roseola, and in cutaneous syphilides in the deepest layer of the rete Malpighii, here causing the disappearance of pigment such as is seen in 'eucoderma. It is rare in secondary visceral lesions, and in tertiary lesions, except as found along the blood-vessels. In hereditary syphilis it is found in the blood, placenta, both fetal and maternal, in the bullæ of pemphigus, nasal and buccal mucous membrane when affected, eyes, bones, liver, here being especially frequent, spleen, kidneys, pancreas, lungs, testicle, and ovaries. It accompanies the vessels of the nervous system. The action of mercurial treatment is to lessen the vitality and the reproduction of the parasite.—*Gazette des Hôpitaux.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE ART OF NATURAL SLEEP. By LYMAN P. POWELL. 12mo, 92 pages; paper; 90 cents net. G. P. Putnam's Sons, New York.

SYPHILIS OSSEUSE (SYPHILIS ACQUISE). Par le Dr. LOUIS SPILLMANN. 12mo, 131 pages; paper; illustrated. G. Steinheil, Éditeur, Paris, France.

ATLAS OF CLINICAL SURGERY. By Dr. Ph. BOCKENHEIMER. In three volumes; 419 pages; 4to; leather; illustrated; 3 vols.; $24. Rebman Co., New York.

DER MENSCHLICHE KÖRPER IN SAGE, BRAUCH UND SPRICHWORT. Von Prof. KARL KNORTZ. 12mo, 240 pages; paper; M. 3.20. Curt Kabitzsch (A. Stuber's Verlag) in Würzburg.

MILITARY HYGIENE. By R. H. FIRTH. 12mo, 299 pages; cloth; illustrated. P. Blakiston's Son & Co., Philadelphia, Pa.

ÜBER DIE FUNCTIONEN VON HIRN UND RÜCKENMARK. Von HERMAN MUNK. 8vo, 371 pages; paper. Verlag von August Hirschwald, Berlin, Germany.

SURGICAL MEMOIRS. By JAS. G. MUMFORD, M.D. 8vo, 358 pages; cloth; illustrated. Moffat, Yard & Co., New York.

LE TRAITEMENT PRATIQUE DE LA TUBERCULOSE PULMONAIRE. By le Dr. LOUIS RENON. 8vo, 258 pages; paper. Masson et Cie., Editeurs.

INTERNATIONAL CLINICS. Edited by W. T. LONGCOPE, M.D., Philadelphia, Pa. 8vo, 298 pages; cloth; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

OBSTETRICAL TECHNIQUE. By JOS. BROWN COOKE, M.D. 12mo, 258 pages; cloth; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

CLINICAL DIAGNOSIS. By CHAS. PHILLIPS EMERSON, A.B., M.D. 8vo, 686 pages; cloth; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

INTRODUCTION A L'ETUDE CLINIQUE ET A LA PRATIQUE DES ACCOUCHEMENTS. Par le Professeur L. H. FARABEUF et le Docteur HENRI VARNIER. 4to, 488 pages; paper; illustrated. Georges Steinheil, Éditeur, Paris, France.

REFERENCE HAND-BOOK FOR NURSES. By AMANDA K. BECK. 16mo, 199 pages; leather; illustrated; $1.25 net. W. B Saunders Co., Philadelphia, Pa.

OBSTETRICS FOR NURSES. By JOSEPH B. DELEE, A.M., M.D. 8vo, 512 pages; cloth; illustrated; $2.50 net. W. B. Saunders Co., Philadelphia, Pa.

OBSTETRIC AND GYNECOLOGIC NURSING. By EDWARD P. DAVIS, A.M., M.D. 8vo, 436 pages; cloth; illustrated. W. B. Saunders Co., Philadelphia, Pa. Price $1.25.

A TEXT-BOOK OF DISEASES FOR WOMEN. By CHAS. B. PENROSE, M.D., Ph.D. 8vo, 550 pages; illustrated; cloth, $3.75; half morocco, $5.25 net. W. B. Saunders Co., Philadelphia, Pa.

REFRACTION OF THE EYE. By HARRY C. PARKER, M.D. 8vo, 201 pages; cloth; illustrated; price, $1.25 net. W. B. Saunders Co., Philadelphia, Pa.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. By EDWIN O. JORDON, Ph.D. 8vo, 557 pages; cloth; illustrated; $3.00 net. W. B. Saunders Co., Philadelphia, Pa.

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THE BONE MARROW: A CYTOLOGICAL STUDY. By W. E. CARNEGIE DIXON, M.D., B.Sc. (Edin.), F.R.C.P. (Edin.) Folio, 160 pages; cloth; illustrated; $12.00 net. Longmans, Green & Co., New York.

TUBERKULOSE-ARBEITEN AUS DEM KAISERLICHEN GESUNDHEITSAMTE. 4to, 464 pages; illustrated; paper. Verlag von Julius Springer, Berlin, Germany.

DISEASES OF THE NERVOUS SYSTEM. By ALFRED GORDON, A.M., M.D. (Paris). 8vo; 487 pages; cloth; illustrated; $2.50 net. P. Blakiston's Son & Co., Philadelphia.

AUTOINTOXICATION. By A. COMBE, M.D. 8vo, 461 pages; cloth; illustrated; $4.00. Rebman Company, New York.

TRANSACTIONS OF THE THIRTIETH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION. 8vo, 421 pages; cloth; illustrated. Published by The Association, New York.

Schimmel & Co.'s Works. 12mo, 44 pages; cloth; illustrated. Fritzsche Bros., New York.

THE DISSOCIATION OF A PERSONALITY. By MORTON PRINCE, M.D. 8vo, 575 pages; cloth; $2.80 net. Longman's, Green & Co., New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending January 16, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	484	166
Diphtheria	394	47
Measles	462	16
Scarlet Fever	337	18
Smallpox	—	—
Varicella	163	—
Typhoid Fever	39	9
Whooping Cough	39	3
Cerebrospinal Meningitis	3	2
Malarial Fever	—	—
Totals	1921	261

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending January 15, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS
California, Los Angeles	Dec. 19–26	1	
Oakland	Dec. 26–Jan. 2	4	
San Francisco	Dec. 19–26	8	
District of Columbia, Washington	Dec. 26–Jan. 2	1	
Illinois, Cairo	To Jan. 7	12	
Peoria	Dec. 19–26	4	
Indiana, Anderson	Dec. 1–31	1	
Lafayette	Dec. 27–Jan. 4	3	
Kansas, Atchison	Dec. 26–Jan. 2	1	
Pittsburg	Dec 1–31	36	
Kentucky, Covington	Dec. 26–Jan. 2	2	
Lexington	Dec. 26–Jan. 2	2	
Louisiana, New Orleans	Dec. 19–Jan. 2	2	Imported
Minnesota, Stillwater	Dec. 1–31	3	..
Missouri, St. Louis	Dec. 19–26	2	..
Nebraska, Lincoln	Nov. 1–30	3	..
Ohio, Cincinnati	Dec. 26–Jan. 2	20	..
Pennsylvania, Gracedale	Oct. 24	1	.
Tennessee, Knoxville	Dec. 26–Jan. 2	1	
Texas, Falfurriass	Dec. 26	12	
San Antonio	Dec. 26–Jan. 2	6	..
Washington, Seattle	Nov. 1–30	7	
Spokane	Dec. 19 26	1	.
Tacoma	Dec. 13–Jan. 3	14	.
Wisconsin La Crosse	Dec. 19–Jan. 2	6	

SMALLPOX—FOREIGN.

Brazil, Pernambuco	Nov. 1–15	3	..
Rio de Janeiro	Nov. 15–29	420	200
Sao Paulo, Santos	Nov 23–Dec. 6	..	31
Santos	Nov. 15–22	..	2
Canada, Halifax	Dec. 19–26	2	.
Winnipeg	Dec. 19–26	1	
Yarmouth	Dec. 1–31	1	
China, Shanghai	Dec. 8	..	Present
Egypt, Cairo	Dec. 2–9	4	3
Greece, Athens	Dec. 5–12	..	1
India, general	Nov. 21–28	2,156	1,646
Bombay	Dec. 1–8	..	1
Calcutta	Nov. 7–28	10	..
Madras	Nov. 28–Dec. 4	1	
Rangoon	Nov. 21–28	1	
Indo-China, Cholen	Nov. 14–21	1	1
Saigon	Oct. 31–Nov. 21	2	2
Italy, general	Dec. 13–20	10	
Naples	Dec. 13–20	18	4
Persia, Teheran	Nov. 14–28	..	10
Russia, Warsaw	Nov. 14–28	..	5
Spain, Barcelona	Dec. 12–19	..	1
Madrid	Nov. 1–30	..	9
Turkey, Constantinople	Dec. 3–13	..	15

YELLOW FEVER.

Brazil, Manaos	Nov. 28–Dec. 5	..	2
Ecuador, Guayaquil	Nov. 28–Dec. 2	..	4
Martinique, Fort de France	Dec. 12–19	1	

CHOLERA—FOREIGN.

India, Calcutta	Nov. 7–28	..	31
Madras	Nov. 21–Dec. 4	..	10
Rangoon	Nov. 21–28	..	1
Indo-China, Cholen	Nov. 8–15	1	1
Russia, St. Petersburg	Dec. 15–23	89	28
Straits Settlements, Singapore	Nov. 15–22	.	10

CHOLERA—INSULAR.

Philippine Islands, Manila	Nov. 14–28	24	18
Provinces	Nov. 14–28	518	345

PLAGUE.

Brazil, Rio de Janeiro	Nov. 15–29	18	8
Ecuador, Guayaquil	Nov. 28–Dec. 5	..	3
India, Bombay	Dec. 1–8	..	7
Calcutta	Nov. 7–28	..	18
Rangoon	Nov. 21–28	..	2
Indo-China, Cholen	Oct. 24–Nov. 21	10	9
Saigon	Oct. 24–Nov. 7	3	2
Mauritius	Oct. 22–29	5	4
Turkey, Bagdad	Nov. 6–Dec. 5	14	9

Medical Record

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BY A. ALEXANDER SMITH, M.D.,

NEW YORK.

WHILE leukemia may occur in individuals at any age the two decades between 25 and 45 seem to be the favorite periods for its development. Although the disease is sufficiently often recognized to make it of comparatively little interest, very few cases have been reported after the age of 60. The very few cases occurring after 55 years of age have been almost all in men. Within a period of eighteen months I had the opportunity of seeing three cases in persons between the ages of 60 and 70, two of whom were women.

CASE I.—The first case was that of a lady, 70 years of age, a mother and a grandmother, living in her own home in the city, surrounded by luxury. She had spent the summer in the country, enjoying a fair degree of health. On her return to the city in October, 1903, she consulted her physician because of a persistent diarrhea and progressive exhaustion. His examination showed a moderate degree of fever, temperature 101.4° F., pulse between 90 and 100, moderate abdominal distention, a spleen very much enlarged and a quite decided degree of prostration.

A blood examination made October 24, 1903, showed: Reds, 4,280,000 per cm.; leucocytes, 320,000. Differential count: Polymorphonuclears, 1.9 per cent.; lymphocytes, 98.0 per cent.; basophiles, 0.1 per cent. Possibly the presence of diarrhea may have produced a concentration of the blood. The small lymphocytes predominated. There were no glandular enlargements.

A blood examination made December 17, 1903, showed: Reds, 4,250,000; hemoglobin, 75 per cent.; color index, .9×; leucocytes, 538,000; Differential count: Polymorphonuclear, 2.85 per cent.; lymphocytes, small, 95.68 per cent.; lymphocytes, large, 1.02 per cent.; transitionals, .30 per cent.; eosinophiles, .08 per cent.; basophiles, .07 per cent. I saw this lady with her physician in December, 1903, and could only confirm the very evident diagnosis. She died from exhaustion in between three and four months after I saw her.

CASE II.—The second case was that of a lady aged 64, and like the other living in her own home; she was surrounded by luxury and had been since her birth. She had spent the summer in the White Mountains and had returned to the city to her own home in November, 1905. During the latter part of her stay in the White Mountains she had suffered from a persistent diarrhea with some fever. The fever had not been measured as she had not consulted a physician. When I saw her in December, 1905, she had been under observation several weeks, having diarrhea, a temperature ranging from 100° to 102°, a pulse of 90 to 96, progressive exhaustion and an increasing pallor. When I saw her the pallor was a very noticeable symptom. I found her with a moderate degree of abdominal distention and a moderate enlargement of the spleen, not very tender on palpation. She was confined to the bed.

A blood examination showed: Reds, 4,112,000; hemoglobin, 65 per cent.; a few normoblasts present; leucocytes, 127,400; polymorphonuclears, 84 per cent.; lymphocytes, large, 3 per cent.; small, 4 per cent.; eosinophiles, 1 per cent.; basophiles, 1 per cent.; myelocytes, 7 per cent. She died in January, 1906, from progressive exhaustion. She had no renal or cardiac disease.

CASE III.—This patient was brought to me March 21, 1905, by his son, a physician, from northern Vermont, and was seen in my office. He was a judge of the Circuit Court of Vermont and was in his 60th year. He had the following history: Mother died of tuberculosis at the age of 47, father lived to 88 years of age. Five brothers all older than himself living and in good health. Habits always regular, has never been addicted to the use of alcoholic drinks; smokes rather immoderately, has four children living and in good health; had measles and mumps when a child; has always been able to attend to his duties and has never been ill in bed a day in his life until an attack of grippe four weeks ago. Digestion was always excellent except for the past three months he has had both gastric and intestinal flatulence. His normal weight up to 50 years of age was 115 pounds. His weight then gradually increased until one year ago he weighed 150. During the past few years has noticed a very slight dyspnea on exertion, but paid very little attention to it as he attributed it to advancing age.

In October, 1904, while going up a hill quite rapidly he had very marked dyspnea. His general health had seemed excellent until four weeks ago, when he had an attack of grippe and lost during this attack 15 pounds in weight. Attention has never been directed to abdominal swelling and he has had no abdominal pain. Appetite has always been good except during his attack of grippe, has never had any hemorrhages, has kept up his work regularly until this attack of grippe, and now again feels perfectly able to work and is anxious to do it. Since his attack of grippe he has refrained from doing any work at the earnest request of his family. His chief complaint was some dyspnea and palpitation of the heart on exertion and when the abdomen was distended. The physical examination revealed a heart considerably enlarged, the apex in the sixth intercostal space and a mitral regurgitant murmur. The liver was moderately enlarged; the spleen was very much enlarged, the lower border of it extending almost down to the crest of the ileum.

*Read at a meeting of the Practitioners' Society of New York, December 11, 1908.

The urinary examination showed a mild degree of chronic nephritis. The blood examination showed red cells, 3,418,000; hemoglobin, 85 per cent.; leucocytes, 440,000. Differential count: Polymorphonuclears, .18 per cent.; myelocytes, 65.4 per cent.; large lymphocytes, 5.5 per cent.; small lymphocytes, 10.5 per cent.; eosinophiles, .6 per cent. Very numerous nucleated red cells mostly megaloblasts, and no poikilocytes.

When the gravity of the illness was stated to the son he begged that his father be kept in ignorance of his serious condition, that he be allowed to return to his work, the son agreeing to take all the responsibility of such advice. He did return to his work and lived eight months being able to attend to his duties constantly up to within five weeks of his death, and then was obliged to cease because of increasing dyspnea.

The interest in these cases centers in the fact that they were all between 60 and 70, an age in which leukemia very rarely develops, and that two of them were women. Reports of cases in women at this age are more rare than of those in men. Two of the patients, the women, were born into luxury and always lived in luxury. A further fact of interest is that in the man, although he suffered from chronic cardiac and renal disease in addition to leukemia, he was able to perform his duties up to within five weeks of his death.

18 West Fifty-first Street.

SOME COMMON INJURIES OF THE ELBOW.

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The injuries to the elbow joint which demand the consideration of the surgeon are contusions, wounds, dislocations, and fractures. In this short discussion, it is not my intention to take up each of these conditions and systematically consider its surgical phases, but I shall wander away from the general path and briefly call attention to certain features of these injuries, the consideration of which may be of profit.

Contusions of the elbow joint are of interest because of the fact that if the contusion is not great enough to cause a fracture it usually amounts to very little. The three bony prominences—the two condyles and the olecranon—which surround the elbow, stand out so prominently that contusion of the joint structures or of the folds of synovial membrane are almost impossible. One or the other of these prominences may be struck, and the soft parts contused are only the skin and the underlying fascia. How very different this is from the analogous joint, the knee, in which the bony eminences have become rounded off and in which the patella, the analogue of the olecranon, offers no protection whatever against contusions of the joint structures. In fact, the synovial membrane of the knee is as much exposed to contusion through the patella as the elbow would be were there an ununited fracture of the olecranon. It is for these reasons that traumatic synovitis, so common in the knee, is so rare in the elbow joint.

There is one injury to this joint to which I desire to call attention and which I have never been able to find described. It may be designated as sprain of the radial flexors, and at first sight simulates fracture of the external condyle of the humerus. The injury is sustained by falling with the arm twisted under the body. Swelling about the outer side of the joint rapidly develops, but the characteristic symptom is a preternatural prominence of the supinator radii longus muscle. I have seen five cases of this condition, and in all of them, after determining that there was no fracture of the external condyle, the impression was present that the supinator longus originated from the humerus at a higher location than normally. If the elbow is held at a right angle the angle is obliterated by the muscle, the anterior border of which makes the hypothenuse of a triangle. The muscle looks to be in a state of strong contraction, but palpation shows that it is in a state of semirelaxation, still it seems to originate nearly as high as the middle third of the humerus and to pass down to the middle of the forearm. There is much tenderness and swelling. Motion of the joint is limited by pain in the region of the radial flexors in front of the external condyle. If the arm is put up with a snug bandage and carried at a right angle in a sling the deformity and pain disappear in a week, and in another week there is no sign of injury. The reason which I assign for this swelling and unnatural prominence of the supinator is a rupture of the external reflection of the deep fascia, which binds down this

Fig. 1.—K. R. Separation of Lower Epiphysis of the Humerus, showing displacement of the fragment.

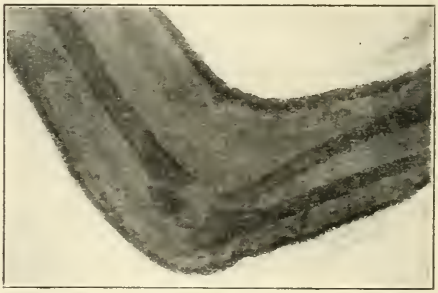

Fig. 2.—K. R. Separation of Lower Epiphysis of the Humerus; flexion at a right angle in plaster-of-Paris, fair position.

group of muscles, and the swelling of the muscles incidental to the contusion. One of these cases I known to have been diagnosed by a competent man as fracture of the outer condyle.

When we come to the consideration of fractures

Fig. 3.—K. R. Separation of Lower Epiphysis of the Humerus; flexion at an acute angle; in plaster-of-Paris, better position.

of the condyles, which have had placed upon them the unfortunate designation of "fractures of the elbow," we will do well to bear in mind the centers of ossification of the lower end of the humerus. This is particularly important because these fractures are among the common injuries of childhood.

At birth the epiphysis is wholly cartilaginous below a transverse line passing through the lower part of the olecranon fossa. This line soon descends centrally to the lower edge of the fossa. About the middle of the second year the first center of ossification appears in the capitellum. About the tenth year this center has enlarged nearly to the trochlea, and an ossific center appears in each epicondyle. The diaphysis has grown down into the inner portion of the trochlea so that the lower epiphysis is a

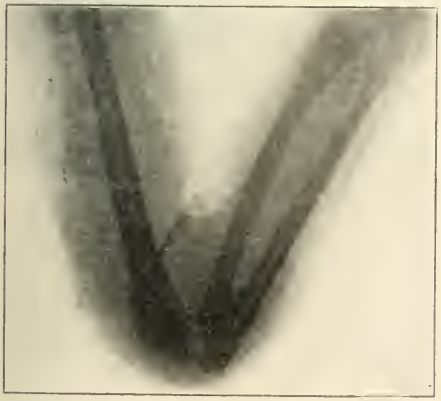

Fig. 4.—K. R. Separation of Lower Epiphysis of the Humerus; extreme flexion, perfect position. These first four figures show the changes of position produced in the same fracture by four different degrees of flexion.

boat-shaped cartilage with its hollow upwards. The capitellum unites with the epicondyle between the twelfth and fourteenth years. After this the last point of ossification appears in the trochlea. This unites with the capitellum about the fifteenth year. Thus there is produced a cup of bone made up of the external condyle and that part of the bone which bears the articular surfaces. About the sixteenth or seventeenth year this unites with the shaft and ossification is complete.

Unfortunately, before this time a large proportion of the condyloid fractures occur; and it is in this connection that I desire to call attention to a condition which has been responsible for much misinterpretation in the treatment of these injuries. The men who have described new methods of treating fractures of the condyles have always evidenced extraordinary enthusiasm over their particular methods, claiming that their results were much superior to the results secured by any other method of treatment. This was because these men were investigators and had made painstaking inquiries and examinations of many cases which had been treated by the older methods and had found in many of them deformities which their own particular method obviated. Now, what is the explanation of this perennial condemnation of the old methods and approval of the new? The answer is very simple if we keep in mind these lines of ossification.

Fig. 5.—Case II. Supracondyloid Fracture, elbow flexed at an acute angle, position of fragments bad.

A child under the age of sixteen sustaining the common fracture of the external or internal condyle or the separation of the epiphysis peculiar to that age, secures a good *immediate* result, but in the healing of the fracture, which properly speaking at this age is commonly an epiphyseal separation, the intervening cartilage is converted into bone and further growth of that particular part of the articular extremity stops. The surgeon who examines the arm *immediately* after the union has taken place now declares it a good result; and it is. But if the child is ten or twelve years old ossification and longitudinal growth of bone has five years more to continue in the parts of the cartilage not involved in the injury. This growth will be unequal unless all of the osteoblastic tissue is equally converted into bone.

Thus after fracture of the external condyle the ulnar side of the lower end of the humerus continues growing after the radial side has stopped. This gives a deformity which tends to increase up to the time of ossification. Fracture of the inner condyle, carrying with it the ulnar articular surface

in the young, gradually results in obliteration of the so-called "carrying angle," and if growth continues, the next defect in the result which time produces is an actual adduction of the forearm, cubitus varus, or the "gunstock deformity" which is re-

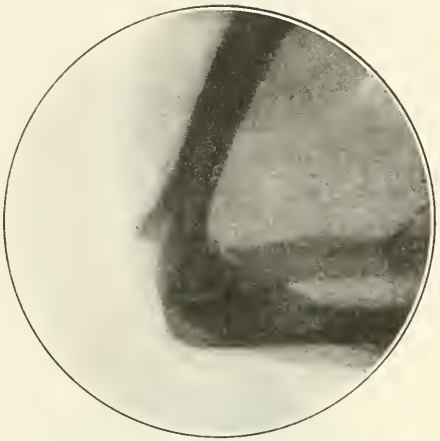

Fig. 6.—Case II. Supracondyloid Fracture; elbow flexed at a right angle, position of fragments fair.

garded as the acme of poor results. Fracture which separates the epiphysis without passing through the articular surfaces is probably a more common injury than it is supposed to be. Stimson has found a number of examples of deformity of the lower end of the humerus, due to fracture in youth, in which the bone shows no line of fracture through the articular surface of the joint. These deformities he attributes to defective healing of a separated epiphysis, and in a paper read before the New York Surgical Society in 1900,[1] he presents this thesis. These deformities are all attributed to malposition of fragments. Still, as a matter of fact, I think it is

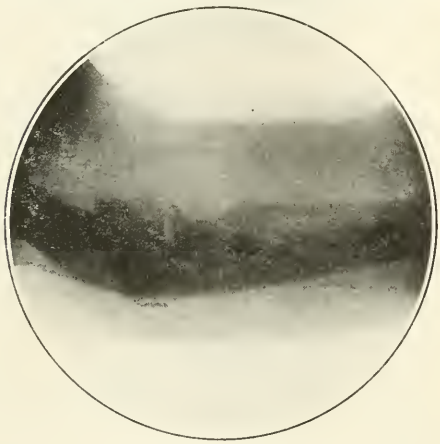

Fig. 7.—Case II. Supracondyloid Fracture; elbow straight, position of fragments good.

quite clear that they are the results of time, and there is no practical means of preventing them. The surgeon who is trying a new method does not see them; his own method has not been under observation long enough to have become subject to these deformities; he has only discovered the bad results in the older methods. But when his cases have been subjected to the mutations of time, with her immutable laws of ossification and osteogenesis, many of the elbows which he reported straight will be cited as examples of bad treatment by some of his successors.

In the most important work[2] on fractures ever published in the English language are shown pictures of humeri with a pronounced curve in the lower extremity to illustrate lateral displacement of the epiphyseal fragment. The lower extremities of these bones show no defective line of fracture union, in fact the union has been so perfect that the positive signs of fracture are not discernible, but still there is the pronounced excess of downward development of the radial side, throwing the articular surfaces inwards. These examples are so clearly the results of unequal bone growth that it is to be wondered at how they could have been attributed to defective replacement of the distal

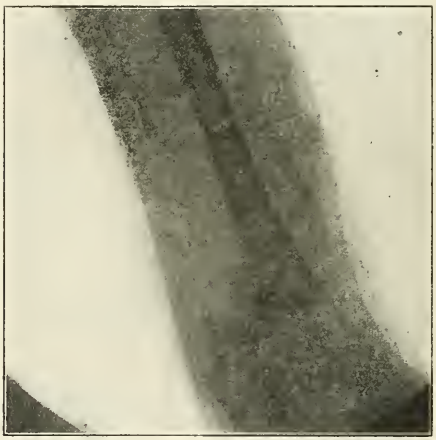

Fig. 8.—L. V. Separation of Lower Epiphysis of the Humerus; arm straight, position bad.

fragments. Such examples of deformity will occur in the practice of every surgeon unless he can bring to bear some force to modify the natural growth of bone.

Another point to which I desire to direct attention is the fear of ankylosis in these fractures of the lower end of the humerus. I feel that there is an unwarranted dread of this condition which often is responsible for damage to the arm which otherwise would not occur. I have seen arms irreparably damaged by too early attempts at passive motion, which only had the effect of disturbing the apposition. Ankylosis after fracture involving the elbow joint is almost always due to imperfect reduction. If the fragments are placed in good position in the young, we need have no fear of a stiff joint, and immobilization should be continued for at least three or four weeks or until the bone has become well united. The most important thing in the treatment of all fractures is perfect replacement and immobilization. The more perfectly these two conditions are met the less will be the callus.

[1] Stimson: *Annals of Surgery*, Vol. 32, 1900.

[2] Stimson: "Fractures and Dislocations," 1905.

Callus is largely a product of defect in these two requisites for good results. Where perfect immobilization is maintained, as in fractures of the skull or in longitudinal fractures of long bones, there is but little callus.

One of the commonest dislocations is the backward displacement of the elbow, still its differential recognition is sometimes difficult. The surgeon should not be satisfied until he has located the two epicondyles, the olecranon, and the head of the radius. With these landmarks in hand this injury is differentiated from supracondyloid fracture. The peculiar firmness or rigidity of the elbow is also quite characteristic of this dislocation. In its reduction, the method quite universally practised since the time of Sir Astley Cooper has been traction in the direction of the long axis of the humerus, with the elbow at a right angle, accompanied by traction forward in the direction of the axis of the forearm. An example of how not to reduce a backward dislocation of the elbow can be seen in the "International Text Book of Surgery," 1902, Vol. 1, p. 634. An even more objectionable method than this, commonly practised, consists in grasping the arm just above the elbow with one hand and making forward traction upon the wrist with the other hand, the dislocated elbow being fixed at a right angle. This is

Fig. 9.—L. V. Separation of Lower Epiphysis of the Humerus, moderate flexion, bad position.

the *reductio ad absurdum* as applied to dislocations of the elbow joint.

These two methods are objectionable because they depend upon stretching or tearing the two strong lateral ligaments sufficiently to allow the coronoid process to ride over the trochlea or else fracturing the process itself. They fail to take advantage of the relaxation of the ligament which is already torn in the production of the dislocation, namely, the anterior ligament of the elbow joint. The best results in reducing dislocations are secured by causing the bone to retrace the course back into the joint which it followed in becoming displaced. This dislocation occurs when the arm is nearly in the straight position, and the tearing of the anterior ligament gives the necessary relaxation to permit the coronoid process to ride over the lower end of the humerus. Thus the anterior ligament is already relaxed, and reduction is best accomplished by traction in the direction of the long axis of the arm in the straight position. If the coronoid process engages in the olecranon fossa, it is easily detached by hyperextension or by horizontal backward pressure. Rosser, as long ago as 1844, showed that hyperextension would overcome this condition, and still I have never had a house surgeon who applied it. When we examine the bones of this joint we find that the coronoid process is more than half an inch high, that means that to reduce the dislocation by the commonly applied right angle method the strong lateral ligaments must be elongated to that degree while the process plows over the trochlear surface,

Fig. 10.—L. V. Separation of Lower Epiphysis of the Humerus, extreme flexion, bad position.

or the process must be broken. The method of reduction which I have described above is, therefore, theoretically the only method, and practically I have found it most efficient.

Without entering into a general discussion of the treatment of fractures of this region, there are a few points which I should be glad to emphasize. In

Fig. 11.—L. V. Separation of Lower Epiphysis of the Humerus, one week after operation, good position. Picture taken through the plaster-of-Paris splint.

speaking of treatment, I desire to testify to the value of the treatment by the method of extreme flexion in the majority of fractures of the lower end of the humerus. The effect of flexion is beautifully shown in Figs. 1, 2, 3, and 4, Case I. This

method seems particularly applicable to fractures of the condyles. Yet there are certain cases to which it cannot be applied, and in which immobilization at a right angle or with the arm in extension gives the best position. This is shown in Case II. Figs. 5, 6, and 7. Here a supracondyloid fracture of the humerus shows bad position with the elbow in acute flexion, fair position at a right angle, and good position with the arm straight.

There are cases of condyloid fracture and epiphyseal separation with posterior displacement of the lower fragment in which manipulation and flexion fail to bring the fragment forward enough to give a good result. These are cases in which the lower fragment is prevented from moving into position by the strong unbroken ligaments. I have seen such a case of epiphyseal separation in which neither ligaments nor periosteum were broken posteriorly, the fragment being held firmly in its displaced position. In this case I exposed the fracture by a posterior incision, opened the posterior ligament and stripped up the periosteum, and replaced the fragment. It remained in good position, irrespective of flexion or extension of the forearm, and a perfect result was secured. Case III, Figs. 8, 9, 10, and 11.

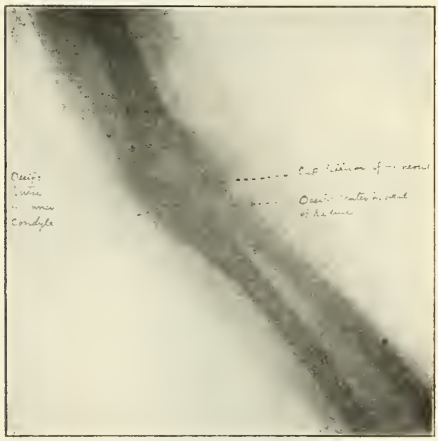

FIG. 12.—Normal elbow of a child aged 12 years.

The first essential in the treatment of elbow injuries is a familiarity with the bony landmarks; this makes accuracy of diagnosis possible. Nor should there be any hesitancy in the use of general anesthesia. For the diagnosis of fracture or dislocation one should expose both elbows and with a pencil or ink mark upon the uninjured joint the three bony points: the tips of the internal and external condyles and the tip of the olecranon. With the arm in a straight position these three points should be nearly in a straight line. With the elbow at a right angle they should make approximately an equilateral triangle. The same marks should be made on the injured side, and the examination proceeded with. Even when there is much swelling, steady pressure will reveal the condyles. The head of the radius should be identified, and with both arms extended, the carrying angle of the two sides should be compared. These are the important points of inspection. Systematic examination is important. One should take up separately each location and feature of the injury. Is the swelling or ecchymosis localized or diffuse? Locate the point of tenderness. Is crepitus present? Is either condyle movable? Examine the olecranon process. Is there fracture or dislocation of the head of the radius? Each part of the three bones entering into the joint should be considered *separately*.

No matter how skillful and thorough one is in these examinations the *x*-ray is an almost indispensable adjunct to treatment. It makes the diagnosis without inflicting pain or traumatism and without the necessity of anesthesia. Many cases which we would be satisfied with after manual examination will be found to be imperfectly replaced in the light of the *x*-ray.

The manipulation usually necessary for reduction consists in downward pressure upon the fragment, combined with traction upon the elbow and flexion to the strongest degree consistent with comfort and the integrity of the circulation. The arm is held in this position by means of a broad adhesive strap passed about the arm and forearm, with a layer of bandage interposed to keep it from the skin. To this is added a simple muslin bandage to keep the arm to the side and to support the elbow. I like to see an *x*-ray picture of the bones in this position. It sometimes reveals the fact that a trifle more flexion is desirable, or it gives one the satisfaction of knowing that the desired position has been secured. Occasionally we have a case in which extreme flexion does not bring the fragments in position. This occurs in condyloid fractures through the joint, associated with traumatic relaxation of the attached ligaments, and with a tendency of the fragment to longitudinal displacement. Some of these cases seem to do better put up at a right angle, others in the straight position in extension. I stand upon the middle ground, between the extreme flexionists of Boston and the extensionists of Philadelphia, although, as I have said, flexion is applicable to the majority of cases.

Finally there are cases in which manipulation fails to produce a satisfactory reduction. These cases should have the benefit of operative exposure of the fracture and its reduction by sight and touch. These patients have a right to expect a good joint, and the surgeon should not withhold from them any advantage which his art has to offer.

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MOTOR CAR MISCARRIAGE.

BY EDWARD P. DAVIS, M.D.,

PHILADELPHIA.

AMONG the frequent causes of abortion is direct mechanical violence. This is operative in proportion to the severity of the injury inflicted and the condition of the endometrium on which the ovum is implanted. When the latter is healthy and the ovum also is not diseased, the patient will be able to withstand considerable violence without abortion.

A great shock or injury is sometimes better borne by pregnant women than frequency of repeated shock. A familiar example of this is found in abortion following the use of a sewing machine driven by the foot. On the other hand, a patient may sustain a severe fall, even fracturing a limb, and yet not abort.

The presence or absence of consciousness when

the injury is received has also a distinct bearing. Under anesthesia pregnant patients bear operations of considerable magnitude without the interruption of gestation.

The use of a motor car is so common that abundant opportunity is afforded to study its effects upon the health of patients. In the early months of pregnancy, motoring is frequently followed by abortion. The following cases are reported in illustration of this occurrence:

Case I.—Between three and four months pregnant. First pregnancy complicated at labor by premature separation of the placenta. At the second pregnancy embolism occurred threatening life. The third pregnancy terminated spontaneously without incident. The fourth pregnancy occurred when the patient was greatly fatigued, and was followed by anemia and indigestion. The patient was accustomed to a motor car, and, although employing a carriage for the greater part of the time, on one occasion went out in a motor with her husband. The car was proceeding slowly when a collision with a trolley seemed imminent; the emergency brake was used and the car stopped abruptly. The patient was not excessively frightened, as she was accustomed to motoring.

During the night following this occurrence a slight discharge of dark grumous blood occurred without pain. This continued for forty-eight hours, then increasing, becoming brighter in color and accompanied by considerable pain. The fetus was partially expelled, and the abortion terminated by the removal of the uterine contents. On examining the placenta, which was just forming, it was found that very gradual separation had occurred, and that the tissues were infiltrated and stained with blood.

Case II.—This patient had borne two children by induced labor successfully. She had never had an abortion or other complication of pregnancy. After missing one menstrual period she had symptoms indicating pregnancy, but did not believe the condition present. She was examined about six weeks after the last menstruation when the uterus was found enlarged and many of the signs of pregnancy were present. A few days afterward the patient went to New York, and shortly after traveled for the greater part of a day in her motor car. She was accustomed to motoring, having used a car constantly in going to and from her residence not far from Philadelphia.

On the morning of the day following motoring from New York, the patient thought she was taken unwell. There was very slight discharge with no pain. This condition continued for forty-eight hours until the discharge increased. A physician who saw the case considered it delayed menstruation. Four days after the trip in the motor I saw the patient and found every evidence of abortion. Under ether, dilatation and curetting were performed, when a perfect cast of the uterine cavity was removed. When this was opened it was found to contain an embryo very much younger than the period of gestation as calculated from the last menstruation. The embryo was enclosed in a thick blood clot formed by layers of fibrin of indefinite age. Hemorrhage had evidently occurred very gradually, the ovum being retained until the clot had become sufficiently large to irritate the uterus and so to cause contraction of its walls.

In both of these patients the uterus was in normal position, the pelvic viscera were normal, and the conditions favorable for the continuance of pregnancy. In case first, there was a tendency to gout and possibly arterial changes. Case second had nothing of this sort. Both patients used the best and most modern cars; one a French, the other a Packard. In both cases the cars were driven carefully by experienced persons, and motoring was done under the most favorable circumstances. It is true that in the first case a jar was given at the time when the emergency brakes were applied, but even this was not a new experience to the patient. In the second case, however, nothing whatever of this sort occurred.

The reason why motoring should be dangerous to patients in early pregnancy seems to lie in the fact that the rapid motion of a motor car subjects the patient to very frequent small jars. These are more or less violent in proportion to the character of the road and the rapidity of the car and the ease with which it works. If the patient sits upon the rear seat of a large car, the motion is usually greater and the shock received in passing over an obstacle much more than if she sits in front. In the latest cars the weight is so distributed that the back seat is more comfortable than in the older models. No matter how smoothly the motor car runs, unless it runs upon a track, its motion cannot possibly be as uniform and as smooth as that of a railway train, hence the greater danger to which it exposes the patient.

The characteristics of abortion following motoring are its slow and insidious development without bright hemorrhage and pain. The ovum evidently separates from the wall of the uterus very gradually, blood is extravasated and not poured out, and pain is not excited until the uterus is so distended by blood clot that it is made to contract. Such abortions, like most others, are, as a general rule, incomplete and require curetting to obtain a good result.

While we may recognize the motor car as a frequent cause of abortion, it is quite another matter to endeavor to lessen this accident. Pregnant patients will not stop the use of a motor car, as a rule, because pregnancy exists. Advice from a physician urging them to do so would not, in the majority of cases, be followed. Equally unsuccessful will be the attempt to secure the use of a motor car at a slower rate of speed; no self-respecting chauffeur will drive at less than fifteen miles an hour, while most prefer from twenty upward. If a machine could be so geared as not to exceed ten miles an hour, it would be, for pregnant women, a very safe but undesired vehicle. It is, however, our duty as physicians, to state to the patient that a high rate of speed, to pregnant patients, is a distinctly dangerous thing. We may also urge our patients to use the smoothest available roads, to sit upon the front seat rather than in the rear of the machine, and to avoid long journeys with the motor car. While it may be our duty to give such advice, we must not be surprised if, like much other medical advice, it is not heeded.

While motoring is dangerous in early pregnancy, in the latter months of gestation, with reasonable precautions, it may prove exceedingly useful. As a means of obtaining fresh air and inducing sleep during the heated months it is most beneficial. If patients can be induced to use reasonable precautions against shock, fatigue, and chilling the surfaces of the body, motor cars may be used under these circumstances to positive advantage.

MEDICAL PSYCHOLOGY.

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If one may judge from various sorts of evidence that need not be specified here, Boston, Massachusetts, is not the only place in the world where an awakening interest in the treatment of "functional" nervous disease is obvious. It is a movement hardly less than American and European in its extent, the result of several important influences that have converged to this focus, as yet, however, none too well defined. Among these influencing tendencies of common knowledge and interest one may readily recognize, for example, those that follow. Chief of them, perhaps, are various commercial and pseudo-religious systems of mind-cure, the most widespread of which undoubtedly is Eddyism. A second influence is the failure of academic psychology to completely "make good" in the laboratories and the consequent need of its showing its practical and important applications to life,—in every phase of teaching, in therapeutics, in criminology, as well as in other aspects of human activity. Again, a general spread of knowledge as to the subconscious phases of mind and as to the nature of hypnosis and the powers of suggestion over it. The general acceptance by well-read people of the James-Lange theory of the emotions with its inevitable emphasis of the close interdependence of body and mind. The practical extinction from the beliefs and philosophic opinions of nearly all thoughtful persons of the old crass materialism. The new welcoming attitude toward the mental process assumed by the recent text-books of physiology. The lessening of church-attendance and the consequent necessary broadening of religious interest in practical human affairs. Such perhaps are the strongest of the influences that have converged of late to illuminate the importance of the mental side of man and of his diseases.

The condition of medical education in this respect is thus made somewhat anomalous, for the demand for instruction in the pathology and treatment of functional nervous affections (already met by one or two of our American medical schools) occasioned by this trend of intelligent interest, finds itself more or less handicapped at its beginning by the general lack, so conspicuous in most medical students, of scientific information as to the normal functions of the human mind. Moreover, the need of such instruction is at present not easily supplied, because the view-point of the plentiful teachers of academic psychology is so very far from that of the practical interests of medicine.

This beginning instruction in psychopathology (as for example that at Johns Hopkins and at Tufts) is, however, only one reason for the present urgent demand for normal psychology in the medical curricula. There are many older and not less pressing reasons for this inevitable requirement. These reasons are continually more insistent, and that they have not already been more widely catered to is another striking illustration of the inertia of long-established institutions. Some of these conditions have already been referred to by the present writer in an article in "Science" in 1901.

The men who control the courses of study in our medical schools are almost wholly medical graduates, and formerly even more than now the instruction was completely somatic, materialistic, so far as adequate recognition of the force of mind is concerned. The same condition obtains in some of the leading colleges still (Harvard, for example), in regard to the requirement of bodily exercise:—forty years ago the world did not realize as now the necessity of much active physical exertion to properly nourish the brain. The result is, therefore, that the present generation is to suffer needless feebleness, mental as well as bodily. So it is with the need for medical phychology.

The mental science of two or three generations back was essentially that of Aristotle and of Augustinus. It was descriptive and more or less accurate to be sure, but imbued in every part with relations "beyond" into metaphysics, epistemology, and the lofty old speculations of philosophy in general. But today has changed all that, so far as our scientific descriptive psychology is concerned. No longer do we have to think of mind as, if something more than an epiphenomenon, certainly as something less than an "internal radiance," *causa vera* of any useful process in our lives. We have extended for the purposes of science the effective range of the "sentient experience" of Hegel and of Royce and merge it in our teaching more or less completely with the energies that the first-year students of physiology measure with the work-adder and the capillary electrometer in the laboratory. In more direct terms and better, the concept of mentality that is rapidly becoming universal is that concept (formerly but a point of view) that makes a continuum of consciousness and of neurality. In the very focus of the "internal radiance," says this assumption, is attentive consciousness, then "beneath" are various but undistinguishable grades of co-consciousness, of subconsciousness, and of unconsciousness, then, at the very basis, nervous influences and energies of varying degree of force and with very various usefulness, sensory and motor. If such a notion of mind interferes with your definition of consciousness, give up the definition! on pain of being involved in that enmazing discussion going on between the "parallelists" and the "interactionists." It is by accepting this assumed but plain basis for their psychology that the teachers and practitioners of neurology and of psychiatry are left time to do their work.

Mind so understood has more practical interest for the student of the subject than any mere "epiphenomenal" consciousness could possibly have, and especially so because, thus considered, mind is useful in the conduct of life. It is in fact more than merely useful; indeed, so far as we can see, it is indispenable in any mode of efficient existence as complex as that of a mammal. Considered thus as primarily associative memory, mind offers us a satisfying explanation as to how an animal can profit by his previous experiences when traced and retained in the coordinating maze of the neural fabric.

So understood, too, mind is, so to say, of a more substantial nature than was formerly accorded it, for it finds its physical basis inherently in the neuroplasm, the protoplasm of the nerves. One could teach such a notion of the mental process to any class of medical students and be sure of being generally understood, as the writer has been, he hopes, for six or seven years past. Moreover, this is the only concept of mind that serves any purpose to the alienist, the neurologist, and the psychopathologist. Without this idea of consciousness and its subconsciousness in the working minds of the medical men and women of the future, how can one have confidence that they have a real understanding

of the majority of abnormal medical conditions?

At the present time physics and metaphysics are independently, and, for the most part, unconsciously, combining to furnish perhaps a description of the ultimate nature of mind. The most advanced physical theories are pointing out that the various "sorts" of energy are probably but aspects of one unknown mode of an experience we call motion. The "hypothetical ether" is now viewed by many physics-philosophers as of a "material" nature, and light *e.g.* has been said to be an attenuated form of "matter." One thinks of radioactivity, of electricity, of light and heat, of the forces behind osmosis and ionic action, and of all the phases of chemism as manifestations of some mode of energy that we cannot as yet denote or much less define. On the other side, the more practical and utilitarian psychologist, at least, merges mind into the associative memory of the impulses of the nervous system. And what are these impulses and this matter of protoplasm, of neuroplasm, but modes of motion? This is by no means a trend toward materialism—rather, surely, is it a tendency in the quite opposite direction, toward an understanding of all physical processes in ultimate and well-founded terms of mind. This drift of the scientific and philosophic consciousness is one of the characteristics of the times which no thoughtful person can ignore—or limit.

One, it must be admitted, cannot look forward at present hopefully to a rapidly rising standard of education preliminary to medical study. With a teaching plant unequalled and a faculty unexcelled one of the few medical schools requiring something comparable to an average bachelor's degree for admission, finds itself seeking the student-mass that would amply pay its running expenses. The medical schools, therefore, for the most part, must supply their own psychology as they do their own anatomy and much of their biology and chemistry.

There are difficulties in teaching phychology to medical students which those who have tried it readily appreciate. Primarily, for one thing, the average student of this profession is an almost discouragingly practical, not to say mercenary, young person. He is very apt to have a yearning after little that has not a dollar attached to its *terminus ad quem*, if not more immediately concerned. And as yet the relations of body and mind are not generally systematized sufficiently to make immediately obvious to the average student the actual money-value of that truer understanding of a case that knowledge of the working of the mind is sure to give. Another difficulty of successfully teaching this science to medical students is their often almost materialistic viewpoint. This forms at the outset a prejudice-barrier against all science that involves anything in any degree or sense allied to metaphysics, that opprobrious and hateful delusion of the unbalanced intellect, except to those who know something about it.

Of course, scientific, and especially medical, psychology may be as distinct from metaphysics and epistemology as is pathology proper from the current fanciful theories of immunity, or as physiology is from the theories, essentially metaphysical, by which the physics philosophers (Pierce, Ostwald, etc.,) usefully describe the possible ultimate nature of all matter. Again, we could not expect medical students to (nor do they) escape that inherent difficulty that at first meets every thinker on any topic whose subject matter is unmaterial. In physics, in discussions of energy and of the ultimate nature of matter, the same difficulty is met with, and, obviously, for precisely the same reason. It is harder at the very first to see that one can bump his personality against an alternating current of electricity from a fallen trolley-wire or against an obstinate idea in the mind of one's father quite as disastrously as against the edge of one's cellar door in the dark. For many reasons, however, this absurd primary attitude of the naïve individual does not fade from the mind of the medical student as readily as from that of the graduate student in the psychological laboratories. Finally, the oldtime confusion between academic psychology and psychical research is one of the bars to that cordial welcome which a student of practical science naturally extends toward substantial and useful knowledge. Psychology before many years undoubtedly will awaken to the long standing reproach that it is afraid to investigate these residual human phenomena, but at present certainly the science of psychology, contrary to common opinion, has less than no concern with discussions of that sort.

With all these difficulties, easily overcome by adequate instruction, the subject of medical psychology is a relatively simple science solely descriptive of easily observable facts. There need be nothing more obscure in descriptive psychology, whether medical or academic, than there is in any adequate discussion of the complexities of the marvel man. Owing to the nature of its subject-matter (immediate experience) there need not be used even the technical terms that are so great a bar at first to many of our sciences. There is little to be described outside the conscious experience, at one time or another, of the average intelligent man or woman.

The ever more insistent demands for recognition made by psychology in the medical schools might be set forth at great length, for they are cogent and many, but they here need not be so discussed. A few considerations of the sort will amply suffice to demonstrate beyond all cavil the strong need of systematic instruction in medical psychology in the middle or latter part of every medical course. For the most part the natural leaders of public opinion in this general respect, medical schools and medical education, are just at present not a little behind the common average knowledge of the wide-awake community. The somewhat hackneyed "average man" (of course, in reality there is no such) recognizes the far-pervading force of mental events and realizes the influence of that obvious progress in the spirit of mental science that is in his environment. If the particular "mental science" that influences him oftentimes is on the outer margin of charlatanry, surely it is not his fault. All the more on this account, indeed, is it the business of the medical school to show him the rightful psychology and its tremendous moment in the care of most diseases, not less than in the conduct of his daily life.

The most obvious and immediate need for systematic medical psychology comes, of course, from psychiatry and neurology. That the demand does not come even more insistently than it does from the teachers of these subjects, especially of the former, is one of the anomalies of the whole matter. When one does not expect a student to understand the deranged movements of the heart who has never seen a healthy heart or a representation of one, why should the multitude of third- and fourth-year men who know nothing of the processes of perception and imagination be expected to comprehend an hal-

lucination? or those who have never been told of the mechanism of the emotion of fear to understand the depression and misery of melancholia? One asks too much in expecting any man to really comprehend a case of paranoia who has no notion of the processes of ideation. And neurasthenia, the bread-and-butter malady to practitioners of nervous disease, does any suppose it is not so intertwined with mental relationships that to unravel it in full is to make use inevitably of no little various and intricate psychology? The modern variants of the "rest cure" require a knowledge of the motor relationships of the mind, and else this valuable system of retraining the mind back to health through controlled voluntary use of the muscles would lose much of its precision and basal usefulness.

In a less technical way, perhaps, but quite as importantly in the long run, the surgeon as a surgeon needs to be familiar with mental processes. It is especially important that he should realize the often surprising life-lengthening support and stimulation, technically called dynamogeny, that belongs to the joyful emotions. Scarcely less useful oftentimes, explain it as one may, is the vitalizing influence of determination, of vigorously expressed will to thrive and to live. Aristotle and John Hunter down to the latest of them all agree in admitting these facts, however the future science of normal medical psychology shall in detail interpret and explain them. Does the sceptic (if such, perchance persist into these "latter days") know of a single really great surgeon who does not inevitably inspire the almost perfect confidence of every patient under his care? Can the master-surgeon actually cut us up invariably so much better than his struggling neighbor in the next block uptown? Or is his greater success in part because he exacts that confidence, perhaps, but also surely, because he practises that psychology that lends to our interviews with him a confidence that stimulates every reparative influence in our organisms? These influences are real and they are vitally important. (On the other hand, fear and worry lower the visceral blood pressure.)

In a still more general way, somewhat, the successful practitioner in medical cases as distinct from surgical, consciously or otherwise, uses the principles of psychology in a very large proportion of his practice. One need not attempt the laborious task of specification here, for every practitioner must nowadays realize to some extent the mental factors in every complex disease.

The course in legal medicine in the medical schools demands for its greatest usefulness the basis of psychological knowledge which should precede it in the curriculum. The consequences of human misery and crime often depend on motives more psychical than physiologic.

In all departments of the science of medicine there is always an urgent demand for a broader outlook than the average medical student can obtain without a preliminary college course. It is easy to underestimate the influence and the importance to humanity of the profession of medicine. In the present rapid development of the means to good health and personal safety, because administered largely by unmedical officials, it is not difficult to fail to give the medical sciences their just credit for these advancements. A careful seeing, however, appreciates that medical philosophy reaches out into almost every aspect of human relationship, and that it pervades, and in considerable part directs, every phase of modern human society. That it does not do so to even a greater extent than it does is largely because the nature of personality is not adequately studied in the medical school. Many phases of the individual are often exhaustively considered, but at present it is no one's business to combine these scattered parts into the wholeness of the individual child or man or woman. And yet every patient is an individual, a personality, and has a heart and kidneys and nervous system and all the rest only as parts ministering to this personality, the only essential whole. It is one of the important tasks of the medical psychologist to weave these scattered threads of organic knowledge into this actual personality. Then at last the average physician will know, in some beginning measure at least, how to follow the sound advice of the numerous orators at commencement who advise the graduates "to treat not the disease but the individual suffering from the disease." The somatic aspects of the man are adequately treated in many, and perhaps in most essential, respects, but of the other, the inner, side of the "arc of personality" one hears but little as yet from the teaching faculties of medicine. The tide, however, is coming in!

The psychology of sex is a phase of education for which there is continually a more obvious demand from a grossly wronged and degraded society, and consequently from educators. This need has recently been more or less unconsciously, but not therefore less impressively, set forth in the treatise on Adolescence by Stanley Hall. In this particular field the departments of gynecology, of genitourinary diseases, and of psychology would meet and help each other, and with large benefit—who can doubt it?—to the future of the race.

Medical instruction in psychology undoubtedly would make the physician more sympathetic with his patients than sometimes he now is. With this added sympathy he would serve them better because more understandingly. He would tend to approach then the ideal of the oldtime family practitioner, "guide, philosopher, and friend."

Knowledge of the processes and relations of mind would be to the physician himself a source of great and unending satisfaction. Related to it is not only the knowledge of human nature, that never tiring source of interest and delight, but psychology leads outward in all directions into the true wisdom of divine philosophy.

The relations of body and mind is just now one of the most promising subjects for study, and in its medical aspects it is as important as elsewhere. This part of psychophysiology can do much for the theory and for the practice of general education, industrial education, and physical education. Nowhere, however, will its benefits to the race exceed those it can afford in medical education, for it is here that it has been thus far most completely ignored. The spirit of John Locke, Hunter, Maudsley, Huxley, Carpenter, Bell, Hack Tuke, Galton, Lewes, Hamilton, Paget, Romanes, James, Prince, and Sargent pervades to-day the whole underlying medical consciousness. This spirit materializes most usefully whenever it reaches out and strives to do its "level best" for suffering men and women, for these men and women every one are personalities with minds as well as bodies, "fire" as well as "clay." How soon will medical education openly acknowledge this and universally open its curriculum to this too long neglected phase of the vital truth?

SOME POINTS ON THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.

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Before entering upon a discussion of the early diagnosis of tuberculosis of pulmonary type, there are a few questions that I should like to bring to your attention concerning the tuberculosis problem.

Can a person progress and advance in his lung tuberculosis and manifest no obvious symptoms of this progression?

Can a patient go into advanced tuberculosis and not know it?

What is the most important physical sign in the early diagnosis of consumption?

What is the most important working rule for the general practitioner in the fight against this disease?

To the patient early diagnosis means everything. Procrastination at the beginning greatly reduces the patient's chance for recovery. But, on the other hand, before a patient is unnecessarily damned with a diagnosis of tuberculosis it must be made on positive and certain and very definite evidence.

Given a case that presents for chest examination only for a positive or negative opinion as to the presence of tuberculosis, the problem is very much simplified so far as the physician is concerned, but this limitation of possibility of diagnosis in the cases that appear daily seldom occurs, and the family doctor must place the possibility of tuberculosis along with all the other possibilities of diagnosis that may arise in the case. The patient himself seldom presents himself for a diagnosis of tuberculosis alone.

Before considering the diagnosis it is well to define just what we mean by incipient pulmonary tuberculosis. In sanatorium work in this country tuberculosis is classified according to the scheme formulated at the first meeting of the National Association for the Study and Prevention of Tuberculosis, which met at Washington in May, 1905, and is a modified Turban's scheme.

The disease is arbitrarily divided into incipient, moderately advanced, advanced, miliary, and progressive, as follows:

Incipient.—Slight initial lesion in the form of infiltration limited to the apex or a small part of one lobe. No tuberculous complications. Slight or no constitutional symptoms (particularly including gastric or intestinal disturbances or rapid loss of weight). Slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours, especially after rest. Expectoration usually small in amount or absent. Tubercle bacilli may be present or absent.

Moderately Advanced.—No marked impairment of function either local or constitutional. Localized consolidation moderate in extent with little or no evidence of destruction of tissue, or disseminated fibroid deposits. No serious complications.

Advanced.—Marked impairment of function, local and constitutional. Localized consolidation intense; or disseminated areas of softening; or serious complications.

Miliary and Progressive.

Many arguments of a valid nature may be made against these arbitrary definitions, for at times it seems almost impossible to classify a disease, after considering all its various phases, some of which, according to our present methods of clinical and chemical examinations, do not appear to be measurable or estimable in any sense at all.

The extent of lesion and the rapidity of onset are the two chief features that are considered, although there is no definite time limit placed upon the onset of the disease. An incipient, for instance, may remain active and continue incipient for a number of years (according to the definition), may become quiet, and may again become active in his lung inflammation. At the present time, in the main, these definitions form the most satisfactory basis for the classification of cases.

On considering this definition you will be inclined to ask, as many times I have been asked: "Well, Doctor, what does the patient complain of? What does he suffer from? What does he come to you for?" These questions are unanswerable in any positive way, and this is the whole difficulty about the diagnosis of incipient pulmonary tuberculosis. The patient complains of nothing, suffers from nothing, and in the vast majority of cases presents no obvious symptoms. The next logical question that comes from a situation like this is, "How are we to find the patient?"

When a moderately advanced or advanced case appears before you in your practice, and sits in your office chair, with his thin, cough-racked frame, and his long, bony hands on his jack-knife knees, a history seems useless and physical examination a procedure that the patient expects but which is rather philosophically performed by the doctor. What can you do for him? This thin man, with his skin deeply vein-marked and lying in folds over his bones, breathing in a labored manner, with rattles in his chest audible at six feet, listening with a leaden eye to the advice that is given him.

Every moderately advanced or advanced case that appears was at one time certainly incipient, and while his present unfortuntae condition may or may not have been avoidable, it was at least preventable. If given a favorable opportunity to recover in the beginning, in the vast majority of cases, at least 75 per cent. of those in the incipient stage would not have become advanced, soon to be numbered among the dead.

The most essential thing, after a moderately advanced or advanced case has had all the comforts provided for him and has been clearly instructed in (1) prevention, (2) daily routine of living, and (3) necessary treatment, is to consider each advanced case that appears a (4) center of infection and a point of attack in the tuberculosis problem, for so far as prevention is concerned in the advice given to this patient, prevention begins only with the diagnosis and cooperation of the patient.

An infection of immediate family or associates at work undoubtedly has occurred in the past. If possible, in the detailed history of the case itself, the source of infection should be traced. This should be possible in 50 to 75 per cent. of all histories.

In 1600 cases who officially applied through our examiners for treatment at the hospital at Ray Brook, but 325 were noted with positive history, or but one-fourth of the total number. This extremely small number has an explanation in that the patient either wilfully conceals for the sake of making his case appear more favorable in the eyes of the physician, or that he is unacquainted with his family history. That a patient will deceive his physicians as to the existence of a chronic disease in his family is a fact too well known to need much discussion.

It very frequently happens also that upon first careful history taken in a case, the patient is unable to recall the essential facts at the time the physician questions the patient, and, from no desire on the part of the patient to deceive, he simply is unable to recall the facts in his family history, and on account of memory lapse histories taken but once are frequently negative. The taking of a second history frequently obviates this source of error, and the patient, upon second repetition of the question, is able to give an extended and interested discussion upon the question that he or she was entirely ignorant of the day or the week before at previous history.

That a patient is very frequently ignorant of the exact nature of a certain chronic disease of which an immediate relative is suffering or has succumbed is often observed. This lack of information concerning the health of the family is due in part to medical deception, as the patient is often kept in ignorance of the source and exact nature of his disease, and very frequently younger members of the family are never taken into confidence at all, and do not know the essential facts.

Patients are very frequently able to describe the course and symptoms of a fatal disease in near members of the family (which has been undoubtedly tuberculosis), and by inference only can they call it this, as they have never heard definitely that their father, or mother, or sister died of this disease.

This point is very important, as frequently an incipient case of tuberculosis, who may be entirely ignorant of the fundamental symptoms of a chronic case, may not realize that his symptomless and apparent state of health is at all a forerunner of the terrible condition in which he had seen his father, or mother, or sister.

Of these 1,600 cases who were examined by our official examiners, the source of infection in 90 per cent. of the cases that gave positive family history appeared in the immediate or collateral family, and only 10 per cent. in preceding generation—illustrating the point that the recorded cases lived the greater part of their lives within the same period as the patient—10 per cent. only in the preceding generation. Also, the fact was developed that there was no predisposition traceable to father's or mother's side—each side showing approximately the same number of cases in the family.

This merely emphasizes the point that direct and long association with an infectious case is one of the chief essentials to ascribe its origin in the patient.

In 2,400 cases treated in the first two years at the Henry Phipps Institute at Philadelphia, family history was positive in 58 per cent. of all the cases, and of the cases developed in positive family history, 90 per cent. lived the greater part of their lives within the same period as the patient—either as father, mother, brother, or sister, or at place of work.

In the first 500 cases treated at Ray Brook, 41.6 per cent. gave positive family history, and also of the cases developed in history 90 per cent. of these lived within the same period as the patient.

If by far the vast majority of incipient patients show practically no symptoms, what are the signs which are most essential as beginning symptoms of pulmonary tuberculosis, and what is their significance?

Among the first 500 cases treated at the New York State Hospital, there were incipient on admission 285, or 57 per cent. of the total number; 164 were moderately advanced, or 32 per cent., and 10 per cent. were advanced. Two cases were negative and two cases gave no history.

The 285 incipient cases were tabulated, as regards first symptom, according to the best observation of the patient. All of these patients undoubtedly had tuberculosis for some time before entrance, the average period being (according to the history of the patient) about five months in those cases who had the disease less than one year, and were probably suffering from their first clinical invasion of pulmonary tuberculosis, and 31 months in duration in those who had either had tuberculosis continuously or who were undergoing treatment for their second invasion or relapse of pulmonary tuberculosis. Before treatment the patients had all been observed more or less accurately by various physicians throughout the State sending them.

Cough with expectoration as the beginning symptom was present in 23 per cent. of the cases. Cough with marked physical weakness was present in 21 per cent. as the first prominent symptom.

In regard to cough with expectoration, it is commonly thought that all tuberculous people must of necessity cough and spit, and that cough and consumption are synonymous terms. This view, which is often shared by the physicians, is misleading, and from these statistics the total number of patients who complained of cough is far less than half the total—only 44 per cent.—and these figures insist upon the point that cough, or cough with expectoration, as such are not prominent among initial symptoms of tuberculosis, although they head the list numerically.

Hemorrhage as an initial symptom was present in 19 per cent. of the 285 incipient cases. This symptom is rightly feared by both the laity and the medical men as a sure and definite symptom of tuberculosis, and if from the lungs and from no other place, such for instance as nose bleed, bleeding gum, or bleeding adenoid, practically has no other cause in the lung than tuberculosis. Excessive trauma and cardiac disease to be ruled out.

When a person has sufficient disease to cause breaking down and rupture of a blood vessel, the amount of tuberculosis is definite, and the initial hemorrhage may sometimes be quite great, but the total number of these as compared with the whole leaves hemorrhage as a diagnostic sign to be waited for as one out of the question.

On the other hand, it is perhaps rather comforting to realize that approximately 20 per cent. of the cases will in a sense diagnose themselves in the curable stage, and this relieves the physician, at least as far as the diagnosis is concerned, of one-fifth of the total problem in diagnosis, so far as these figures show.

It need not be stated that as an initial symptom hemorrhage does not play an important part in the initial symptoms as here stated, and the explanation for the large number of cases among these 285 incipients, in whom hemorrhage assisted in diagnosis, is due to selection of case, for the cases at Ray Brook are all supposed to be selected and favorable cases.

It is popularly considered that the early hemorrhage case does well, and medically this idea is more or less true. The chief explanation, it seems to me, is in an incipient case not so much that the patient has been a bleeder, as the fact that he has incipient tuberculosis and knows it and will obey

medical advice explicitly, in contradistinction to the patient who has the same extent of lesion and who has not spit blood, and who labors under the delusion that there is nothing serious the matter with him until he has become more advanced in the disease and has been convinced by a similar medical accident, or by obvious and constant symptoms.

Pneumonia as an initial symptom was present in 4 per cent. of the cases. Pleuritic pain attracted the patient's attention to some disease in the chest in 12 per cent of the cases. Grippe was noted by the patient as being the beginning of a tuberculous invasion in 4 per cent. of the cases. Chest fluid was present in 2 per cent., the diagnosis made by needle, and the patient having no idea that anything serious the matter existed until chest fluid developed apparently out of a clear sky. General weakness, loss of appetite, fever, were each described in 2 per cent. of the cases as being first possible definite symptoms in the disease.

The symptoms of onset in these incipient cases were also paralleled with those moderately advanced and advanced at the time of entrance, and they perfectly agree in percentages, the chief opinion of the patients about all the prominent symptoms of onset being that they were prominent in retrospect only as the patient had become keen from his five or six months' experience with the disease, and his education and observation in the progress of his case in those little things which indicated to him that he was or was not doing well.

When the essential facts in the family history that have bearing on the case have been considered in detail, and the conditions of work, hygiene, previous diseases, and exposure to infection that might definitely predispose the patient, have been disposed of, and the prominent symptoms of onset been developed, it would be well to consider the prominent symptoms in the early months of the disease, with their frequency of occurrence.

Obvious loss of weight is rightly accredited a prominent symptom of tuberculosis, and the lay name of the disease—consumption—derives its name from this prominent feature. It was, however, present in but 40 per cent. of the cases who were incipient on admission, and in 56 per cent. of the moderately advanced, and 60 per cent. of the advanced cases. This illustrates that the outside appearance of a patient is no real indication as to his actual physical condition, and this applies almost equally as well to the advanced as to the incipient.

Fever and chills as associated with tuberculosis are important symptoms, but were present in less than 50 per cent. of the cases in the first six months of the disease. The course of the usual septicemic relapse and the chills noted in the progress of a disease of six months duration or more has so many explanations and may be due to so many causes that nothing definite concerning them can be stated, with the exception of citation of statistics. A person may slowly and steadily advance in his chronic lung inflammation and apparently manifest no fever and no disturbance of the sympathetic nervous system.

Hemorrhage in the first six months occurred in practically twice the number of cases in which the symptom assisted in diagnosis. It was present in 40 per cent. of all the cases in the first six months of the disease.

Sputum was absent in 20 per cent., and present in slight to abundant amount in the remaining 80 per cent.

Tubercle bacilli were noted in the incipient cases as positive in 35 per cent. of the cases before entrance and in 40 per cent. after entrance. The finding of tubercle bacilli in the sputum is, of course, the one most positive proof that the patient is suffering from a tuberculous infection, but their presence is not a fundamental requisite to diagnosis, and is not to be waited for in order to definitely assign a diagnosis of tuberculosis.

When a person has arrived at the spitting stage, with bacilli, he has arrived past the stage of infiltration and must of necessity have a sizeable ulcer, with obvious destruction of tissue and degeneration, to account for the initial breakdown.

A patient who has been allowed to go on to destruction of tissue in order to develop these symptoms has a much more serious time to heal his lung inflammation than one who is treated before the initial breakdown occurs; and frequently, in addition to tuberculosis, by the time the patient has acquired his open lesion he has to fight also a mixed infection—one of the many known and obscure secondary infections, which perhaps resulted or assisted in the opening of his lesion.

In a collection of 400 cases treated at Saranac Lake and locally of incipient tuberculosis the sputum was negative in 53 per cent. of the cases, so if these cases were all tuberculous, positive sputum as a factor in diagnosis was present in only one-half of the cases.

After the symptoms in the patient have been developed physical examination follows:

As to the particular position of the patient, the standing, the sitting, and the recumbent positions all have their own advantage to develop certain signs, but the most essential thing is that the patient have the necessary clothes removed. It is simply impossible to express an opinion, either positive or negative, as to the presence or absence of signs in the chest if the physician does not listen directly to the skin. A partial exposure of the region to be examined means incomplete examination and dissatisfaction both on the part of the examiner, and sooner or later on the part of the one examined.

In regard to the anatomical limitations of the lung, I will discuss but one. The complemental pleural space is not usually carefully considered, and it extends from one-half to one and one-half inches below the free margin of the lung. The whole space that must be examined in a thorough lung examination includes the whole bony thorax from above the clavicle to the free costal margin below and the lung front and back.

In the usual procedure in complete lung examination, after mensuration and expansion have been tested bilaterally (which procedure, by the way, gives no real evidence concerning incipient pulmonary tuberculosis), it is most convenient to examine the patient either in a standing or sitting position.

I usually examine patients seated on a rotating stool, sitting beside them and not in front of them. The patient's chest on the side nearest the examiner can be auscultated and the patient can be turned facing in the opposite direction for auscultation of the opposite side. The physician is never directly in front of his patient in this way, and in case the patient accidentally coughs and has not a proper gauze handkerchief in which to cough, there is minimum danger of the patient coughing on the physician. The patient can be turned directly away from the physician for the examination of the back.

The sitting position also offers to my mind very

much, in that the physician can be more deliberate about his examination, can come back repeatedly to the same spot for auscultation, there is less mental strain entailed upon both the examiner and the one examined. Also, the strenuous deep breathing that is involved in lung examination is very fatiguing to the patient, and not infrequently causes the patient to become very dizzy, and if care is not taken it is not unusual for a patient to pass into syncope. The sitting position allows the patient to relax and to rest much more completely after periods of deep breathing than he could relax in a standing position.

Examination flat on the back in bed I have found not usually satisfactory. The patient should be either sitting over the side of the bed or sitting up; the recumbent position developing only signs which are best seen on inspection.

In regard to the formal procedure of examination, inspection is first, and in real incipient tuberculosis is negative. There may be slight retardation of movement upon the infected side. There may be slight retraction of the supraclavicular or infraclavicular space, or there might be slight atrophy of the muscles in the region of the shoulder.

The most important point in inspection is the presence or absence of Litten sign, with a note as to its extent and activity. This is the diaphragm phenomenon and is easily demonstrable in all cases that I have seen on admission. It can be developed in any position of the patient, if the patient is able and will take a full breath in and out. The chest must be properly lighted from one direction. The most easy demonstration of the sign is with the patient in a recumbent position, having him breathe deeply in and out. The active Litten may frequently be three and one-half inches in extent, and is normally two and one-half inches, and when retarded or diminished it can be easily compared with the opposite side. It may be so slight as to be but one-half inch in excursion. Its significance is that of limited movement of the inflamed part either reflexly or by adhesion, and not infrequently assists very materially in the diagnosis of a side which is at present actively tuberculous.

Slight dilatation of the pupil on the affected side sometimes occurs, and in conjunction with other unilateral signs helps a little. The explanation of this sign is due to irritation of the sympathetic nerve in the chest, probably at the root of the lung.

Palpation comes next in order, and again in the true incipient is negative. Consolidation which is dense enough to give obvious change to palpation means that the pathological process which has progressed in the lung is of much denser nature and more vast in extent than could be classified as incipient. If bronchial or rale fremitus is demonstrable, and if the case is tuberculosis, it is almost certain that it is moderately advanced or more.

Percussion, for the same reason, gives little or no evidence of help in the diagnosis of incipient tuberculosis. If the case is really incipient percussion is negative, or practically so. Still, slight changes in percussion note are obvious in cases which can be properly classified as incipient and a very slight dullness felt rather than heard, a resistance to the percussing finger assists frequently in locating the inflamed area. However, if change in the percussion note is very considerable, the pathological process which produces this change must also be quite considerable.

Auscultation is the final test, so far as physical examination is concerned, and it is the most important part in the examination. The character, the quality, the intensity, and duration of inspiration, and expiration, are the points that are noted in regard to the breath sounds, alteration in voice, both whispered and spoken, and in addition the presence or absence of any adventitious sign, either in deep breathing or developed upon cough.

The character of the breath sounds must be noted in detail. The length of the inspiratory murmur, its relative pitch, its intensity, and its quality, as compared with nearby regions and with the same area on the opposite side of the chest.

Quality is not easily definable, but change in quality is not a thing of occult nature, and while it cannot readily be defined, it is a thing easily appreciated on listening to areas in the same chest which have perhaps the same pitch and the same intensity but differ in quality.

In regard to intensity, the consolidated area of necessity does not always give increased intensity to the breath sounds. Very frequently the breath sounds may be diminished. The actual explanation for this fact is not clear, but it exists. For instance, the site of a slight pulmonary hemorrhage of an ounce or more, which does not repeat, can often not be located, and there may be no demonstrable signs within the chest at all, except at one point an area of diminished breathing. It is not infrequent to even find less than this, and often not to be able to localize at all.

The duration of inspiration and expiration are important points, especially a prolonged and intensified expiration that is localized.

After breath sounds have been thoroughly studied throughout the chest, alterations in voice and whisper follow. Unless there is some obstruction of slight nature in the bronchial tube leading to the inflamed area, which perhaps causes diminished breathing, voice and whisper are usually intensified over the infiltrated area. If an area is noted diminished in breath sounds, voice and whisper are usually correspondingly diminished. The breath, whisper, and voice are usually parallel exactly.

After the notation of the breath, whisper, and voice, the development of adventitious signs follows, and the presence of râles, their size, quality, number and time of occurrence in respiratory cycle should be noted. In many cases of incipient tuberculosis there may be no adventitious signs developed on the very deepest breathing. In fact the absence of an adventitious sign on deep breathing renders the case more favorable in prognosis when it is only on cough that signs within the chest are developed.

Auscultated cough is the one most important physical sign in the diagnosis of incipient pulmonary consumption, and it is the proper use of the cough and cough alone that enables the physician to localize disease that would repeatedly otherwise be passed over. The importance of this procedure in physical examination has not been emphasized. In a new work recently translated into the English language from the German in an immense book of 1200 pages on diagnosis, there are two lines on the significance of auscultated cough.

It is my experience that it is not so much the trouble with physicians in hearing the signs as in the difficulty of developing them. A chest which may be free on ordinary breath sounds, upon cough may develop râles of various nature. From a dry, crackling râle to a great abundance of fine showery or coarse crackling râles, which may be moist or

dry, sonorous or sibilant type, with all variations in the quality of sound to the very finest crackles. The softer and more bubbling the rale the more apt is the patient to demonstrate the rales on ordinary breathing, and the dryer and more crackling the less apt is the adventitious sound to be heard on ordinary breathing.

The patient, after expiring deeply, gives a slight hacking cough and follows this with a deep breath. The cough must not be a succession one, and must not be too loud, for frequently numerous showers of rales may be lost in the thunder of the cough of the patient, and the area of the chest noted as negative that has definite physical signs located within it. Immediately following the cough inspiration will develop the sign if present, and if rales fail to develop in this way it is not unwise to have the patient breathe out completely, then cough and breathe in.

Inspection, palpation, percussion, and auscultation of breath sounds should be done with the least possible exertion on the part of the patient, and the area in the chest, from history and physical examination thus far suspected, selected for auscultation and that part auscultated first—left apex front or behind, right apex front or behind, or both, as the case may be.

Location of lesion is approximately 60 per cent. in the right upper lobe, 25 per cent. in the left upper lobe, and 4 per cent. in the right lower, and 1 per cent. in the left lower in the 285 incipient cases that I have been citing.

After all the leading symptoms have been ascertained, the suspected area is auscultated first with cough, and if nothing is developed the remaining chest is auscultated, returning frequently to the suspected area and listening again and again to breath after cough. Frequently rales at an apex are overlooked, and it is noted that the patient has, for instance, rales from the third rib to the base, whereas, if the examiner had returned to the original site noted as negative, he would have heard rales and would have noted the presence of adventitious signs throughout the whole of one lung, instead of through the lower lobe. Frequently the rales are heard best in front or behind, usually not with the same degree of readiness at both places, unless the patient has a rather extensive infiltration.

The auscultation of the apex posteriorly may give most definite and abundant showery rales and with marked change in voice, breath, and whisper, when the anterior examination of the same apex will be almost negative, and this is as it should be, for the smaller and more localized the lesion and the fewer the sounds, the more favorable the chances for the patient. The presence of even a single rale is of suspicious import if it is constantly present.

I remember a case of incipient tuberculosis who had but one rale located at his left apex, and no other apparent demonstrable sign. His lesion was so small as to apparently give no change in voice, or in whisper, or in breath, and as to the diagnosis there can be no doubt, for this man exhibited the bacilli in his sputum for four months and recovered to an apparent state of health within a nine months' course of treatment.

After the case has been thoroughly examined the patient necessarily expects the expression of a definite opinion, especially if he has been hammered over for a half hour or more, but it does not necessarily follow that a positive or negative opinion can be definitely stated. If the physician is suspicious of the case, even though apparently negative on examination, a negative opinion may do the patient incalculable harm by giving him too great assurance that there is nothing the matter with him, and on the other hand positive opinion where there is nothing more than suspicion is not warranted by the very depressing nature of the news to the patient that he is a sufferer of the "white plague."

The best procedure, I think, in a case where uncertainty exists is to inform the patient of no definite opinion, and to state that there are no definite reasons for thinking that he is a sufferer from tuberculosis, but that the disease has not been entirely ruled out and second or third examination is of absolute necessity to express an opinion.

You all have undoubtedly had an advanced case walk into your office, so obviously diseased as to have the diagnosis written in his face, and you have passed him in to your examining room and have listened to him, and have been astonished at what you did not hear. There are days when patients even with advanced tuberculosis will have few signs, and there are parts of days when patients of incipient or moderately advanced disease may have almost absolutely no signs. A patient in the morning after his cough and expectoration have been finished has performed his pulmonary toilet, and he may be for the time being extremely free from signs, and the expression of an opinion upon the case where signs are so demonstrably variable from day to day cannot be made with any certainty upon a single examination, and if this is true of the moderately advanced and advanced case, how much more absolutely certain is it of the incipient case?

If, after repeated negative examination, if after the temperature has been carefully watched, if after the sputum with repeated examination has proven negative, and some reason, such as obvious loss of weight, or persistent rundown condition, or long exposure to infection, or unexplained rapid pulse, renders the case suspicious, the tuberculin test may render assistance.

The test is of no use in those cases which are immunized to tuberculin, as is now done in the so-called tuberculin treatment, and in those cases who have immunized themselves as it were to tuberculin, which sometimes occurs, as all cases of tuberculosis do not react to tuberculin. Fever cases render the test of no value, as the test is in itself a fever test, with certain characteristic symptoms. The test in itself is of no assistance in localizing the tuberculosis, unless there is a suspicious area.

Briefly, the test depends upon the excitation in some way of a local and general reaction as the result of irritation of the local tuberculous inflammatory area, expressing itself with the general symptoms of fever, intense pain in the back, malaise and headache, and with increase in the activity of the local signs. If the patient is afebrile, and if there is a suspected spot in the lung, all the other signs being practically negative, and the tuberculin test is given with positive fever reaction and with increase in physical signs at the area suspected, with an increase in moist signs, the test may be assumed to be positive and the case a justifiable one for treatment on the ground that the patient's malnutrition is a result of closed tuberculosis.

The administration of the test and the diagnosis varies according to the practitioner, and is usually given with the old tuberculin of Koch in doses from ½ to 10 milligrams by hypodermic until the patient

either reacts or does not react. Usually dosing the patient with half, one, two, four, eight, and ten, or one, two, four, six, and ten milligrams at intervals of from three to five days between each dose, the temperature chart being kept up continuously during that time and the patient kept in bed the full twenty-four hours after the test is given, and longer in case he reacts, the temperature being taken every two hours after the test is given, beginning about six hours after the injection. It is usually most convenient to give the injection just before the patient retires at night and to begin his fever chart at 6 in the morning, continuing throughout the day and longer if he reacts.

If the patient does not react to ten milligrams after an interval of five or six days, a second dose of ten milligrams can be repeated, and if he fails to react to this, he can be, so far as the test is concerned, considered a negative case.

The test, in my opinion, is one which should be applied very carefully, as the old tuberculin is simply a certain filtrate of cultures of the tubercle bacilli and the poison is the most powerful and potent known. It has done an excessive amount of harm in the past, and unless properly handled will do great damage, and also, if indiscriminately applied, a great number of reactions will be obtained in people in whom there is no necessity for active treatment of their latent tuberculosis. From 60 to 75 per cent. of the total population would react to tuberculin, as we are almost all of us infected with tuberculosis, but these small infections are absolutely latent and need absolutely no treatment. For instance, 60 per cent. of a certain healthy German regiment reacted to tuberculin.

The following are the points to be considered in the eye and skin tests:

Ophthalmo-Tuberculin Test of Calmette and Wolff-Eissner.—(1) Definition of test drop; (2) preparation of tuberculin solution; (3) description of reaction: (a) typical; (b) retarded; (c) prolonged.

Significance in (1) Severity: (a) redness of caruncle, (b) same plus palpebra, (c) same plus conjunctiva; (2) Cases: (a) incipient and latent; (b) moderately advanced, (c) advanced, (d) progressive, (e) nontuberculous; (3) Suspected tuberculous cases: (a) eye reacts to too strong solution, (b) susceptibility of eye to second test, (c) inert solution.

Skin Test of von Pirquet.—Applied as a pin point vaccination with old tuberculin in 10, 25, and 100 per cent. dilutions made with sterile saline solution.

In closing, there are three points that I want to again emphasize in the early diagnosis of the disease.

The first is the very great insidiousness of onset. One but needs to see a few cases of moderately advanced or advanced tuberculosis, who have in a slow and stealthy manner progressed in their lung inflammation, to realize how far a patient can go in tuberculosis and have absolutely no realization of the seriousness of his condition. It is on account of this very great insidiousness that the cases usually go into moderately advanced and advanced disease before they are discovered clinically. And it is also for this reason, more than it is the fault of the doctor or the fault of the patient, that the case thus progresses without discovery. If there were any prominent or indicative symptom, this condition would not exist, but if insidiousness is not appreciated the tuberculosis problem will not change to any very material extent, so far as the patient is concerned.

The second point is emphasis upon the most important physical procedure in the diagnosis, which is auscultated cough. A lung examination which does not necessitate the patient's coughing is not a complete examination, for a case with definite signs will be passed over and marked as negative if this is forgotten. The suspected area can be reexamined again and again during the physical examination in an attempt to develop the suspected signs.

The third, the most important working rule for the general practitioner in the fight against this disease, is family examination. In 4500 new cases of pulmonary tuberculosis that applied for treatment at the public clinics in Berlin, under the direction of Dr. Kaiserling, the families of these 4500 new cases were systematically examined for a discovery of concealed and unknown cases, and as a result of this systematic family examination in these 4500 cases, 4500 additional cases of unknown tuberculosis were discovered, many of them in an early and favorable stage for treatment, and many, of course, having gone on insidiously, were concealed bacilli bearers, unknown even to themselves.

I wish to emphasize again that the physician who sees an advanced case has not done his full duty to the patient and to the patient's family until he has definitely proved to his own satisfaction that there is along the line no concealed case that this unfortunate man has infected.

Transposition of the Viscera and Tricelian Heart.—At a recent meeting of the Royal Academy of Medicine in Ireland, A. Stokes reported the results of his dissection of a fetus which had lived for a few minutes after birth. The heart had a large single ventricle and two auricles. The left or systemic auricle had no direct communication with the common ventricle, its blood passing through a large patent foramen ovale into the right or pulmonary auricle in order to reach the ventricle. This must be an extremely rare condition. There had been a few cases recorded in which the pulmonary auricle did not communicate with the ventricle, but none, so far as Mr. Stokes could find, in which the systemic auricle did not do so. The pulmonary artery also lay behind the aorta. Professor A. H. Young lately described a case of a tricelian heart in a man aged about 37 years. In it the chambers of the heart were in their normal position, but the aorta arose in front of the pulmonary artery.—*The Lancet.*

Irregular Manifestations of Rheumatism.—In a recent discussion before the Hunterian Society on rheumatism, A. P. Luff referred to some of the irregular manifestations of the disease. He said the latter was really an affection of the white fibrous tissue, which had led Sir William Gowers to coin the word "fibrositis." The word "rheumatic" in that connection was unfortunate. The condition was frequently started by cold and wet, and it might be started by strain, as in the case of tennis elbow, golfer's elbow, etc. In the treatment, the salicylates were useless except as relievers of pain. For the fibrositis he knew nothing to equal iodide of potassium, and he gave it in the largest possible doses. The local fibrositis might be relieved by the application of heat, or by ionic medication—that is, driving in substances by the aid of electricity, after an electric light bath for fifteen minutes. In his experience there was no necessity to diet patients suffering from fibrositis; there was no reason for the belief that it was associated with gout, and he urged that the profession should finally abandon the uric acid fetish, uric acid being a harmless by-product.—*The Lancet.*

MEDICAL RECORD.

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THE ANTIVIVISECTION CAMPAIGN.

THE first gun of the legislative attack upon animal experimentation in this State was fired on January 21, when Senator Davis of Buffalo introduced a bill "to regulate vivisection." By its provisions animal experimentation can be practised only by those holding certificates issued by a college, hospital, or incorporated laboratory, or under the authority of the State Commissioner of Health, or of a board of health, and only in a building registered with the State Commissioner. Reports of the number of operations must be made regularly to the Commissioner. The bill also provides that the animal to be experimented upon must be under the influence of an anesthetic. Curare is specially designated as not an anesthetic in the meaning of the act. Violation of the act is made a misdemeanor, punishable by imprisonment for not less than sixty days nor more than one year, or by a fine of not less than $100 nor more than $500.

It is rather disheartening to find the same old bill with the same old sections drawn up evidently by one who knows nothing of the methods and the objects of animal experimentation, if, as was claimed, he is a friend of vivisection—dotes on it, in fact—and only seeks to regulate it so as to shield it from all further criticism; or else by one who is an enemy of scientific progress and knows that a bill with the provisions of this one would greatly hamper if it did not actually prevent all animal experimentation. Of what earthly use most of the drug experimentation would be on animals under the influence of a general anesthetic it is difficult to see, especially if the drug to be tested happened to be a local anesthetic. Moreover many of the experiments made on animals are absolutely painless and to anesthetize the animal in such a case would distress him and expose him to the danger of death; it would subject the animal to needless suffering, a thing that no scientific experimenter would ever do. When the experiment may be painful an anesthetic, either local or general, is always given, unless, as happens in a very small proportion of cases, the experiment would be vitiated were the animal insensible. "In these cases the animal must suffer, though often far less than would be supposed, for the benefit of man, as does the gelded horse or the wounded game. The use of anesthetics, therefore, cannot properly be regulated by law, for it may be necessary, though seldom, to dispense with them when the purpose of an experiment, perhaps bearing directly upon the saving of human life, would be frustrated by their use."

The phrase just quoted is from a leaflet entitled "Animal Experimentation" issued by the Committee on Experimental Medicine of the Medical Society of the State of New York. This committee has begun the publication of a series of leaflets setting forth the scientific and medical side of the antivivisection controversy. The titles of those thus far issued are: "Animal Experimentation"; "The Sense of Pain in Man and the Lower Animals," by Prof. Frederic S. Lee; "Animal Experimentation and Cancer," by Dr. James Ewing; "Animal Experimentation and Infectious Diseases," by Dr. Simon Flexner; "Animal Experimentation and the Action of Drugs," by Dr. R. A. Hatcher; "Animal Experimentation as Viewed by Laymen," quoting President Eliot of Harvard, President G. Stanley Hall of Clark University, President E. H. Capen of Tufts College, the Rt. Rev. William Lawrence, Bishop of Massachusetts, and the Rev. Dr. George Hodges, Dean of the Episcopal Theological School, Cambridge, Mass.; "Lord Cromer's Defense of Animal Experimentation"; "The Function of the Thyroid Glands—an Important Chapter of Modern Medicine Based upon Animal Experimentation," by Dr. S. J. Meltzer; "Animal Experimentation and Diphtheria," by Dr. William H. Park, and "Animal Experimentation and Tuberculosis," by Dr. Edward L. Trudeau.

Copies of these leaflets and of others to be issued can be obtained upon application to the Committee above named at the Academy of Medicine, 17 West Forty-third street. We would urge all physicians interested in medical progress to read these short articles and so provide themselves with facts in case of attack in argument by lay acquaintances. Honest but uninstructed opponents of animal experimentation would also benefit by such reading, they would be interested by the stories of scientific progress, and they would learn the other side which would be to their advantage even if it did not entirely convince them; they would at least see that vivisectors are human and humane, and that what they do is done for the advancement of medical science and for the ultimate good of the brute creation as well as of man.

THE REFEREE BOARD AND DR. WILEY.

THE report of the Referee Board appointed by President Roosevelt to review the experiments and pass upon the decisions of Dr. Wiley of the Bureau of Chemistry has recently been made public.* The Board completely reverses the conclusions of Dr. Wiley regarding the harmfulness of sodium benzoate in the quantities used by manufacturers of preserves. The inconclusiveness of his reasoning was shown in an analysis of his report published by Dr. E. E. Smith in the MEDICAL RECORD of January 2, but the Referee Board bases its conclusions on the results of experiments on "poison squads" conducted by its members. Three independent investigations were carried out: one at the medical school of Northwestern University in Chicago, under the charge of Prof. John H. Long of that in-

stitution; a second at the private laboratory of Prof. Christian A. Herter of Columbia University, New York City, and the third at the Sheffield Scientific School of Yale University in charge of Prof. Russell H. Chittenden. The results obtained in these three separate investigations were in close agreement in their essential features. The most important of the findings were:

"First—Sodium benzoate in small doses (under 0.5 gram per day), mixed with the food, is without deleterious or poisonous action, and is not injurious to health.

"Second—Sodium benzoate in large doses (up to 4 grams per day), mixed with the food, has not been found to exert any deleterious effect on the general health nor to act as a poison in the general acceptation of the term. In some directions there were slight modifications in certain physiological processes, the exact significance of which modifications is not known.

"Third—The admixture of sodium benzoate with food in small or large doses has not been found injuriously to affect or impair the quality or nutritive value of such food."

The report is signed by President Ira Remsen of Johns Hopkins University, the Chairman of the Board and by the three experimenters above mentioned. The character and scientific standing of these four members of the Board are such as to make ridiculous any charge of prejudice against Dr. Wiley or of influence by his opponents or by food manufacturers. The experiments were scientifically conducted by scientists of repute and to dispute the conclusions of these investigators would be as futile as to impugn their motives. The result bears only upon the question of experimental accuracy, and is in no sense a victory for the advocates of poor food. The friends of Dr. Wiley and all who admire the work he has accomplished in the fight for pure food will regret that his zeal carried him into error and brought upon him the humiliation of having his conclusions overthrown by more careful experimenters. But, as we have said before, this question of food preservatives is only one and perhaps the least important part of Dr. Wiley's crusade against adulteration and falsification, and we are sure he is a man of too large caliber to abandon the fight at the first defeat, especially when this defeat was due to an error of judgment and was not inflicted by the enemy.

DENTAL SURGERY.

Pari passu with the advance of civilization have the teeth of human beings degenerated. Savage and primitive races have invariably excellent teeth which last in good condition generally to extreme old age, while the finest products of the most advanced and cultured people of the world can seldom boast of a mouth full of reliable teeth after they have reached adult age. The widespread prevalence of defective teeth under modern conditions of life has been clearly shown during recent years by the large number of rejections of candidates for the British Army for this cause. The town dwellers of the present day, among the many stigmata of degeneracy which they exhibit, present more frequently than any other form that of bad teeth. In no country of the globe are defects of teeth more conspicuous than in America, and it may also be said in no country have science and art stepped in to supply and conceal the deficiencies of nature as well as in this country. American dentists are acknowledged on all hands to be at the head of their profession.

When discussing teeth it must not be forgotten that the exact cause of caries is not yet known, and that until it is accurately determined no effective steps can be taken to treat the problem in a wholly successful manner. Still much may be done even in our limited state of knowledge to improve the teeth of the rising generation. For example, it has been demonstrated with more or less certainty that children who have been fed at the breast have better developed arches than those who have been hand-fed. The action here is mechanical, yet in older children diet has much to do with the decay of teeth. Dr. L. Ottofy, in the *Dental Cosmos*, July, 1908, shows that among the Igorotes, who are inhabitants of the Philippine Islands and are classed as barbarians rather than savages, the number of those with carious teeth is only a little over 2 per cent. He states that the Filipinos have nearly 21 per cent. of carious teeth, and he attributes the difference to the character of the food used. The Igorotes practically eat no sugar, and their food requires a good deal of mastication; the Filipinos live on a soft diet containing a large amount of sugar. Dr. Ottofy attributes the prevalence of caries in the Filipinos to this extensive use of sugar in their diet, and points out that the amount of sugar imported by the various nations is in direct ratio to the amount of caries in those nations. Undoubtedly the increasing custom of giving children and even adults food requiring little mastication is prejudicial to the health of the teeth. If there is little or no use for teeth it is not unreasonable to suppose that in the course of time they will lose their strength and may eventually disappear. Again, the condition of a person's digestive organs and stomach must not be overlooked when seeking the cause of teeth decay. There are in these days an immense army of people who suffer from dyspepsia and from an abnormally acid saliva, which quickly erodes their teeth. This condition may be caused by diet or it may be a legacy from our ancestors.

Be the cause what it may, the truth stares us in the face that defective teeth are among the most prominent and unpleasant symptoms of our advanced civilization, and it behooves medical men and dentists alike to endeavor to find a remedy. It concerns physicians intimately, because a person with carious teeth is greatly handicapped from a health point of view. The introduction of medical inspection of school children, and its natural sequence of treatment, initiated in this country, and gradually being adopted in other parts of the world, should effect some improvement in the teeth of this and future generations.

ACUTE DILATATION OF THE STOMACH.

Sudden vomiting of large quantities of fluid may occur in so many functional and organic conditions that the recognition of the cause of this symptom is frequently difficult. Yet the circumstances attending it are often extremely suggestive of this or that condition that may be held responsible. A rather rare cause which, however, must be always held in mind, is the occurrence of acute dilatation of the stomach, to the consideration of which Dr. Albert G. Nicholls devotes a very interesting paper in the *International Clinics* (Vol. IV, Eighteenth Series). This accident has usually occurred in persons who have undergone an operation under general anesthesia or who have suffered from a prolonged and wasting illness; the vomitus consists of great amounts of bilious, nonfecal fluid, this point serving to distinguish the condition from an intestinal obstruction situated further down in the intestinal canal. Accompanying the vomiting there are symptoms of collapse, with subnormal temperature, sunken eyes, pinched face, and a small and rapid pulse, death finally occurring in over 65 per cent. of the cases recorded. As the condition is becoming more widely known, the mortality is diminishing, for often enough the treatment is both very simple and very effective. Numerous autopsies have shown that frequently the immediate factor that leads to the dilatation of the stomach is the occlusion of the lumen of the duodenum by the root of the mesentery and the mesenteric vessels; it is probable that the effects of anesthesia or of prolonged illness predispose the duodenal tissues to such an obstruction, and in weakening the motor activity of the stomach prevent the overcoming of any slight obstruction by the contractions of its muscular walls and the expulsion of its contents past the site of constriction. That these factors are at work is shown by the fact that thinning and degeneration of the muscularis are frequently found.

The mechanical obstruction can, however, be very effectually dealt with by proper posturing, which should consist in placing the patient on his right side or on the abdomen, while in other cases the knee chest position relieves the strain most rapidly. The stomach tube may likewise be used either preliminary to the change in the position of the patient or even before it is attempted, so that the stomach is as rapidly as possible relieved of the fluid that drags it down and aggravates the obstruction at the duodenum. Of course, a great many cases are caused by anatomical changes, such as adhesions that cannot be influenced by posturing; the latter, however, is such an easy procedure that it ought to be tried in every diagnosed or suspected case of acute gastric dilatation. If the results are not satisfactory surgical interference may be properly considered.

In addition to advising the above treatment Dr. Nicholls very properly points out that the advisability of starving and purging patients before an operation should be carefully reconsidered. This practice, together with tight bandaging and the dorsal position insisted upon for many hours or days after the operation, may have much to do with the occurrence of sudden dilatation of the stomach.

THE TRANSFER OF MORIBUND HOSPITAL PATIENTS.

A law was passed some time ago by the New York State Legislature forbidding the practice, at one time almost universal in this city, of transferring dying patients from the private hospitals to Bellevue in order to keep the mortality statistics within limits pleasing to the trustees and to the contributors of money to the institution. That the law has not entirely put a stop to the practice was made clear at an inquest recently on the body of a man who died in Bellevue. The evidence showed that the man, who had been received in one of the private hospitals, was soon thereafter transferred to Bellevue, where he died. The coroner's jury rendered a verdict in accordance with the facts and censured the hospital for having violated the law. Within a week the same hospital was again censured for another transfer of a dying patient.

A similar case occurred at another private hospital in New York last autumn. The friends of a man suffering from a cerebral hemorrhage were notified that they must remove him at once. He was moribund at the time, but his family, alarmed by the threat of the hospital superintendent, took him to a sanatorium where he died in six hours. There are institutions in this city, the superintendents of which are governed by humane motives, and where such cruelties are not tolerated, but so long as there are any officers of private hospitals, whose eyes are fixed on the annual report, and whose hearts are unmoved by the sufferings of the dying, all the hospitals in the city must lie under the suspicion of favoring such practices.

Laws are in a measure restrictive, but all laws, even that against murder, can be evaded by human cunning. The only effectual remedy against such evils lies in the creation of a sentiment reprobating them among those liable themselves to be lawbreakers. The Association of Hospital Superintendents, an excellent society which has accomplished much in the way of administrative reforms in private hospitals, can create this sentiment if it will. The majority of its members are honorable men, actuated as strongly by a desire to promote the humane side of their profession as to institute financial and administrative betterments, and we have no doubt that an official pronouncement on this subject by the Society would go far to abolish the evil.

The Effect of Menstruation Upon Gastric Secretion.

The female organism in several of its physiological functions approaches so closely to pathological conditions that the least cause, however insignificant in itself, may turn the balance on such occasions. Everyone is familiar with the picture of acute nephritis brought on during pregnancy by carelessness in diet, or the excessive nervous state that accompanies the cessation of sexual functions at the menopause in women who do not understand the necessity of plain living and avoidance of overexcitation of any character at that period. It has also been known for a long time that the mere recurrent function of menstruation is accompanied

with a great many changes in the activity of organs that would seem to be quite independent of the sexual sphere. A series of gastric analyses reported by Wolpe in the *Deutsche medizinische Wochenschrift* for December 17, 1908, shows that both the secretion and the motility of the stomach undergo a marked change in this period. Thus all examinations gave evidence of a rise in the total acidity of the gastric juice as well as in the amount of free hydrochloric acid during menstruation, even though in the premenstrual period the acidity of the juice was diminished. Coincident with this objective phenomenon the subjective complaints of the patients were increased at the time of the menstrual flow so much that they would have justified a much more serious concern for the health of the patient if the physician were not informed of the new factor introduced at those occasions. The amount and the quality of the gastric juice secreted by several of Wolpe's patients were such as to have justified the diagnosis of a transient gastrosuccorrhea. At the same time the motor function was below normal throughout the period of menstruation. Wolpe concludes that these findings should be kept in mind both in the diagnosis and in the treatment of gastic disease in women. The objective data of gastric analysis should not be obtained during the menstural period or at least not be then given the same weight as at other times; the existence of any gastric disease should lead to greater care than usual with the diet, exercise, etc., at such periods, the presence of gastric ulcer for instance calling for an especial modification of diet in order to diminish the subjective pain and the objective danger of a large hemorrhage. The general rule that applies, indeed on many occasions in the life of a woman, is to remember the closeness with which a pathological condition is approached at these times and to take the necessary precautions to ensure the maintenance of the balance in favor of health.

Mental Shock and Multiple Sclerosis.

The significance of intense psychic phenomena in the etiology of multiple sclerosis has been the subject of much discussion among neurologists and pathological anatomists. While a number of observers deny the importance of the mere psychic event in the causation of disease, and in the absence of any evidence of gross lesions postulate the existence of multiple microscopic hemorrhages and tears through the nervous substance in consequence of concussion, others cite cases in which psychic shock had occurred without any accompanying concussion and in which multiple sclerosis nevertheless followed. Wallbaum, who is inclined to share the latter view, reports in the *Deutsche medizinische Wochenschrift* for December 10, 1908, three interesting cases of this affection that had occurred in consequence of mental shock. Two of the patients were in a collision with a street car while driving a mail wagon; neither was at all hurt physically, but both suffered greatly from the mental shock of the accident. One was so unnerved that he could not continue his work, while his companion remained on duty during that day only to meet with another similar accident. Within a few months both men began to suffer from a variety of indistinct nervous symptoms which gradually developed into a complete picture of multiple sclerosis, with scanning speech, intention tremor, emotional phenomena, etc. The third patient was an engineer of a fast passenger train who on one occasion barely succeeded in preventing a collision with a freight train that was moving in the opposite direction on the same track. No physical injury whatever had occurred, yet the mental shock was intense enough to initiate nervous phenomena which likewise continued until the full development of a multiple sclerosis. Wallbaum agrees with Leyden that severe mental shock is sufficient to produce anatomical changes in the spinal cord through the vasomotor disturbances initiated by it. The cases reported by him could of course, be interpreted as merely coincidences of nervous disease following mental shock, or as due to some anatomical lesions produced by the accidents in question or by later occurrences. However, the appearance of the disease seemed to have occurred in such close relation with the psychic shock experienced by the patients that the probability of such shock serving as an etiological factor must be granted.

News of the Week.

Sanitary Science and Public Health.—Columbia University announces under this heading a course of lectures to be given at the College of Physicians and Surgeons, 437 West 59th Street, on Monday, Wednesday, and Friday afternoons during February, March, and April, at five o'clock. Admission is free and no cards are required. The program for February is as follows: February 1—The Rise and Significance of the Public Health Movement, by William Thompson Sedgwick, Ph.D., Professor of Biology, Massachusetts Institute of Technology. 3—The Great Pathological Discoveries and their Bearing upon Public Health Problems, by J. George Adami, M.D., LL.D., Strathcona Professor of Pathology, McGill University. 8—Sanitary Science: The Control of Environment, by Professor Sedgwick. 10—Modes of Transmission and Methods of Prevention of Communicable Diseases, by William Hallock Park, M. D., Director, Research Laboratories, New York City Health Department. 15—The Beginnings of Organization for Public Health Service, by John S. Billings, M.D., LL.D., Director, New York Public Library. 17—Water Supplies and Sewage Disposal, by William H. Burr, C.E., Professor of Civil Engineering, Columbia University. 24—Factors Influencing the Health and Death Rate of Cities, by Frederick Ludwig Hoffman, Statistician, Prudential Insurance Company.

Civil Service Examinations.—The United States Civil Service Commission announces an examination of February 17 and 18, to secure eligibles for the filling of seven vacancies in the position of medical inspector, at a salary of $2,000 per annum, in the Philippine service. Application should be made to the United States Civil Service Commission, Washington, D. C.

Diphtheria Closes Hospital.—Because of an epidemic of diphtheria among the nurses of the Mountainside Hospital in Monclair, N. J., the Board of Health has deemed it wise to order the hospital closed for thorough disinfection. With the exception of three who are in a serious condition, all of the patients have been transferred to their homes or are otherwise cared for, and disinfection of the hospital will be prompt and complete.

Foot and Mouth Disease.—As a result of the discovery of two new herds of animals infected with foot and mouth disease in Lancaster County, Pa.,

the quarantine on a number of counties in that State and in New York will be more rigidly enforced and indefinitely extended. The infected herds have been slaughtered; but the outbreak is considered serious because of the extraordinary measures which have been taken in the last six weeks to stamp out the disease.

Consumptives Barred.—The Louisiana State Board of Health has decided that no child suffering from tuberculosis in any form shall be allowed to attend the public schools of that State, and that no adult so affected shall be permitted to teach in the schools.

High Pneumonia Mortality.—During the week ending January 16, 150 persons in Chicago died of pneumonia, the largest number recorded for a like period for some time.

City's Clerks Consumptive.—An unusual examination took place in Brooklyn recently, when, at the request of the County Register, the 150 clerks in his office were examined by a Health Department physician. The result was six positive and eight suspected cases. The ventilation and other conditions in the office have been improved since the examination.

French Population Increases.—Statistics recently published in Paris show that the much discussed decrease in the birth rate in France has been eliminated. For the first six months of 1908, the births exceeded the deaths by 11,000; whereas in the corresponding period of the previous year, the deaths exceeded the births by 55,000.

Milk Stations.—The Association for Improving the Condition of the Poor has made an appeal for funds to carry on the work of the seven milk depots which they established in New York City last July. More than 500 babies are being cared for at the present time. During the time they have been in existence the depots have cost about $27,000, of which about $8,000 has been returned from the sale of milk to those able to pay. Trained nurses are in attendance, and a staff of twenty-nine physicians have volunteered their services.

The Chicago Medical Milk Commission was recently created by the Chicago Medical Society, and consists of Drs. I. A. Abt, M. P. Hatfield, Frank S. Churchill, J. W. Vanderslice, C. S. Bacon, and Samuel J. Walker. Its object, it is said, is to furnish "real milk," as distinguished from modified milk.

Dr. Graham Lusk was appointed Professor of Physiology in Cornell University Medical College, in New York, at a meeting of the Trustees of the university held on January 23. At present Dr. Lusk is Professor of Physiology at the University and Bellevue Hospital Medical College.

Dr. Frederick H. Dillingham was elected President of the New York Alumni of Bowdoin College at the annual dinner on January 22.

New Maternity Hospital.—The new Jewish Maternity Hospital at 207 East Broadway, New York, was opened on the afternoon of January 24. The hospital is the first of its kind to be established on the East Side, and has been established by private subscription.

Metropolitan Hospital.—Plans and specifications for improving the equipment of the Metropolitan Hospital on Blackwell's Island, New York, were approved on January 22 by the Board of Estimate. The cost is to be not more than $150,000.

Gifts to Charities.—The Rochester (N. Y.) City Hospital has received a donation of $400,000 from Mr. George Eastman, for the purpose of rebuilding the hospital and making extensive additions. Winchester, Mass., is soon to have a general hospital, for which there has been great need. As a memorial to her son, Mrs. Sophronia A. Harrington has made a gift of $50,000 to the town for this purpose.

New York Post-Graduate Medical School.—The annual dinner of the Faculty and Directors of the school was held on January 20 at Delmonico's. Mark Twain was an honorary guest and one of the speakers, among the others being Dr. Charles L. Dana and Dr. J. George Adami.

The Norwegian Hospital Alumni Association of Brooklyn celebrated its one hundredth meeting with a dinner at the home of one of the charter members, Dr. Sewell Matheson, on January 13, 1909. The Society was organized in 1898. Its first President, Dr. Robert E. Coughlin, has this year been elected again, and served as toastmaster. During the dinner the following toasts were responded to: "Humorisms," by W. Carl Schoenijahn; "The Ideal Physician," by C. Eugene Lack; "The Brooklyn Medical Man as Compared with His Brother in Manhattan," by Sewell Matheson; "Canadian Echoes," by Robert G. Moore, and "More Humor," by Louis Stork, Jr. At the close of the dinner a silent toast was given to the Norwegian Hospital, its staff, the sisters, and all who had to do with the hospital career of the individual members. The remainder of the evening was spent in listening to a literary and musical program. The officers of the Association are: *President*, Dr. Robert E. Coughlin; *Vice-President*, Dr. John H. Ohly; *Secretary and Treasurer*, Dr. Louis Stork, Jr.

Alumni Association of the Lying-In Hospital of the City of New York.—On January 12, 1909, this society was regularly organized and the following officers were elected: *President*, Dr. Asa Barnes Davis; *Vice-President*, Dr. William Preston Macleod; *Secretary*, Dr. Joseph Edward Lumbard; *Treasurer*, Dr. John Hamilton Telfair; *Editor*, Dr. C. Frederick Jellinghaus. The object of this association is to further the advancement of medicine and to promote social intercourse among its members. The Secretary's address is 1925 Seventh Avenue.

The Medical Society of the Missouri Valley.—The spring meeting of this society will be held at St. Joseph, Mo., on March 18 and 19, 1909. Dr. Herman J. Boldt of New York will deliver the address in surgery, and Dr. N. S. Davis of Chicago the medical address. The meeting will be held under the presidency of Dr. C. B. Hardin of Kansas City, and applications for a place on the program should be made to Dr. Charles Wood Fassett, Secretary, St. Joseph, Mo.

Chicago Physicians and Druggists Feast.—The Chicago Medical Society and the Chicago Retail Druggists' Association held their annual "get together" dinner recently in furtherance of a national movement to establish a code of medicopharmaceutical ethics. Dr. Alfred C. Cotton was toastmaster. Dr. Bernard Fantus spoke on "Need of a Code of Medicopharmaceutical Ethics." Other speakers were Drs. A. M. Corwin, William E. Quine, H. F. W. Spilver, C. P. Pruyn, and C. S. N. Hallberg, and T. H. Potts. One of the prominent features of the movement concerns the alleged abuses connected with the use and sale of various proprietary prepa-

rations. Another matter said to require adjustment is prescribing by druggists and the dispensing of drugs by physicians.

The Medical Society of Franklin County, Pa., held its regular annual and quarterly meeting in Chambersburg, January 19, 1909. The following officers were elected: *President,* Dr. Percy D. Hoover, Waynesboro; *Vice-Presidents,* Drs. Harry M. Miley, Chambersburg, and Ambrose W. Thrush, Chambersburg; *Secretary,* Dr. John J. Coffman, Scotland; *Assistant Secretary,* Dr. H. Clay Devilbiss, Chambersburg; *Treasurer,* Dr. Johnston McLanahan, Chambersburg; *Censor,* Dr. J. Burns Amberson, Waynesboro. Action was taken endorsing the One Board Bill just introduced into the Legislature at Harrisburg and asking the members from the county and Senatorial District to support the bill. An elaborate report was made by a committee appointed at a previous meeting, to urge the Board of Directors of the Chambersburg Hospital to make a change of ruling, which now prohibits any physician of the county from attending his own private patient, if admitted at a minimum rate, and requiring that the patient shall be attended by one or more of the staff then on duty. The report was fully endorsed and adopted with the recommendations as expressed in the report.

The Aurora (Ill.) Medical Society.—This Society met December 17 and organized a society with this name. The following officers were elected: *President,* Dr. Herman Milbacher; *Vice-President,* Robert A. Windett; *Secretary-Treasurer,* William H. Schwingel.

The Champaign (Ill.) County Medical Society, at its annual meeting, recently held, elected the following officers: *President,* Dr. William E. Schowengardt, Champaign; *Vice-President,* Dr. Fred H. Powers, Champaign; *Secretary-Treasurer,* Dr. Cyrus F. Newcomb, Champaign.

Philadelphia County Medical Society.—At the regular business meeting held January 20 the following officers were elected for the ensuing year: *President,* Dr. Frederick P. Henry; *Vice-Presidents,* Drs. William E. Parke, C. J. Hoban, F. Mortimer Cleveland, J. F. Roderer, W. H. Morrison, Frank W. Thomas, and Ernest W. Kelsey; *Secretary,* Dr. William S. Wray; *Assistant Secretary,* Dr. Alex. R. Craig; *Treasurer,* Dr. Collier L. Bower; *Censors,* Drs. J. F. Schamberg and Lewis H. Adler, Jr.; *District Censor,* Dr. M. B. Hartzell.

The Center District (N. H.) Medical Society held its eighty-seventh annual meeting at Concord on January 12. The following officers were elected: *President,* Dr. J. W. Staples, Franklin; *Vice-President,* Dr. A. K. Day, Concord; *Secretary-Treasurer,* Dr. P. T. Haskell, Concord; *Delegates to the State Convention,* Dr. E. E. Hill and Dr. S. G. Morrill, Concord.

The Hatherly (Mass.) Medical Society, at its annual meeting on January 13, elected the following officers: *President,* Dr. Gilman Osgood of Rockland; *Vice-President,* Dr. O. A. Bemis; *Secretary,* Dr. C. E. Lovell.

The York County (Me.) Medical Society held its fifteenth annual meeting on January 14, at which the following officers were elected for the ensuing year: *President,* R. S. Gove, Sanford; *First Vice-President,* C. E. Thompson, Saco; *Second Vice-President,* F. E. Small, Biddeford; *Secretary,* J. M. O'Connor, Biddeford; *Treasurer,* L. L. Powell, Saco.

The Etowah County (Ala.) Medical Society, at its annual meeting on January 7, elected the following officers: *President,* Dr. J. W. Lawrence of Turkeytown; *Vice-President,* Dr. J. H. Wood of Attalla; *Censors,* Drs. Ison and Baskin.

The Colbert County (Ala.) Medical Society, on January 7, elected the following officers for the coming year: *President,* Dr. W. H. Greer; *Vice-President,* Dr. W. J. Maxwell; *Secretary-treasurer,* Dr. E. R. Burns; *Censor,* Dr. M. Henry.

The Waterbury (Conn.) Medical Society held its annual meeting on January 11. The following officers were elected: *President,* Dr. Charles A. Monagan; *Vice-President,* Dr. John M. Benedict; *Treasurer,* Dr. Charles S. Rodman; *Secretary,* Dr. Edward F. Ashley.

The Late Dr. Quigley.—At a special meeting of the Medical Board of Fordham Hospital, January 9, 1909, the following resolutions were adopted upon the death of Dr. John J. Quigley:

WHEREAS: Through the death of Dr. John J. Quigley the Medical Board of Fordham Hospital has lost one of its original members and a former president; one who had been most actively connected with the hospital for 17 years as visiting surgeon; whose vigorous personality won for him the respect, admiration, and love of his colleagues: therefore be it

RESOLVED: That the members of the Medical Board of Fordham Hospital express their profound sorrow at the loss of their associate, and extend heartfelt sympathy to the bereaved family. And be it further

RESOLVED: That these resolutions be spread upon the minutes of the Board, that a copy be furnished to the medical press for publication, and that a further copy be transmitted to the family of the deceased.

ALEXANDER NICOLL, M.D.,
Secretary of the Medical Board.

Obituary Notes.—Dr. JOHN WALTER GRAY of Summit, N. J., died on January 22, aged 32 years. Dr. Gray was graduated from the medical department of New York University in 1897, and was a veteran of the Spanish-American war.

Dr. ALFRED J. BIGELOW of New York died at his home on January 22. He was a graduate of the medical department of the University of Buffalo in the class of 1851.

Dr. T. MORTON HILLS of Willimantic, Conn., died at his home on January 23, aged 70 years. Dr. Hills was graduated from the Yale Medical School in 1863, and immediately after graduation entered the Union Army, serving through the remainder of the Civil War as a surgeon. After leaving the army he settled in Willimantic, where he practiced for forty-two years. He was a member of the American Medical Association.

Dr. E. FRANKLIN BETTS died at Philadelphia on January 15 at the age of 64 years. He was professor of gynecology and lecturer on general medical subjects at Hahnemann Medical College, from which institution he was graduated in the class of 1869.

Dr. ANDREW HOWELL HALBERSTADT died at Pottsville, Pa., on January 19 at the age of 77 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1856. He was for many years President of the Pottsville Board of Health.

Correspondence.

THE FULGURATION TREATMENT OF CANCER.

To the Editor of the Medical Record:

Sir:—In your issue of January 23, 1909, I note an interesting comment on the possibilities of the treatment known as fulguration as applied to cancer. Besides the benefit of the vigorous reaction, the increased leucocytosis, and the mechanical action of the copious discharge resulting from the treatment, together with the escharotic action of the sparkings, de Keating-Hart avers that the high frequency spark, if properly applied, exerts a specific destructive action upon the cancerous cell. He claims that malignant cells left *in situ*, either near or at some distance from the field of operation, are, in the majority of cases, either destroyed or indefinitely retarded in their growth. In support of his theory he recites numerous cases, in some of which macroscopical and microscopical evidence of disease was untreated, and yet these malignant foci remained inactive for a period of nearly three years. If these interesting and important findings are confirmed by extensive investigation over a sufficient period of time it will indeed be a blessing to patients afflicted with this malady. That fulguration is of benefit in the treatment of cancer is shown by reports by Juge, Delherm, Czerny, Rosenkranz, Arndt, Laquer, and others, although the majority of these investigators prefer to remain noncommittal regarding the lasting qualities of the benefit obtained. I have had no experience with this method in the treatment of deep-seated cancers, tumors of the breast, etc., but I can testify to the efficiency of the treatment in the destruction of small cutaneous epitheliomata. In inoperable rodent ulcers of the face involving the deep structures, which failed to respond to the *x*-ray I have been able in some instances to check the spread of the disease and in others to obtain complete healing by this method. Small superficial tumors can be quickly and easily removed in one sitting and the scar is as good if not better than that following surgical ablation or any other method. The pain is considerable, but it lasts only for a few seconds and cocaine anesthesia may be employed if necessary. It is far too soon to advance an opinion regarding the permanence of the cure. As already stated, cases have been reported which were treated three years ago and which are well at the present time; in some of these cases diseased tissue was left in place and these foci have either disappeared or have remained inactive. It is possible that exact technique or the element of personal equation is a matter of importance in the treatment of these cases, for some of my patients after having been thoroughly treated have had a return of the disease after a few months. I admit that my technique is not exactly that advised by de Keating-Hart, the difference being that I do not employ a cool current of air or gas to overcome the heat effects of the sparks. My experience with the process of fulguration has led me to regard it as a very superior caustic or escharotic possessing many advantages over other agents employed for the same purpose, and I am not convinced as yet that it has any pronounced specific action against malignant tissue.

To de Keating-Hart must be given the credit of being the first to apply the treatment to extensive, deep-seated, and inoperable cancer and of perfecting an elaborate technique, but he was not the first man to use the high-frequency spark in the treatment of cancer. In 1900 at the International Congress of Electrology and Radiology held in Paris, and again in 1903 before the Academy of Medicine of the same city, J. A. Rivière gave an account of his experiments with the high frequency spark in the treatment of small malignant and benign cutaneous neoplasms. Dr. H. G. Piffard, in the *New York Medical Journal*, June 16, 1906, has referred to the good effects obtained in the treatment of small cutaneous cancers in this manner. Reports of the escharotic action of these sparks may also be found in the books of Allen and Freund. Rankin reported some very important observations in the treatment of benign neoplasms and hypertrophies of the skin in the *Archives of Physiological Therapy* for September, 1906. The name fulguration as suggested by Pozzi and employed by de Keating-Hart, is not a satisfactory term, for it is not suggestive of the actual procedure or of the agent employed in the treatment. It would seem that "high-frequency caustic spark," suggested by Piffard, might be a more fitting title. The advantages of this treatment are many and it undoubtedly has a brilliant future, particularly in the treatment of the various benign cutaneous neoplasms and small superficial cancers of the skin, together with many dermatological disorders, and it is also to be hoped, for the sake of humanity, that future study will support de Keating-Hart's contention regarding the specific action on the malignant cell.

Geo. M. MacKee, M.D.

616 Madison Avenue, New York.

PROPHYLACTIC CIRCUMCISION.

To the Editor of the Medical Record:

Sir:—During twenty years of active practice in general medicine and surgery it has been my experience to have seen many fads and fancies of our profession arise, flourish for a time, and then fade away. Credé's method of placental expulsion was so thoroughly ingrained in the students of my time, and later, that any expression of criticism of the practice branded one as uninformed. In the passage of years I have seen many cases of hemorrhage that in my secret mind I attributed to the too hasty removal of the secundines. At this time an expression of that opinion does not arouse professional contempt.

I have been awaiting a sensible attitude of our brethren in the matter of circumcision, but by the journals I judge that the acme of that fad has not been reached. I wish to be numbered among the pioneers who protest against the indiscriminate circumcision of male infants. In my experience it has not been usual to find in the newborn prepuces that could be retracted easily. Following the teaching I had received I had circumcised prepuces seemingly redundant and nonretractible in the newborn up to some years ago. Then, on one occasion, upon preparing to remove the foreskin, I fortunately discovered a pneumonia which delayed the operation and I did not see the child until some months after. On reexamining the patient I found the same apparent condition but upon producing stiffening I slipped the foreskin over and thereafter advised doing so daily and applying a sterile lubricant. Since that time I do not circumcise, if there is a free flow of urine, until the child is a year old, and I have found very few cases that did not yield to a gentle separation of the foreskin from the glans and after that a free slipping back of the hood. I apply cocaine to the parts, retract as far as possible, slip a probe under the sluce, or when necessary nick an opening for it to be slipped under and peel the two mucous surfaces of the glans and prepuce apart, clear the corona, clear out the smegma in the sulcus, apply a lubricant, and instruct the mother to retract daily for a spell. It is astonishing how many cases of phimosis and apparently redundant foreskin yield to this treatment. I most emphatically oppose the custom of indiscriminate circumcision and I contend that many, many cases supposedly fit for no other treatment than circumcision can be better treated by the method outlined above.

The two main arguments advanced for the routine practice of circumcision are that the prepuce causes reflex irritation and that venereal diseases are the more easily acquired where the foreskin exists. A freely gliding foreskin never irritates. Venereal infection is acquired as readily by an abraded surface uncovered as by one covered. I further contend that an exposed gland is more likely to be irritated than a covered one: furthermore the protected nerve terminals are a help to the longer preservation of potency. I could enlarge on the unsightly deformities that have come under my observation from this practice of circumcision, but I am only pleading for a common-sense stand by physicians on this fad of clipping foreskins.

J. C. Farmer,

327 Church Street, San Francisco.

OUR LONDON LETTER.

(From Our Special Correspondent.)

FERMENTED MILK DIETARY—PLAGUE, RATS, AND FLEAS—A SMALL RESEARCH HOSPITAL AT CAMBRIDGE—OBITUARY.

London, January 8, 1909.

Milk fermentation is the popular subject in London just now, and our great dairy companies are naturally exploiting it. We have consequently the option of recommending our patients several preparations, such as whole or diluted milk, curdled or soured by cultures of the different lactic acid organisms. They are also supplying tablets for making the fermented milk at home. Some practitioners have followed up the sour milk dietary with close attention since Metchnikoff's investigation of the Bulgarian yoghourt, but it must be acknowledged that a larger number look upon the

treatment as a passing craze. Elderly practitioners, or some of them, shake their heads and talk of the time when lactic acid was regarded as a malign substance, responsible for numerous forms of dyspepsia and rheumatism, and though willing to listen to an account of bacteriological investigations are doubtful as to the rehabilitation of lactic acid being permanent. They remind us of the many varieties of milk, of whey, of buttermilk, etc., which have had their day, and hope that the bacterial fermentation will prove a greater clinical advance than at first sight seems likely. Nor are such doubts surprising, and it is at least amazing to notice the irritation with which they are heard by enthusiastic bacteriologists, who account for any deviation from the expected effect by suggesting variation in the organisms present or the action of additional undetected organisms. I suppose we must admit that the bacillus of Massol found in Bulgarian sour milk and carefully investigated by Metchnikoff is better for producing the fermented milk for therapeutic purposes than most lactic acid organisms, for it grows vigorously at the body temperature and adapts itself easily to the conditions of the alimentary canal. But it also gives rise to butyric acid, to which perhaps the evils attributed formerly to lactic acid were really due. To meet this disadvantage ordinary lactic organisms can be added, since it has been shown that in their presence the production of butyric acid is restrained, provided the environment is acid, and this condition is met with in sour milk and buttermilk. The tablets on the market are apparently made with cultures of the bacilli with dried milk enough to feed them during desiccation. If kept dry and cool they can be preserved indefinitely. It is probable that some ordinary lactic organisms are present, either intentionally or by design, for if they are crushed, mixed with milk, and kept at body temperature for 10 or 12 hours a satisfactory result is obtained. One gentleman says you may just as well swallow a tablet and drink a glass of milk sweetened. I have not tried this, but it seems to suggest that for the complete rehabilitation of lactic acid as a useful agent in the economy and efficiency in some diseases we may yet come to administer it as a drug prepared by any process which gives it to us chemically pure.

The Society of Tropical Medicine has always something interesting to show or report. At its last meeting Dr. Hossack of Calcutta had a paper on plague in which he opposed the generally accepted views. Since Patton's experiments, the rat flea hypothesis has held the field, but it has been pushed, said Dr. Hossack, beyond the limits which can be justified. He admitted that to anyone opening an investigation with this view in his mind many circumstances seemed to support it, but on further investigations the facts did not accord with it. One species of rat, he declared, was as susceptible to plague as another. In the Punjab there was no *mus rattus*, and the suggestion of the commission that this variety was later than another in developing plague had no foundation in fact. The commission's endeavor to establish "a climatic plague temperature" was futile, as shown by their own experiments. Moreover, Calcutta was remarkably free from the human flea—*Pulex irritans*. Dog fleas were abundant, but rat fleas were hardly ever found there. Most of the received ideas about fleas were wrong, being based on the notion that they were evenly distributed. The contrary was the case to a remarkable extent. So, too, it was erroneous to say fleas left their hosts in the light or bit more often at night. Rat fleas had a distaste for the skin of man; only one in six attempts to make them bite the human skin succeeded. In houses in which 15 to 20 cases of plague had occurred, rat fleas were not found on careful search. He held that rat fleas will not bite a man unless they are starved, and the facts as to their distribution render their active agency in spreading plague impossible. Sir P. Manson, who occupied the chair, said that when he read the reports of the commission they convinced him, but after Dr. Hossack's paper he thought most of the members would doubt. Dr. Ford Petrie took up the defence of the commission on which he worked. He said the route of infection in rats and men was exactly the same. Of 5,000 dead rats picked up in infected houses 72 per cent. had bubœs in the neck, but no mesenteric bubœs; of rats fed on infected material only 30 had rat bubœs. Intestinal infection did not occur between rats, as they do not eat their dead fellows. The route of infection was the same in man. Attendants in plague hospitals do not take the disease; nor do guinea pigs placed in infected bedding. In the great majority of cases human infection is through the skin, not through the alimentary canal. Millions of the bacilli occupy the intestinal canal of the flea, but very few are found in the excreta of the rat. Sir Havelock Charles said the statistics on each side were so convincing that a plain man must be puzzled as to what to think. Taking everything into consideration, nobody doubted the association of rats and plague in India, and it seemed likely that fleas had something to do with the transmission. He suggested that perhaps the plague taken by the Ark of the Covenant to Ashdod and Gath might have been transmitted by fleas in the badgers' skins with which the Ark was covered. As to this amusing suggestion I should like to ask him if so, why did not the Israelites suffer after the Bethshemish outbreak? Would he hold that all the fleas escaped there and none were carried to Kiriath-jearion, where the Ark remained for twenty years? Dr. Low asked why so much was attributed to the position of the bubœs, and why in feeding experiments must they appear in the mesentery, and was not infection possible by the throat? He would like to know more of the method of making these accurate flea counts. Mr. James Canthè said experience proved that on the Gold Coast, and in Glasgow, pneumonic plague might be present and no rat infection probable. The question of transmission from man to man requires further investigation. Dr. Hossack replied to this that in Bombay only 1 per cent. were such cases, but in other districts much more, and in them no doubt direct infection was common. They counted fleas by chloroforming the animals on which they were living. The fleas were affected by the chloroform and could be easily combed out and counted.

It is very unfortunate that a small hospital devoted to research work on chronic diseases should have to be closed for want of £250 a year to keep it going. Yet this is the case with one started three years ago at Cambridge by a committee for such systematic research, pathological and clinical, and which has issued an account of its work on rheumatoid arthritis. With five beds about 100 patients have passed through the little hospital, and their cases closely investigated in all directions. Other work has also been done and of such a character that leading physicians and surgeons have issued an appeal to the profession to provide the £250 per annum to carry on the work, which sum pays all nursing and other costs. Of course those engaged in the scientific research received nothing—in fact, helped from their own purses—as so often the members of the profession do. It appears to me that the appeal of these distinguished leaders should be directed to the public—not to their poorer brethren. It is the public who will benefit. The investigators can gain no pecuniary reward. The public is not slow to subscribe when so great a guarantee of the need and value of a cause is offered.

On December 30 the last surviving daughter (Mary) of the late Dr. Bright died at the ripe old age of 93.

News has reached Jersey of the death in India of Dr. Douglas Argyll-Robertson. Dr. and Mrs. Robertson left Jersey, where he had been residing since retiring from practice, to take a trip to India and Burma.

The death is announced of Lieutenant-Colonel C. E M. Shaw, late of the Army Medical Service, who served under Lord Wolseley in the Red River expedition of 1870.

Progress of Medical Science.

Boston Medical and Surgical Journal, January 14, 1909.

Football Injuries of the Harvard Squad for Three Years Under the Revised Rules.—The information presented by E. H. Nichols is tabulated and is to the general effect that the revised rules are accompanied by about from one-third to one-fourth as many injuries as under the old rules, the number of men in the squad being relatively the same. The author says it is curious to notice the different degrees of confusion which result from injuries. It often happens that the other players notice nothing wrong with the injured man, although from the side lines his irresponsible conduct may be evident. A man injured in the head may continue to line up for a long series of plays and may automatically go through his assignments, although if questioned he may be unable to tell his name, residence, day of the week or the name of the opposing team. Injuries specially commented on are cerebral concussion, dislocation of the knee, semilunar cartilages, synovitis, rupture of the anterior thigh muscles, dislocations of the outer end of the clavicle. Skillful players are less liable to injuries. Injured men should never resume the game until they have fully recovered. Playing to the point of exhaustion should be avoided. Proper padding also prevents many injuries.

Typhoid Carriers Found in a Series of Typhoid Fever Patients at the Time of Their Discharge from the Boston City Hospital.—The work of W. T. Graham, M. A. Bailey and C. L. and J. E. Overlander shows

that 23 per cent. of 65 cases were shown to have typhoid bacilli in their stools or urines during the ten days preceding their discharge from the hospital named. These authors say that the stools and urines of all typhoid fever patients should be examined for typhoid bacilli during the last ten days preceding their discharge from medical care and if the results are positive those patients should be detained in hospital. If at the end of ten weeks they still show bacilli, they should be allowed to leave the hospital but keep under supervision of the health authorities until they cease to be carriers. Until that is the case such typhoid distributors should have their occupations restricted. They should not be allowed to follow those pursuits which endanger others.

New York Medical Journal, January 16, 1909.

The So-called "Dangers" of Vaccination.—W. M. Welsh discusses this question and shows the falsity of the antivaccination literature. He refers to the earlier ideas regarding smallpox and vaccination. Some of the outbreaks of septic inflammation which have followed the use of a certain lot of virus have been due to defects in its preparation and in no way militate against vaccination with properly prepared virus. It is stated on good authority that such cutaneous affections as eczema, lichen, erythema, multiforme, impetigo, pemphygus, psoriasis, and a number of others, may occur as the result of vaccination. With the exception of impetigo contagiosa, it is hardly possible that any of these diseases could be inoculated with vaccine virus. But there is no doubt that the constitutional disturbances incident to vaccinia may sometimes excite into action some disease to which the subject is specially predisposed. It is impossible to communicate syphilis with bovine lymph, as the bovine animal is totally unsusceptible to this disease. The anti-vaccinationists are now directing their attention against the alleged danger of tuberculosis. Whether it is or is not possible to transmit this disease through the agency of vaccine lymph is a question that has never been fully determined. One experimenter asserts to have succeeded in developing tuberculosis in a rabbit and pig with vaccine virus taken from a tuberculous cow, while another failed to transmit the disease after injecting vaccine lymph taken from a tuberculous individual into the peritoneal cavity, under the skin, and into the anterior chamber of the eye in forty-seven animals. It is evident, therefore, that the danger is not great. But fortunately we are able to obviate entirely the slight danger that may exist. All vaccine virus is now taken from calves, and it is a well-established fact that tuberculosis in the calf is extremely rare. As a precautionary measure, in all well regulated establishments for the propagation of the bovine virus, the calves are either subjected to the tuberculin test before they are vaccinated or are autopsied before the virus is distributed for use.

The Sexual Factor in Tuberculosis.—W. H. Peters collates the views of many well-known American phthisiotherapists who all agree that the sexual appetite in the tuberculous is to be accounted for not so much by the disease itself as by the rest, forced feeding, and stimulation by large amounts of albuminous foods, alcohol, and strychnine, which figure in modern therapy. After collating these views, Peters says that he is more convinced than ever that isolation and the education received in the sanatorium are of the utmost importance before beginning the home treatment. The consumptive taking treatment at home will, as a rule, follow directions to the letter in everything except sexual matters, and many a case in both sexes would be on the road to recovery to-day, instead of gradually losing ground, if isolation was a compulsory rule instead of being insisted upon in a half-hearted way. The consensus of opinion from experienced men interviewed shows that the majority were of the opinion that increased sexual desire is not a condition due to the toxins generated in the tuberculous; that such a desire is due chiefly to idleness, and occupation on the part of the consumptive is a necessary adjunct to the treatment. Sexual indulgence, however, is a serious bar to the home treatment; married patients gain faster in sanatoria.

Journal of the American Medical Association, January 16, 1909.

Acute Glanders in Man.—F. R. Zeit says that it is comparatively easy to distinguish glanders in man from symptomatically similar conditions. The small number of cases has, he thinks, given rise to the opinion that the disease is rare in the human subject and that human susceptibility to the infection is slight; but it is probable that fatal cases occur and are reported under other diagnoses, notably smallpox. The case he reports was suspected to be smallpox, but bacteriologic examination gave a positive diagnosis of glanders. Zeit calls attention to a possible error unless one is careful in the examination of the stained smears or cultures. The deeper staining globules of the glanders bacilli may appear like groups of staphylococci, especially when the bacilli are in dense clumps, as is often the case in the thick smears from cultures. In gross appearance fresh agar cultures of the pus may also resemble those of *Staphylococcus aureus,* which may explain the frequency of such contamination reported in the literature of bacteriologic examinations of glanders. In very thin smears from glanders cultures the apparent cocci are seen to be deeply staining portions or chromatic globules within the faintly staining ground substance of the bacilli.

Cerebral Surgery.—Harvey Cushing insists on the importance of a knowledge of the nervous system and its diseases on the part of the surgeon, and the need of his taking account of the functional as well as the actual structural abnormalities he has to treat. Often the relief of the functional element is more to be desired than the cure of the organic lesion. The special points of technic on which he lays stress are, first, the anesthesia—the complete shutting off of the anesthetist from the operative field, which he accomplishes by means of an arrangement of the operative sheets that completely cuts off the anethetist, and he secures free respiration in the prone position by a special form of outrigger to the operative table. The continuous auscultation by the anesthetist of the cardiac and respiratory action is also provided for by a phonendoscope attached to the patient's chest by adhesive strips and connected with the anesthetist's ear by a device like the headgear of a telephone operator. This he considers especially important. The next thing mentioned is the subtemporal decompression trepanation as an early measure in case of possible brain tumor that cannot be exactly localized. This is performed in a safe area, and is often of itself sufficient to relieve symptoms. If localizing signs appear later, the removal operation can be performed. While in tumors above the cerebellum lumbar drainage is invaluable, Cushing calls particular attention to the dangers of lumbar puncture in cases of subtentorial tumors, from forcing down the brain substance into the spinal canal. The possibility of an unsuspected cerebellar growth, he thinks, should always be kept in mind, and the puncture not made unless the dura is exposed and ready for immediate opening in case medullary symptoms supervene. This leads him to speak of the value of a bilateral opening with wide exposure in other cases of growths difficult of access, which is also useful in preventing compression or mutilation of cerebral tissue in operation. In the older high operations for removal of the Gasserian ganglion, there was also much of compression and confusion of the temporal lobe, although no tumor was already compressing the brain, and Cushing gives special cautions for this procedure. He is able to report seventy-four operations with only two deaths, and he prefers the simple evulsion from the pons of the sensory root alone, leaving the ganglion in its bed with a half-inch gap between its hinder border and the original pontine attachment, a gap he thinks not likely to be bridged, even admitting the possibility of a central regeneration.

Mustard Packs in Bronchitis.—A. A. Herzfeld recommends mustard as a counterirritant in the treatment of capillary bronchitis and bronchopneumonia in infants and children. For the past thirteen years he has been using a method of its application which he describes as follows: Two hundred and fifty c.c. (half a pint) of water and 250 c.c. of alcohol are mixed in a large bowl; to this are added from 25 to 50 c.c., according to the severity of the case, of freshly prepared spirit of mustard. The spirit of mustard is prepared according to the German Pharmacopeia (the volatile oil is the active principle of mustard) as follows: Oil of mustard 1 part, pure alcohol 49 parts. A large piece of flannel is moistened with the mixture and wrapped around the child from the neck to the knees. The child is then enveloped in a dry sheet and the pack is left on until the skin is a bright red, usually in from 15 to 30 minutes. The child is then taken out and wrapped and left for another half hour in a pack wet with one part alcohol and two parts water. At the end of this time the child is wrapped in a dry sheet. Usually one pack causes marked improvement, but relapses are frequent and it may need renewal. Once in twenty-four hours is enough unless the indications are unavoidable. The physician should apply the first pack himself, to determine the strength needed and to instruct the parents or nurse. Herzfeld sums up the advantages of the method as follows: 1. It is surprisingly rapid in effect 2 Its light weight does not materially

embarass respiration. 3. It can be applied without removing the enfeebled patient from the bed. 4. It is inexpensive. 5. It is clean.

Cancer Cell Implantation.—E. A. Babler says that while it is clear that in many cases poor surgical technique is responsible for cancer cell liberation, it is also true that the surgeon cannot always be sure that this has not occurred. Appreciating the dangers, it occurred to him that the field of operation might be swabbed with an antiseptic solution strong enough to destroy the liberated cells without preventing primary union or causing toxic symptoms. His four years' favorable experience with the alcohol-bichloride-hydrochloric acid solution, recommended by Harrington in general surgery, led him to give it a trial in cancer operations, and for the past three months he has been applying it directly to the diseased tissues during removal, and to the wound after they had been excised, with results, he claims, that were all that could be desired. The solution destroys the superficial parts of the operative field, closes the cut ends of the capillaries and lymphatic channels, and apparently eliminates the danger of cancer cell implantation. He does not offer it as a substitute for proper surgical technique in cancer surgery, but only as a valuable and efficient aid in preventing operative infection. Experiments are now in progress with Jansen's mouse tumor to ascertain the depth reached by the destructive process after different lengths of exposure, and the results will be reported later. At present Babler applies the Harrington solution to every part of the cut surface of the cancerous part that is being removed; the growth is excised as rapidly and carefully as possible, after the infected lymphatics and their periglandular tissue have been excised. After stoppage of hemorrhage in the wound the solution is applied to the entire field for one or two minutes, according to the character of the surface. In delicate flap operations the solution is very carefully applied: it is essential that it touch all parts. Where extensive dissections have been made, it is advisable to use a rubber drain. In intra-abdominal carcinoma the solution is applied to the abdominal wound after closure of the peritoneum.

The Suture in Surgery.—H. O. Marcy says the history of the ligature and the suture is, in a measure, the exponent of the history of surgery. He reviews the use of the ligature and suture from the earliest period; the work of Celsus and Galen, of Ambrose Paré, Hunter's introduction of the ligature for aneurysm, the use of various materials for ligatures by Dr. Physick in this country, and gives considerable space to the record of Dr. Horatio Gates Jameson, whose studies, in some measure, paralleled and antedated those of Lister. The early difficulties from sepsis are noticed and the consequent neglect of the animal ligature. The monumental work of Lord Lister is, of course, duly appreciated, and the author comes to the use of buried sutures in which he claims the priority, and his search for suitable material. The defects of catgut led him to seek for a material in which the fibers ran straight, and his finding of such fibers in the tail of the opossum led him to examine other marsupials and to the discovery of the kangaroo suture. The relative merits of other materials are discussed and their disadvantages shown. Marcy criticises the use of the interrupted suture and thinks we could take a lesson from the tailor and seamstress in this particular. He commends to every aseptic surgeon familiarization with the methods of wound closure by means of various absorbable sutures, preferably tendon, and predicts not only that they will be generally adopted, but that as an important adjunct they will hold the first place in the technique of modern aseptic wound treatment.

The Lancet, January 9, 1909.

Left-sided Inguinal Hernia Containing the Vermiform Appendix.—The patient of A. D. Griffith was a woman of 31 years who five years previously, one month after confinement, noticed a swelling in the left groin which had gradually increased in size. Occasionally she felt a sharp pain on or after lying down. The swelling, which was readily reducible and seemed to consist of bowel was considered as a left inguinal hernia, about the size of a hen's egg. At the operation for radical cure the sac was found to contain the appendix, which was adherent throughout nearly its length (4 inches) to the inner wall of the hernial sac. Adhesions were broken up and traction made in the appendix to draw the cecum up to the wound. To the back of the cecum the ovary was found adherent. It was found impossible to draw the cecum sufficiently down to permit the insertion of the sutures necessary for the removal of the appendix. The peritoneum was therefore repaired over the appendix and cecum and they were returned to the abdomen. The operation for the hernia was then completed as usual. Recovery was complete. Other similar cases are collated by the author.

Two Cases of "Obscure" Rectal Pain and Their Treatment.—The cases are reported by F. C. Wallis. Case I. was that of a delicate looking man of 30 years who ten years before, after a hurried action of the bowels, had begun to have short and severe and again long continued and less severe attacks of pain, the first being occasioned by an evacuation and the second by a large variety of causes. He had operations for hemorrhoids and removal of the coccyx but without relief. The author believed that there were submucous tracts leading up the bowel from the ano-rectal junction. This supposition was verified by examination under anesthesia and the ring of mucous membrane was removed and the upper cut edge was brought down and sewed to the anal skin. Enemas were used freely, healing occurred promptly, and all the pains gradually and permanently disappeared. Case II. was that of a young man of 21 years. The conditions and treatment were the same as in Case I., and a like happy result followed operation. The author believes that these submucous tracts are the original lesions from which a large number of rectal complaints arise.

An Unusual Case of German Measles.—G. C. Garratt reports the case of a boy of 6 years who was taken with the usual symptoms of an infectious disease. The post-cervical glands were palpable, but there was no rash. A diagnosis was made of either ulcerative endocarditis or latent pneumonia. On the 6th day a typhoid rubella rash appeared, and in three days the crisis was past, all symptoms subsiding. Convalescence was uneventful. The case is of interest from the duration and severity of the prodromata, the almost entire absence of adenitis, normal fauces and but trifling catarrh. In regard to the diagnosis of this affection the author says that if the rash is seen within twelve hours and if the postannular and occipital glands are most enlarged, there is little difficulty, but if these signs are absent, if the spots on the face have coalesced or faded, or the rash on the body has become scarlet in form, diagnosis may be impossible. The author has not found the circumoral triangle of much assistance. Invasion of this area in scarlet fever, at least in adults, is by no means rare, and when the difficulty arises in a case of rubella, the rash may have left this region. Koplik's spots generally enable us to decide between rubeola and rubella.

Treatment of Old-Standing Injuries of the Wrist by Total Resection of the Carpus.—Valas says that traumatic lesions of the wrist in which efforts at reduction have failed are often capable of being greatly improved by immediate operation and sometimes even by massage alone; when, however, the lesions are of old standing, whether on account of having been overlooked or because immediate treatment has failed, they cause such inconvenience that the patient is always anxious that something should be done to help him. The majority of surgeons content themselves with removing the dislocated or fractured bones, but this method of operating generally means that successive operations have to be performed until all the carpal bones have been taken away. Valas therefore considers it better to remove the whole carpus at one sitting. In six cases which he has treated in this way he has obtained excellent results; in all these cases the carpal lesion was at least four months old and all the patients recovered complete movement of the hand. M. Valas concluded by saying that he thought that complete resection of the wrist was an excellent plan to adopt in such cases as he had described.—*The Lancet.*

Periodic Vomiting in Children.—Monlau calls our attention to a form of severe vomiting appearing suddenly in children of a neuro-arthritic type. In these families gout, rheumatism, epilepsy, tuberculosis, etc., are to be found. They are rather among those of the upper than the hospital class. Muco-membranous enteritis and appendicitis are apt to occur in the same children. Vomiting appears suddenly with little fever and great prostration. Not even ice is retained, and the slightest movement causes vomiting at first of food, later of watery fluid. The breath has the odor of acetone. Constipation is present with flaccid abdomen. Crisis occurs suddenly and the heart becomes stronger, fever passes away, appetite returns, and the child is soon well. But the attack will be repeated. The treatment of the attack consists of calomel and palliative measures. The general health must be built up by hygiene, baths, exercise, and freedom from school. Vegetables and water should be partaken of freely, and spices, acids, and sweet refrained from.—*Journal de Médecine de Paris.*

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Third Annual Meeting, Held January 25, 26, and 27, 1909

THE PRESIDENT, DR. ARTHUR G. ROOT OF ALBANY, IN THE CHAIR.

(Special Report to the MEDICAL RECORD.)

Monday, January 25—First Day.

Report of the Secretary.—DR. WISNER R. TOWNSEND of New York submitted his report for the year ending December 31, 1908. The membership on December 31, 1907, was 6,323; on December 31, 1908, it was 6,595. There were dropped for non-payment of dues in 1907, 343; in 1908, 374. Membership after removal of delinquents in 1907 was 5,980; in 1908, 6,221. Percentage paid up to total membership in 1907, 94.5; in 1908, 95.0. In 1907 there were 102 deaths; in 1908, 98 deaths. In 1907 there were 57 resignations; in 1908 but 16. In 1907 there was one expulsion; in 1908, none. In 1907 there were 809 new and reinstated members; in 1908, 729. The net increase for 1908 was 241 members. Deducting the 189 reinstated members of 1907 from 343 dropped December 31, 1907, left a loss on 1907 membership of only 154, or about two and one-half per cent., a paid up percentage of 97.5 for that year, as compared with 94.5 on December 31, 1907. The increase in membership for 1908 was very small and indicated clearly, Dr. Townsend thought, that the County Societies should be more active in soliciting new members and make greater effort towards the reinstatement of the delinquents. The large majority of those dropped consisted of men who were careless in all their business relations, but a very small percentage because of inability to pay. Both of these should be encouraged to renew their membership. Both the State and County Societies needed increased revenue, and the proper and best way to secure it was by increasing the membership. There were in the State to-day nearly 4,000 physicians, non-members of this Society, who were eligible for membership in both the State and County organizations. Many of them would join if they were only asked to do so. Personal solicitation would accomplish much more than circular letters. The Treasurer's report for the year 1908 showed that the income had exceeded the expenditures by $642.46, and this result had only been accomplished by economies that in many instances were not to the advantage of the organization. It should never be the aim of the Society to accumulate a surplus, but its many activities should be encouraged and increased. This was impossible with the limited funds at the disposal of the Finance Committee, and many legitimate requests for appropriations had to be denied and others curtailed. To remedy this state of affairs all that was necessary was to increase the membership.

Report of the Committee on Publication.—DR. J. C. BIERWIRTH, Chairman, reported the resignation of Dr. J. P. Warbasse as editor of the *Journal* and the appointment of Dr. A. T. Bristow. The Committee desired to call the attention of members to the desirability of continuing the method of exclusive publication of papers read before the Society. The expense of publication had exceeded the revenue by $2,916.16, which was $166.84 more than it was in 1907. Considering the financial depression and the restrictions as to advertisements placed upon the Committee by the House of Delegates, this showing was a creditable one. The directory for 1908 was issued during the month of October, and contained 62 pages more than the previous year. The sales in New Jersey and Connecticut were small. The cost of the directory for 1908 was $7,031.86.

Report of the Committee on Public Health.—DR. JOHN L. HEFFRON, Chairman, reviewed the relations of the State and County Medical Societies to the Department of Health in the State and in the various counties in the State. The inauguration of County Bacteriological Laboratories was no longer legally impossible and many counties had taken advantage of the law and had established well-equipped laboratories. The recognition of a Department of Public Health by the national government now seemed certain. If the incoming administration failed to establish it, it would be because public sentiment was not yet sufficiently strong to force it through.

Report of the Counsel.—JAMES TAYLOR LEWIS transmitted this report. No verdict had ever been recorded against a member in any action defended by the counsel. Up to the present time the counsel had been required to defend actions for alleged malpractice in thirty-nine counties of the State. It was to be noted that there was a slight increase in malpractice actions where conspiracy, assault, or improper certification of insanity was sought to be litigated. There was evidence of increase in the abandonment of cases brought as soon as the State Society appeared by attorney for the defendant, which was perhaps the best proof of the effect which organized defence was creating in the minds of the public. The percentage of blackmailing malpractice cases had decreased and the percentage of bona fide malpractice actions had increased. Appended was a list of the new cases brought during the year 1908. He said it might be of interest, as indicating the successful progress of malpractice defense, to give the number of new cases brought for the three years last past. There were brought in 1906 thirty actions, in 1907 twenty-two, and in 1908 twenty-one, during all of which period the State Society had increased in "paid-up" membership. The amount involved in malpractice actions brought against members of the Society since the organization of the defense aggregated upward of five thousand dollars ($5,000). There were now on the counsel's books twenty three suits not finally determined.

Tuesday, January 26—Second Day.

THE PRESIDENT, DR. ARTHUR G. ROOT OF ALBANY, IN THE CHAIR.

The meeting was called to order in the Common Council Chamber, City Hall, by the president. Rev. Dr. Kittell made a prayer. After reading the minutes of the last meeting, the program of the scientific session was taken up.

President's Address.—DR. ARTHUR G. ROOT of Albany made this address, taking as the title "The Physician and Law-Making." To those who made a study of the statutes that were annually produced by the law-makers of the State of New York the most cursory examination must prove convincing that in their preparation there was a painful lack of intimate knowledge necessary to make them effective. He called attention to the efforts on the part of the medical profession to put in operation reforms redounding to the public good. The medical profession of the State of New York had steadily and consistently applied itself to the study of hygiene, and to bringing before the legislature each year enactments calculated to promote a proper understanding and application of the rules that appertained to this important subject. Proper sanitation was vastly more important to the public weal than the protection of property rights. Technical knowledge of the subject was absolutely necessary to a proper construction of a statute intended to accomplish its object and to be effective in protecting the life of an individual. The laws looking to the suppression of contagious diseases and providing for isolation, quarantine, and fumigation had robbed smallpox, scarlet

fever, and diphtheria of much of their terrors. These laws had been the direct result of study and effort on the part of the medical profession. No one but a physician of training and practice would have been competent to frame them, and no class of men other than the physician would have been so inspired "pro bono publico" as to sacrifice time and effort to the extent necessary to place them in the body of their laws and bring about their rigid enforcement. That the individual who practised the learned and responsible profession of medicine should be properly equipped, had been the aim of the society of doctors of the State of New York. With the lives of countless numbers entrusted to his care, no breadth of understanding nor extent of technical knowledge could be too great for the physician who was properly equipped to practise his profession. Recognizing this, the standard of requirements for a license to practise medicine had been steadily and consistently raised. No one could deny that the proper judges of these matters were the medical men themselves. While liberty was given to all who were duly qualified, the ridiculous claim that each school or system of medical practice should have its separate examination had been definitely and finally disallowed, and the public permanently protected. The medical profession not only preserved its own high standard, but had protected the individual from useless and dangerous experimentation. In the great and growing domain of law-making the physician was the only natural and logical authority for the subjects which affected health and life. His training and experience had educated him for this application of his talents.

The Modern Hippocrates.—Dr. A. JACOBI of New York delivered an address with this title.

The Serum Treatment of Cerebrospinal Meningitis.—Dr. L. EMMETT HOLT of New York read this paper. The serum was obtained from a horse which had been immunized by injections derived from many strains of meningococcus. In making the spinal puncture he withdrew all the fluid which would come away readily. To facilitate the injection he raised the hips and lowered the head of the patient. The technique of puncture and injections required some experience. As the dosage had not yet been measured, the serum was given in c.c. and not in units. Thirty c.c. was the initial dose. During the epidemic in New York City in 1905 the Board of Health reported 2,700 cases, with a mortality of 73.5 per cent. The serum treatment had its limitations. It had no value in cases not due to the meningococcus. Dr. Holt reported some cases that had been treated by the serum of Flexner and Jobling. The following tables were shown:

RESULTS BY AGES

Ages	Number of Cases	Recovered	Died	Mortality
0–2	59	34	25	42.4
2–5	88	63	25	28.4
5–10	104	88	16	15.4
10–20	149	108	41	27.5
20 years and over	123	75	48	39.0
Totals	523	368	155	29.6

RESULTS ACCORDING TO THE TIME OF INJECTION

Ages	First 3 Days			4–7 Days			After 7 Days		
	Number	Died	Mortality	Number	Died	Mortality	Number	Died	Mortality
0–2	11	1	9.0	11	4	21.1	29	20	71.4
2–5	22	5	22.8	40	13	32.5	26	7	27.0
5–10	49	6	12.3	37	6	16.2	18	4	22.2
10–20	54	13	24.0	54	13	24.0	41	15	36.6
20 and over	36	16	44.5	46	17	37.0	41	15	36.6
Totals	172	41	23.9	98	53	27.4	155	61	39.3

Scarlatina.—Dr. HENRY A. FAIRBAIRN of Brooklyn read this paper and made the following conclusions: (1) Difficulty was involved in definition as illustrated by the atypical forms. No symptoms were diagnostic. (2) The severity depended on the part played by the streptococcus, this germ being the basis of most of the complications. (3) The differential leucocytic count indicated pus in the absence of a rise of temperature. (4) An important factor in the treatment was attention to the skin and the toxemias. (5) The use of antitoxins heretofore had been directed against the streptococcic poison. He suggested that as the desquamation of the scales produced the disease long after the streptococci had disappeared, these should be used to obtain a vaccine or antitoxin. The streptococcus had not been found in them after a period of ninety days. (6) Quarantine should be abandoned after the first thorough desquamation. As one attack of scarlet fever generally protected the individual against others, it would seem that this serum might be used as an antiscarlatina serum. The amount of blood required for such a purpose in an individual case was small. It could frequently be obtained from a parent or relative of the patient. Its use would be attended with no risk, and possibly might be of great advantage.

Physical Training of Children.—Dr. F. W. SEARS of Binghamton read this paper. The vast majority of school children were stoop shouldered. The mental development of children was better attained by a better physical well being. He called attention to the condition of the students at West Point and Annapolis. He believed that four years of military training should be a requirement for citizenship. The fundamental part of military life was the care of the individual.

Glandular (Pfeiffer's) Fever.—Dr. W. B. GARLOCK of Little Falls said that glandular fever was a term first used by Pfeiffer in 1899. It was a sporadic or epidemic infectious disease usually occurring in children between the ages of two and ten; it might occur in adults. As a rule there was no general glandular involvement. The spleen and liver were generally tender. There was no tendency for the glands to break down. The symptoms seemed to be incident to the febrile movement. Some cases had been subjected to laboratory tests, but with negative results. Some writers claimed that the disease gained entrance through the nose and pharynx; others through the intestines. The prognosis was good, and no complications had been reported except the glandular suppuration and congestion of the retina, and these were rare. The treatment was symptomatic. He reported one case.

Dr. LEONARD W. BACON of New Haven, Conn., reported a case of glandular fever occurring in a student, which looked like a case of Hodgkin's disease. The source of the infection apparently was from the intestinal tract. It was a toxic adenitis.

Improvement in the Technique of Extraction of Cataract.—Dr. LUCIEN HOWE of Buffalo read this paper. Attention was called first to the fixation of the globe, and to a pair of forceps for accomplishing this. In the usual method of holding the conjunctiva with forceps in order to steady the globe, the conjunctiva often tore, and the globe rolled upward. This occurred even when the conjunctiva was caught with double forceps at two places. To obviate this difficulty a pair of double forceps had been so arranged as to grasp not only the conjunctiva, but also the tendon of the external and the internal rectus. The globe was thus held firmly, facilitating the puncture and counter puncture, and completion of the usual Graefe incision. The second point related to the method of extracting the lens in cases in which the lens presented properly in the wound, but could not be easily expelled. Instead of increasing the

pressure on the globe to a degree which rendered the escape of vitreous dangerous, a pair of delicate forceps had been constructed, with which to disengage the lens, and assisted in drawing it forward. Both of these forms of forceps had been used a sufficient number of times to prove their usefulness.

Dr. E. A. Davis of New York believed that any instrument which caught hold of the lens in this operation was of great aid.

Dr. Julien A. Gehrung of New York said that a vote of thanks should be tendered Dr. Howe because he simplified this operation very materially with the use of this instrument.

Meller's Operation for the Removal of the Tear Sac, with Report of Cases.—Dr. A. Edward Davis of New York read this paper. He said that a thorough knowledge of the anatomy of the lacrymal sac and the neighboring structures and a proper understanding of the relative position of the internal palpebral ligament and the anterior lacrymal crest were altogether essential in performing a successful extirpation of the tear-sac. The bloodiness of, and the great length of time required to perform the operation, together with the necessity of giving a general anesthetic had heretofore made this a formidable operation. As Dr. H. Knapp said, "extirpation of the sac is as radical an operation as an amputation, which, I repeat, should not be resorted to unless other methods of treatment have failed." Meller's operation was performed under cocaine in a relatively short time, 30 to 40 minutes, and as a rule was bloodless. The incision was made to the nasal side and above the internal canthus, and followed the anterior lacrymal crest for the distance of about two centimeters, care being taken throughout the operation not to wound the cornea and cause infection. The incision was continued through the superficial fascia, the orbicular muscle, and the deep fascia, thus exposing the sac, which was then freed by cutting the lacrymal ducts with the scissors, not tearing them away from the sac with the closed scissors, as this would likely tear away a part of the sac wall. After its removal a few drops of cocaine were instilled into the wound and the wound packed temporarily to stop all bleeding. The sac should then be stretched over a probe to make sure of its complete removal. This was important, for if any portion of the sac wall remained it should be dissected away before the wound was closed; otherwise annoying secretion continued and the success of the operation was nullified. The lacrymonasal duct should next be curetted by a small, sharp, chalazion curette, thus removing all particles of the mucous membrane which might cause the continuance of secretion. Particular care should be taken in closing the wound; that the wound edges were accurately approximated and the sutures not too tightly drawn. The operation for the removal of the tear sac was indicated first by chronic inflammation of the sac which could not be cured otherwise or had resisted treatment for a long period of time, as in such conditions as the following: (1) Large mucocele, chronic lacrymal fistula, excepting congenital capillary fistulæ. (2) Chronic stricture of the nasal duct. (3) Chronic catarrhal dacryocystitis with repeated attacks of acute phlegmonous inflammation, and ulcers of the cornea complicating this disease. (4) When an operation on the ball of the eye, as extraction of cataract, iridectomy, paracentesis, etc., was to be made on the affected side. The local anesthetic was administered by means of a hypodermic syringe with a capacity of about 1 c.c. The solution used was 1 per cent. cocaine and adrenalin chloride 1/1000, in the proportion of about 8 to 9 parts cocaine to 1 or 2 parts adrenalin. One-third of this solution was injected under the skin in the line of the intended wound; one-third of it deep in down to the periosteum immediately above the top of the lacrymal sac, just above the horizontal portion of the internal palpebral ligament; and one-third of it at the lower end of the sac deep in near the periosteum. The operation could be begun in two or three minutes after the injections were made. Five cases were reported by Dr. Davis, all of which healed by primary union, with excellent results. In no case was there much hemorrhage.

Ophthalmia Neonatorum.—Dr. Julien A. Gehrung of New York believed that the instillation of a 2 per cent. solution of silver nitrate into the eye was too irritating, and he called attention to his modification of the Credé method when the head was born. Later when the child had been cleaned and dressed, and the nurse's hands had been disinfected, the baby's eyes should again be cleansed and one drop of a 1 per cent. silver solution should be dropped into each eye, and this should be followed by a salt solution or a solution of adrenalin chloride 1-5000. This latter solution acted as an anesthetic and neutralized the action of the silver. He offered a resolution that it was the opinion of the Medical Society of the State of New York that any case of ophthalmia neonatorum proved the attendant upon that case neglectful and liable to damages for the loss of sight.

Dr. Herman J. Boldt of New York offered a resolution that there be formed a State Committee, which should communicate with each board of health and county society, and that a method should be adopted of stopping this disease, and that the State should make sufficient appropriations to the State Board of Health to carry on this work.

Dr. Gehrung withdrew his resolution.

The resolution of Dr. Boldt was referred to the House of Delegates for consideration.

Intramuscular Injections in the Treatment of Syphilis.—Dr. Victor C. Pedersen of New York read this paper. He described the injection points, six in number. By using them the same point was not used again until thirteen weeks had elapsed, the injections being given once a week. Placing the patient in such a position that would relax the glutei muscles made the injections less painful. More or less distress attended these injections. Dr. Pedersen had tried a 20 per cent. solution of salicylate of mercury, and in over three hundred injections he got good results, but the solution should be well shaken. He concluded his paper as follows: After having given or been officially responsible for something over 5,000 injections in three and a half years, he was convinced of the following facts and advantages in this method of treating syphilis: (1) The injection method of treating syphilis was the most efficient of all methods. (2) It kept the patient best under control of the physicion because he must return once or twice a week for his injections and for other treatment as needed by perhaps new symptoms. (3) Although the medicine used was an antiseptic the injection was a surgical procedure, and as such required the usual precautions of sterilization of the skin and of all instruments used. Rigid asepsis must never be neglected. (4) If the injections were slowly and gently given, with a long needle, and if the patient was in the proper position of relaxed glutei, they were in most cases virtually painless. If painful, the patient might be told that they were exactly like a bruise and of no more importance. In the bruise the extravasated blood was the foreign body, while in the injection the medicine was the foreign body, causing the slight pain by separation of the muscle fibers. (5) Node formation of longer duration than two or three days was very rare if the injection was gently and deeply made into the muscle. (6) Abscess formation might be totally avoided if sterilized fluid, needle, and skin were obtained. (7) Embolism was a real danger, but it was in fact very uncommon; in the writer's experience a little less than once in 1,000 injections. (8) Toxic accumulation was hardly excusable if palpation of

the point of the preceding injection was made at each visit, before giving the next injection. (9) The salicylate of mercury appeared to be so satisfactory that no other salt needed to be considered. The terms soluble and insoluble salts, meaning as they did laboratory solubility, were unfortunate. The soluble salts, of which the bichloride was the type, gave a very prompt and extreme reaction during the first twenty-four hours. The so-called insoluble salts, with the salicylate as a type, gave a slower, surer, and more prolonged reaction, apparently lasting five days. (10) Continuation of the injection was, so far as his experience was concerned, necessary for the usual two or three years, with one or two month's rest in each year. (11) Of course the patient's strength must be maintained at the highest possible level, and, in short, the disease must be managed like other parasitic diseases, of which tuberculosis was a type, that was, plenty of fresh air, good food, judicious exercise, and hygienic habits.

Some of the Problems Relating to Prostatectomy.—Dr. L. Bolton Bangs of New York read this paper. He believed that more careful discrimination should be exercised as to the cases operated on, and reported illustrative cases. Careful preliminary treatment should always be given. After perineal operations the fistulæ are very troublesome, and he had treated them by injections of solutions of iodine with a long and suitable sinus syringe. Dr. Bangs called attention to the possibility of the formation of postoperative stone.

Some Further Observations on Prostatectomy Based on One Hundred Cases.—Dr. J. Bently Squier of New York read this paper, calling attention to certain details in the technique in both the suprapubic and perineal operation, and reported some cases. The most frequent causes of death were uremia, sepsis, and shock.

Untoward Results from Diphtheria Antitoxin, with Special Reference to Its Relation to Asthma.—Dr. Herbert F. Gillette of Cuba said that he had published a letter about one year ago asking for reports of cases in which the injections of diphtheria antitoxin had been followed by alarming symptoms or death, especially noting whether there was any history of asthma in the cases. Out of about forty answers received the information was definite and positive concerning twenty-three cases. Sixteen of the twenty-three histories gave a history of some form of respiratory distress. Six of the sixteen cases resulted in death, and ten of the sixteen went into a state of collapse, with final recovery. Seven of the twenty-three cases gave no history of respiratory distress, and that fact was definitely determined. Four of the seven patients died and three patients went into collapse and finally recovered. The conclusions, based upon the reports received, were as follows: (1) There was a certain element of danger if horse-serum was used in subjects who suffered from any form of respiratory embarrassment, such as asthma, the so-called cardiac or renal asthma, or hay fever. (2) Collapse or death was accompanied by a respiratory crisis, and, when death occurred, it took place usually in less than ten minutes from the time of injection. (3) The administration of any form of horse-serum was liable to cause collapse or death, if the subject suffered from respiratory distress, and it was not due to any form of toxin or antitoxin, nor to any errors on the part of the maker of the serum, nor to age of the serum; but it was due to some highly organized protein which was present in the serum, and it was the reaction of the protein which caused the crisis. This reaction took place only under certain conditions. (4) The heart continued to act long after respiration had ceased. The report made by Dr. Gillette was only a preliminary one.

Epilepsy.—Dr. W. H. Kidder of Oswego said the uniform statements among all writers on symptomatology and diagnosis of epilepsy was striking. He treated of possible causes, especially the peripheral irritations which might cause an outbreak of a "latent" attack of epilepsy. Certain foods were recommended for epileptics, especially in childhood. Mistakes were made in the eating as well as the selection of food. Epileptics should never indulge in alcoholic beverages. They should be taught the art of self-control. The disease should be taken in its *ensemble* and proper lines of physical and mental hygiene with purposeful endeavors would guide the mental tendencies.

Short-duration Typhoid Fever.—Dr. Warren Coleman of New York read this paper. He said the term "short-duration" typhoid fever was used to include all types of the disease which lasted two weeks or less. This study was undertaken to discover the nature of the mild indefinite fevers, without obvious cause, lasting from about one to about two weeks, which were seen in Bellevue Hospital during every typhoid season. The recovery of the typhoid bacillus from the blood of several of them led to a review of the entire subject of the occurrence and diagnosis of the irregular forms of typhoid fever. An astonishing state of confusion existed in the literature concerning the milder and shorter forms of typhoid fever. The history of the diagnosis of the disease fell readily into two periods: (1) The period before the introduction of exact methods of diagnosis; (2) the period since the application of the Gruber reaction by Widal to the diagnosis of typhoid fever and the general employment of bacteriological methods in the diagnosis of the disease. Since there was no pathognomonic symptom of typhoid fever, the diagnosis of the disease in the first period was necessarily a matter of opinion and in disputed cases was decided by the "weight of authority." Though the occurrence of mild forms was known very early in the history of typhoid fever, and though they were frequently described, there grew up an extensive literature on mild fevers which were not generally, at least, considered to be typhoid—such, for example, as febricula, simple continued fever, mountain fever, etc. Fortunately, these terms had been for the most part discarded. In the second period the attempt had been made by a few investigators to establish, by means of exact methods of diagnosis, the identity of some of these fevers with typhoid. But when the epidemiological importance of the subject was considered, it must be admitted that the study of the milder forms of typhoid fever had been greatly neglected. No one had yet undertaken to study the bacteriology of the blood in these cases. Few of the milder forms of any disease came into Bellevue Hospital; nevertheless, in the last five years, exclusive of 1908, 10 per cent. of 229 cases of typhoid fever on the Second Medical Division had been of the short-duration variety. The proportion of mild to severe cases varied in the different years. In 1904 they constituted 25 per cent. of the typhoids. The diagnosis in twenty of the twenty-four cases was not open to doubt since it rested either upon a positive serum reaction or upon a positive blood culture. The four remaining cases were diagnosticated upon clinical evidence only, and therefore were doubtful. The symptoms of short-duration typhoid fever were not discussed as they had been so well described by Curschmann and others. Several temperature charts, however, were exhibited to illustrate in a general way the course of these forms. If one might judge from the literature, the diagnosis of mild typhoid fever was not often made. Reed, Vaughan, and Shakespeare stated after an analysis of the mortality statistics of typhoid fever in several of the larger cities of the country that "in these cities—a large percentage of the cases of this disease are not recognized as typhoid fever." Lafforgue said: "The true nature of these forms is not often recognized." Likewise, almost no attention was given in the standard American text-books to the short-duration types of typhoid fever. The diagnosis of short-duration typhoid fever could not be proven without

the assistance of laboratory methods. The fact was well known that a patient's serum might give a positive reaction to the typhoid bacillus when the patient was not suffering from typhoid fever, *e. g.*, typhoid cholecystitis and typhoid bacillus carriers. But if a positive reaction appeared transiently during the course of a febrile disease, not obviously due to some other cause, the diagnosis of typhoid fever was reasonably certain. Negative serum reactions possessed no diagnostic value unless they were obtained daily throughout the febrile period and well into convalescence. Bacteriological examinations of the blood could not be made unless one had access to a well-equipped laboratory and therefore would not be of much assistance to the general practitioner. Positive bacteriological examinations of the stools and urine did not necessarily prove that the patient had or had had typhoid fever. Finally, attention was called to the urgent need, from the epidemiological standpoint, of a more thorough study of short-duration and irregular forms of typhoid fever.

Voluntary Patients in State Hospitals for the Insane.—Dr. Albert Warren Ferris of New York read this paper. He said that this was their problem. On October 1, 1905, in the fifteen hospitals for the insane in this State, there were 26,423 patients. On October 1, 1908, there were 29,431 patients. For many years the incidence of insanity in New York State had been such that over 6,000 new cases were received annually into the State hospitals. While about 2,000 patients died annually, and many were discharged, recovered or improved, the average net increase had been 715 each year. On October 1, 1907, the net increase was 750, and on October 1, 1908, at the close of the fiscal year, they found their net increase had mounted to 1,247. To meet this condition enlargements to existing hospitals had been made year by year, as fast as money could be obtained for the purpose. The general policy had been as practised by physicians and friends of patients to encourage delay until the insanity was well established and certification, adjudication and commitment were necessary. Many justices claimed that all cases of alleged insanity should be taken into court in order that they, without knowledge of psychiatry in the vast majority of instances, might decide the matter and dismiss or commit. The damage thus done to the patient was not considered, but might never be repaired. Professor Adolf Meyer, Director of the Psychiatric Institute of the New York State Hospitals for the Insane, made the very happy suggestion that a procedure resembling quarantine should be adopted for the protection of the family and the community, and especially for the benefit of the patient. In this way "stigma" was avoided and the patient was not subjected to a court proceeding which classed him with the criminal. Thus all abuse of insane patients in jails and lockups would be avoided. To accomplish most successfully the results at which modern psychiatry aimed, cases of mental disorder should be seen early. The incipient case, the borderline case, must be reached and saved from a profound psychosis, by encouraging voluntary application for early treatment when the mental equilibrium began to waver. The State Commission in Lunacy had ordered that no patient could be admitted as voluntary "whose mind is so impaired as to render him incapable of forming a rational judgment as to the disposition of his person, or whose will is too weak as to render him incapable of resisting influence." The Commission also held that "voluntary admissions were patients whose liberty was not restricted, who were not insane within the meaning of the statute and who voluntarily remained under care and treatment." At the session of the State Legislature of 1908 the Commission introduced a bill so amending the Insanity Law as to provide for the admission into all the State hospitals except Matteawan and Dannemora of voluntary patients upon their written application, pursuant to regulations of the Commission. The Commission had ruled that no alcoholic patients without definite psychoses and no cases of drug habit without psychoses should be thus admitted. Admission of voluntary patients had proved a success in Pennsylvania, Illinois, and especially Massachusetts. In McLean Hospital, Waverly, Mass., about 35 per cent. of the patients were admitted as voluntary. Its percentage of recoveries averaged nearly 29. Their duty was to ascertain the causes of the alarming overproduction of insanity; to teach the people what were the dangers to avoid; to restrict, by law, demoralizing influences; and while there was still easy access to the patient's confidence and to his real thoughts, to adjust him to his environment, explain and harmonize his troubles and relieve his physical disorders. To accomplish these things successfully and to any extent, the patient must be seen very early. Hence, the voluntary admissions.

Dr. R. H. Hutchings of Ogdensburg said that he thought it might be interesting to the members of the society to learn of the experience at Ogdensburg with voluntary commitments. This law had been in operation since last June. Only nine patients had been admitted under the act. All came realizing that something was wrong with their minds. He related the histories of three cases; the patients were not insane, but were drifting that way.

Dr. William S. Ely of Rochester emphasized the importance of having psychiatric wards in every general hospital.

Dr. Edward D. Fisher of New York favored the early treatment of such cases and believed Dr. Ely's suggestion was good.

Dr. W. H. Kidder of Oswego said that civilization was so complicated that a greater and greater number of people could not adjust themselves to their environment.

Dr. Ferris said that the State Commission in Lunacy agreed with Dr. Ely and Dr. Fisher, and would like to have psycopathic wards in every general hospital, but required that those patients who voluntarily committed themselves should have the same care as the advanced cases. There should be a resident physician for their care. He asked that the patients should be sent in earlier; by so doing they could be sent out earlier. This would be a saving of money for the State. He asked that the appropriations for State hospitals be not cut down, but that patients be sent in earlier. The cost per annum of each patient in the State hospitals was very low, $179.60.

The First Interview with the Patient.—Dr. William S. Ely of Rochester said that the first examination of a patient was often inadequate and led to erroneous diagnoses. In his paper he considered four phases of the subject: (1) Search for causes of numerous disturbances that often received only symptomatic treatment; (2) the correct estimate of nutritive changes. He believed that scales were as important as a microscope in the physician's office. (3) He called attention to the significance of heredity, and said that both moral and physical disturbances were often due to hereditary influences. Every one had hereditary limitations which largely explained problems of insanity, criminality, degeneracy, and accounted for differences between individuals in health and when diseased. (4) The psychical aspects of many disorders were largely neglected. This neglect accounted for the existence of Christian Science and like cults, and reflected unfairly upon the medical profession.

X-Ray Treatment of Leukemia.—Dr. W. J. Schuyler of Utica reported a case of successful treatment of leukemia by means of the *x*-ray.

Brief Review of the Application of Roentgen Rays in Diagnosis.—Dr. E. W. Caldwell of New York spoke of the limitations of early work in *x*-ray diagnosis. Its development should include new applications. Dr Caldwell presented some lantern slides showing (1) the localization of foreign bodies, (2) fractures and dislocations;

(3) bone diseases; (4) urinary calculi; (5) pulmonary tuberculosis; (6) tumors of the mediastinum; (7) empyema of the accessory sinuses, and (8) dental applications.

Officers.—The result of the election of officers was then announced as follows: *President,* Dr. Charles P. Stockton of Buffalo; *First Vice-President,* Dr. D. C. Moriarta of Saratoga Springs; *Second Vice-President,* Dr. J. H. Glass of Utica; *Third Vice-President,* Dr. J. B. Harvie of Troy; *Secretary,* Dr. Wisner R. Townsend of New York; *Treasurer,* Dr. Alexander Lambert of New York.

Symposium on Middle-ear Disease.—The evening's session was largely devoted to a symposium on infections of the middle ear, of interest to the general practitioner.

Otitis Media Purulenta; Etiology and Pathology.—Dr. J. E. Sheppard of Brooklyn read this paper. He said the immediate exciting causes of otitis media purulenta were the various forms of pyogenic bacteria. In addition, catarrhal inflammations of the nose and nasopharynx due to colds, influenza, exanthemata, as well as direct irritation due to operative interference, forcible inflation, douches, etc., acted as exciting causes. Among the predisposing cases he mentioned obstructive affections of the nose and throat, hypertrophies, adenoids, exposure to cold, diatheses, lowered resistance of tissue cells, etc. The pathology showed an injection of blood-vessels, swelling of the mucosa, exudation, serous, mucous, and purulent, erosion and ulceration with necrosis of this membrane, rupture of the membrana tympani, bone necrosis in various directions, etc.

Modern Methods of Nonoperative Treatment in Suppurative Otitis Media.—Dr. Edmund Prince Fowler of New York City called attention to the necessity of local treatment in suppurative otitis media and the importance of routine home treatment by the patient or nurse, especially as 98 per cent. of the time patients were out of sight of the surgeon, and must be instructed and provided with means to efficiently carry out orders. The dangers from neglect of faulty treatment and care were dwelt upon and the object of treatment was stated to be not only the abortion, shortening, and cure of the disease, but also the prevention of complications, preservation of function, and of the patient's general health, which latter was liable to suffer from long continued suppurations. The means and methods of promoting an adequate reaction by increasing the hyperemia, leucocytosis, phagocytosis, opsonins, etc., were then briefly recounted. The physical means used were heat, counterirritation, constriction by neckbands, suction, cupping, irrigations, dry treatment, antiseptics, caustics, and blood letting. The author believed that all these had their advantages and disadvantages, and that the best method of using them consisted in combining all, except the caustic treatment and neckband, which, however, he also used, by using his suction bell ear douche, with suitable solutions and temperature. He claimed that by his method all the advantages of the dry and wet treatments were combined, and that their disadvantages were positively removed by irrigating in vacuo, and that the tendency to premature closure of the incision in the drum membrane, and to adhesions, was largely eliminated by his method. Attention was called to the method in detail, and its simplicity, cleanliness, safety, and efficiency were dealt upon. The relief of pain was regularly accomplished without the use of drugs, and even chronic cases did not fail to respond to the treatment.

Dr. Wendell C. Phillips said that the purpose of his paper was to mention the surgical procedures employed in the treatment of acute and chronic purulent otitis media, to outline the indications which necessitated these procedures, and to emphasize their value and results. Bulging of the drum membrane, intense pain and fever, was a syndrome of sufficient import to warrant incision of the drum membrane. It was a safe rule to open the drum membrane as soon as the diagnosis of purulent tympanitis became positive. A clean-cut incision with a long, slender handled, small bladed scalpel, with the patient under nitrous oxide anesthesia, immediately relieved pressure, established drainage, and the subsequent healing of the wound took place with but little damage and no scar tissue. The patient should remain in bed until all acute symptoms had subsided. The most important procedure in intratympanic operations was the removal of polyps or granulation tissue, the most common symptom of which was otorrhea. This tissue was adventitious, and should be removed or destroyed. A simple method of removing large polyps was by means of a small aural snare. Ossiculectomy was an operation by which the drum membrane and ossicles were removed, and was employed as a means of curing chronic purulent otitis media by the removal of diseased tissue and the promotion of drainage and for rendering the tympanic walls more accessible to local treatment. The intratympanic operation was indicated: (1) When a purulent inflammatory process in the middle ear did not respond to local measures of treatment in cases wherein the diseased process was chiefly confined to the drum membrane, ossicles, and tympanic walls. (2) After recurrence of polypiod proliferations, unless such recurrence was associated with evidences of extensive necrosis in the auditus, mastoid antrum, or labyrinth. (3) As a preliminary to the radical operation. Recovery in these cases meant a cessation of the otorrhea. The operation was not wholly without danger. The facial nerve might be injured. The simple mastoid operation was indicated whenever a purulent inflammatory process had invaded the mastoid antrum and mastoid cells with the following indications: (1) Pain over the mastoid region. (2) Tenderness on pressure over the mastoid cortex. (3) Drooping of the posterosuperior canal wall, and bulging of the drum membrane which did not diminish as a result of paracentesis. (4) Fever. (5) Discharge. (6) Subperiosteal postauricular swelling, with or without superficial abscess. The operation was imperative in the presence of symptoms of intracranial complications of purulent labyrinthinitis. (8) the avdent of facial paralysis. (9) Blood examinations in conjunction with other symptoms of mastoiditis was of great diagnostic value. A high leucocytoses and polynuclear percentage indicated the presence of infection in some portion of the body. The mastoid operation in an acute mastoiditis quickly terminated a purulent necrotic process which otherwise might become chronic and attended with all the train of deleterious and dangerous results which accompanied this troublesome affection. To mention them was sufficient: Necrosis of bony areas which were closely related to vital structures; the prolonged and constant danger of serious labyrinthine and intracranial complications; loss of hearing. There were some indications which called for immediate operation, whatever the concomitant symptoms might be, and among these were (*a*) an acute mastoiditis occurring in an ear which was the seat of chronic purulent otorrhea; (*b*) the advent of symptoms of labyrinthitis, the chief of which were nausea, vertigo, and nystagmus; (*c*) the appearance of facial paralysis; (*d*) the appearance of symptoms of intracranial involvement. The results of the simple mastoid operation were the relief of pain, the cure of the destructive purulent process, the preservation of the function of hearing, and it lessened the tendency to serious intracranial and labyrinthine complications, and the possibilities of recurrences were rare. The radical mastoid operation was performed for the cure of chronic purulent otitis media, by which he meant a number of pathological conditions in the middle ear spaces, all having one symptom in common, viz., a persistent otorrhea. The more common conditions producing a persistent otorrhea were (*a*) bone necrosis, confined to various parts of the temporal bone; (*b*) tubercular or

syphilitic bone disease in the temporal bone; (c) purulent inflammatory disease of the lining membrane of the tympanic cavity and its adnexa. Briefly stated, the purpose of the radical mastoid operation was to convert the external auditory canal, tympanic cavity, the attic, aditus ad antrum, mastoid antrum, and the mastoid cells, when diseased, into one wide open cavity, to eviscerate all granulations and diseased bone, destroy all membranous and muscular tissue lying within these limits, including the membrana tympani, and to effect dermatization throughout the entire area, in the hope that by so doing the ramifications of the disease would be terminated. The radical operation was indicated: (1) When a permanent cessation of the purulent process had not been effected by prolonged local intratympanic treatment; (2) when a cure had not been effected by the removal of necrosed ossicles and the curettage of the middle ear; (3) when a sudden cessation of the pus discharge produced chills, fever, vertigo, pain, or other unusual symptoms; (4) when symptoms of mastoiditis supervened in otitis media purulenta chronica; (5) the appearance of facial paralysis during the course of chronic purulent otitis media; (6) attacks of vertigo; (7) in all cases of complicating intracranial or lateral sinus involvement; (8) where there was positive evidence of cholesteatoma in the mastoid antrum; (9) where there were fistulous openings in the cortex of the mastoid process or in the osseous canal; (10) whenever depression or other symptoms of disturbed mentality accompanied the disease. The operation was contraindicated (1) when the purulent process was tuberculous and accompanied by advanced general tuberculosis; (2) in advanced pernicious anemia or albuminuria, and in cachectic diabetes; (3) it was usually contraindicated in young children; (4) in all cases where the disease was confined to the ossicles and tympanic cavity; (5) in adults who had scanty otorrhea without odor, with improper opening on the drum membrane, behind which were retained masses of secretion; (6) in all cases where it was possible to effect a cure by any of the other methods.

The Treatment of Meningeal, Sinusal, and Labyrinthine Complications.—Dr. S. MacCuen Smith of Philadelphia read this paper.

Dr. Arthur G. Root of Albany, Dr. Henry A. Alderton of Brooklyn, Dr. T. Passmore Bereus of New York, Dr. Samuel J. Kopetsky of New York, and others discussed these papers.

Wednesday, January 27.—Third Day.

The Problem of Efficient Nursing for Persons of Moderate Income.—Dr. William O. Stillman of Albany read a paper which dealt with the subject from the standpoint of a practical experiment in educating domestic nurses for their duties by a six months' course of instruction in class and at the bedside. About one hundred lectures, by eighteen to twenty physicians and trained nurses, supplied the didactic part of the course. Quizzes were given on each lecture. The skeleton, manikins, microscope, etc., were used. Careful diet kitchen instruction was given in preparing food. Practical nursing under the supervision of the head nurse was required toward the end of the course.

Report of a Case of Scleroderma, with Exhibition of the Patient.—Dr. Samuel B. Ward and Dr. Erastus Corning of Albany reported this case. The patient was a male, twenty-six years old, married, and a clerk. He was first seen July 23, 1908. The onset occurred two months previous, commencing with stiffness of the hands and feet. There was also a feeling of numbness in the left wrist. This was followed by stiffness and swelling of the left hand, then of the right hand, of both forearms, both feet and legs up to the knee, with edema. The case was now in the atrophic stage and was apparently stationary. The leucocytosis had varied from 11,000 to 22,000, with 35.4 per cent. eosinophiles in the first differential count. Eosinophilia was fully discussed in connection with this case.

Relative Aortic Incompetency of Muscular Origin.—Dr. J. M. Anders of Philadelphia gave a classification of cases of relative aortic incompetency. The present discussion included only cases which were of muscular or neuromuscular origin. These might be placed into three well-defined divisions: (1) Cases of muscular and nervous origin that supervened in the course of fibrous myocarditis and other less serious conditions of the myocardium, independently of valvulitis or advanced changes in the aorta; (2) cases secondary to chronic valvulitis affecting the mitral segments with failure of the left ventricle; (3) cases occurring in the course of or following acute infective diseases due to the action of the specific toxins upon the myocardium. The disappearance of the murmur might coincide with periods of absolute rest; on the other hand, increased activity of the circulation, the result of mental excitement and physical exercise tended to reproduce the murmur. The above views which were extensively supported by clinical and post-mortem observations were also corroborated by the convincing experimental experience furnished by Thayer and McCallum. Dr. Anders reported four illustrative cases.

The Nature of Foot and Mouth Disease.—Dr. Veranus A. Moore of Ithaca read this paper. This disease first appeared in this country in 1870 after the arrival of a shipment of cattle from England to Canada. The great loss sustained was from the loss of flesh and the debilitated condition of the animals, requiring several months for their restoration to health. Among the sequelæ were mentioned abscesses, sloughing of the hoofs, and septicemia. The mortality from this disease among animals was slight, being from 2 to 5 per cent. The symptoms and lesions appeared with such regularity that four stages were well defined by many writers. (1) The dullness and rise of temperature. (2) The appearance of the vesicles. (3) Erosion. (4) Healing. Any practical method of immunizing cattle against the disease had not yet been discovered. Foot and mouth disease which recently appeared in western New York and Pennsylvania was an acute infectious and highly contagious disease affecting large and small animals. Fresh, pure lymph injected into the veins of susceptible cattle produced the disease in quantities as low as .005 cc. Immunity established by one attack of the disease was of short duration. The vesicles appeared on and about the mouth, udder, and feet. The membrane covering them was thin, and soon broke, leaving the epithelial layer attached at the borders. The lesions in the human subject tended to appear in the same locations as in cattle.

The Relation of Ocular and Cardiovascular Diseases.—Dr. Arthur J. Bedell of Albany divided his subject into four heads, and related cases to illustrate each. First, the group in which there was an increased arterial tension without hemorrhage. Second, the group in which there was hemorrhage, but without valvular heart lesion. Third, the group in which there was a definite heart lesion. Fourth, the group in which there were evidences of distinct arteriosclerosis. The eye signs were described and their general significance to the general practitioner pointed out.

Lessons from Physiology and Treatment of Cardiovascular Diseases.—Dr. W. H. Gibson of Utica told of the apparent increase of cardiovascular diseases as noted in general practice, and its actual increase as shown by a study of the vital statistics. Therapeutic measures were useless after degenerative changes had ensued, and the value of preventive measures was suggested by a study

of the cardiovascular mechanism. The arterial changes were considered by him under four heads, viz., the chronic intoxications, as from alcohol, tobacco, the coal tar preparations, etc.; improper diet and overeating; excessive muscular work, and the strain and the stress of modern life. He said that interest in this should be aroused when it was known that 23,000 deaths occurred in one year from cardiovascular diseases, while from tuberculous diseases there were but 17,000 deaths during the same period.

Dr. J. M. Anders of Philadelphia said that a steady increase in the percentage of cardiovascular and renal diseases was noted by all in general practice, and he agreed with the reader of the paper that influenza might have a causative relationship. Another causative factor was the modern overstrain of business life, as well as of social and club life. More physical exercise was required.

Baths and Exercise in the Treatment of Heart Disease.—Dr. Louis Faugères Bishop of New York believed that the benefits derived from exercise and baths in the treatment of heart disease were essentially due to correction of abnormal tension in the blood-vessels and in the heart muscle. Abnormal tension might be low tension or high tension. Throughout the cardiovascular system the muscular elements during life had a certain amount of contraction that existed all the time, and was called "tonus." This tonus was a permanent condition, and was best appreciated by its absolute loss when life ceased. Disorders of the circulation depended upon local or general disturbance of tone, and it was through this disturbance of tone that organic disease of the heart and blood-vessels gave evident symptoms. In valvular disease when compensation failed, there was found a loss of tonicity in the heart muscle leading to dilatation, and a hypertonicity in the blood-vessels leading to contraction. The same condition was sometimes found when toxic substances impaired the strength of the heart muscle. In treatment the removal of the primary cause and the relief of the disorded physiology that had resulted must go hand in hand. The Nauheim-Schott treatment was applicable to all cases in which there was a disturbance of the balance of tonicity between one part of the vascular system and another. When the cause of disease was active, that must first be discovered and removed. Dr. Bishop considered valvular cases, toxic cases, and nervous cases, and cases combining these causes. The valvular cases were those in which the heart valves had been damaged by disease, and in which compensation had been broken. The physician could not, in this instance, remove the ultimate cause of the broken compensation. Broken compensation ordinarily, but not always, consisted of a diminished tone in the heart muscle with a compensatory increased tone in the blood-vessels. The cause of broken compensation might be toxic or nervous, or might have origin in physical strain. In any case, it was necessary to restore the tone of the heart muscle, and to relieve the overtone of the blood-vessels. The patient would often enough be found to have been overloading the system with food, or to have been neglecting systematic exercise, or to have been subject to nervous or physical strain. An intercurrent disease could produce the same result. The symptoms of broken compensation in a valvular case were shortness of breath, swelling of the feet, and congestion and tenderness of the liver. A trip to Germany often removed the cause of the trouble before the patient came under treatment. The vacation, the necessary physical exertion of travel, the possible seasickness, and, at any rate, the irregularities of food, served to unload the system of waste products, to increase various physiological activities, and to remove nerve strain. The Nauheim baths corrected abnormal vascular tone, and relieved the heart of the back strain of contracted blood-vessels and promoted the restoration of the tone of the heart muscle. The resistance exercises through the influence upon the tone of the voluntary muscles, in a greater measure than the baths corrected abnormal vascular tone, and also increased the tone of the heart muscle. The toxic cases of heart disease formed a very important group. They were the cases of patients who had probably been said to suffer from heart symptoms coming from the stomach, while in reality they were suffering from a poisoned heart muscle that had degenerated through toxins of intestinal origin. An examination of many thousand specimens of urine had shown an intimate relationship between indican and albumin in the urine, and between indican and patients suffering from myocardial degeneration. These patients suffered also from damage to the blood-vessels. The first symptoms were irregularities of tonus of various distribution. They must be treated until they were relieved. Going hand in hand with the toxic cases were those of nervous origin. It was perfectly possible for purely mental causes to give origin to hypertonicity of the blood-vessel of sufficient intensity to cause hypertrophy of the heart, high blood pressure, and cardiovascular degeneration. These cases were particularly benefited by the Nauheim-Schott treatment when the patients could go to Germany to get it. This treatment was a system of treating cardiovascular disease that had grown up through the genius and observation of a generation of physicians all over the world. It had many elements, all of which were essential to the complete system. Unfortunately, it had been the custom to minimize the importance of the baths and exercise, because the change of environment was an essential element in the cure. There was no doubt that some patients would improve by the mere change of environment, and it was likewise true that some patients improved by the baths and exercise alone. However, he had defined the Nauheim-Schott treatment as a system, and not as a special remedy, and it seemed that all the elements were qually essential. The treatment could be carried out perfectly well in America by anyone who grasped the essential principles, and was not iron-bound by matters of pure technique. To produce in a patient's home surroundings, an environment of proper mental attitude, the persistent effort to follow up suitable exercise, and the regulation of diet, required an amount of authority, energy, and persistence that few physicians could bring to bear upon these patients in the course of routine medical practice. Hence, the necessity of specialists, and the influence of the "Kur." The reproduction of the saline bath was an easy matter, and trained gymnasts who understood the Nauheim treatment, while rare in this country, could still be found. The author had had this interesting experience that patients who had come from other cities in America for a course of Nauheim treatment in New York which was conducted at a convenient hotel or hospital received as much benefit as they did in going to Nauheim, and with no more labor on the part of the physician than was necessary for the Nauheim physicians themselves. In these cases there was a change of environment, the removal from the place of old habits, and the devotion of the individual to his treatment undisturbed by calls of social and business affairs. In fact, the intelligent patient who subsequently went to Nauheim said that the treatment in New York was at least as efficacious, if not more so. Baths and exercise had a large place in the treatment of cardiovascular disease, but they were not specific remedies, and must be a part of an intelligent general plan. The circulatory organs being the most active organs of physical life, their care must be an important element in the management of all disease. It was the work of the specialist to discover and point out the principles upon which this care must be conducted, and as much as possible to divest the cure of disease of unnecessary

technical details. When the principles were understood, the details followed as a matter of course.

Acute Anemia.—Dr. George W. Crile of Cleveland said that his paper dealt with one of the most ancient of surgical problems, acute or surgical anemia. Either partial or complete anemia had a definite pathology and histology, especially throughout the central nervous system. He spoke of the general circulatory conditions affecting the brain. An increase of hemorrhage increased the pathological tension, and increased still more the effect upon the vasomotor centers. In cases of critical anemia, the patient was partially anesthetized, and operation could be performed with the use of a local anesthetic. If an anesthetic was necessary, a few whiffs of nitrous oxide gas would suffice as a rule. The clinical experience fitted in with the experimental. In complete anemia of the extremities, they could resort to Carrel's technique of end-to-end anastomosis by the suture method. Dr. Crile had performed thirty-two anastomoses between arteries and veins in the human subject, using the radial artery of the donor and a larger vein of the recipient, or vice versa.

The Therapeutic Value of Blood Transfusion.—Dr. W. F. Campbell of Brooklyn read this paper. The object of the operation was to form an anastomosis between individuals. In the selection of the donor, three points should be kept in mind, a preference for the nearest blood relation, a young and vigorous adult, and a thin subject. Dr. Campbell described in detail the operation as performed by Crile, with a few modifications of his own. The indications of direct blood transfusion were dwelt upon. Coagulation of the blood was increased, as well as its oxygen-carrying powers. He related cases in which transfusion appeared to have been of great value. There was no doubt as to the great increase in the numerical elements of the blood following transfusion. There was also an increase in the urea output. It was to be hoped that heterogenous blood might become available. From his own experience the only material to use in transfusion was blood.

Dr. A. T. Bristow of Brooklyn reported a case in which it was shown that the transfusion of blood was far better than the use of saline solution. The patient had received three pints of saline solution and without any good results, and life was only saved by the direct transfusion of blood.

Dr. Alexander Lambert of New York referred to the case of a four-day-old baby suffering from melena who was saved by transfusion of blood. The sight of the marked improvement in the baby as a result of this was quite dramatic.

Dr. Crile said he wished especially to call attention to the great vulnerability of the cerebral cortex to anemia.

Some Congenital Abnormalities of Cervical or Spinal Origin.—Dr. Nathan Jacobson of Syracuse considered three conditions. First, branchial cysts in unusual positions, which he illustrated by reporting two cases, one situated beneath the sternocleoidomastoid muscle and easily removed through an incision parallel with the posterior border of this muscle; the second was a sublingual cyst. The former manifested itself first on the twenty-first day of life; the second was present at birth. The fact that congenital conditions might not develop so as to become annoying until adult life was emphasized. The condition called congenital ranula was considered, and Dr. Jacobson insisted that it was not due to obstruction of Wharton's duct, but was dependent upon either a pathological change in the sublingual gland or, what was more frequently the case than was generally recognized, that it might be of branchial origin, springing from the thyroglossal tract. Secondly, he considered thyroid tumors located in a part of the neck entirely removed and disconnected from the normal thyroid gland. A tumor of this character, and probably malignant, was removed from beneath the sternocleidomastoid muscle. Only seventeen cases of aberrant thyroid tumors were known to have been recorded in medical literature, and in none had a diagnosis been made prior to the operation. Thirdly, he dealt with spina bifida presenting urgent manifestations at birth. A case of spinal meningocele with necrosis of the sac was operated upon when the child was two days old. A perfect result was obtained by operation, and twenty months later the child was in apparently perfect health despite its congenital abnormality.

The Exercise of Descending in the Treatment of Disease.—Dr. Heinrich Stern of New York read this paper.

The afternoon's session was devoted to a symposium on fractures.

Basal Fractures Treated by Subtemporal Decompression.—Dr. Harvey Cushing of Baltimore read this paper.

Some Points in the Diagnosis and Operative Treatment of Simple Fractures.—Dr. Lewis A. Stimson of New York read this paper. The recognition of a complete fracture of a long bone was usually easy. If abnormal mobility and crepitus existed, the diagnosis was readily made. In fracture of the small bones and of the spongy ends of long bones, however, and in one of two parallel and associated bones, and even in fractures of the shaft of a long bone without displacement, both of these signs were frequently unobtainable. The probability of the existence of a fracture could be established by a systematic search for pain, pain on local pressure from without, pain on pressure along the long axis of the bone, and pain when the patient sought to use the affected bone against opposition, and thereby producing a cross-strain. The search for pain on local pressure was best made with the tip of the finger or the rubber end of a lead pencil. In Colles' fracture a well-defined line of sensitiveness could be traced along the radial side and across the dorsum of the forearm just above the wrist; in fracture at the base of the neck of the femur pain was found on pressure behind or in front just inside the great trochanter; in fracture of the surgical neck of the humerus by pressure in front or on the outer side; in fracture of the external condyle of the humerus by pressure on the supracondylar ridge a little above the epicondyle; in fracture of the shaft of a long bone by pressure at the corresponding point on the most accessible side. A necessary precaution to be taken was to carefully support the limb so that the pressure should not move the fragments upon one another. One must not mistake the sensitiveness of a bruise for that of a fracture. Pressure against the ends of a bone in the direction of its long axis caused pain when the bone was completely broken across, but it might fail to do so when the fracture separated a portion of the bone, such as a condyle. In fracture of the ulna, the radius remaining unbroken, pain was caused by asking the patient to extend the elbow in pressing against a fixed object.

Operative Treatment of Simple Fractures.—The reason advanced in favor of the general or extensive adoption of open operation in simple fracture of the shaft of a long bone was that it assured an accurate adjustment of the fragments and its maintenance by suture, and that in this way failure of union and the drawbacks incident to the frequent permanent displacement left by other methods were avoided. Accurate adjustment of the fragments was of no great value unless it could be maintained, and its maintenance by suture or other direct fixation was, at the best, uncertain. The more ardently the surgeon tried to obtain good fixation, the more closely he adjusted the fragments and the more tightly he tied the suture, by just

so much did he add to the probability of a total defeat of his efforts, for he established at the fracture conditions of leverage which went far to insure the immediate breaking of the suture by some one of those slight twists which could not fail to be given to the limb, even during the application of the first dressing to the wound. If the grip of the suture was not slack it would surely break. The value of an adjustment appeared to consist mainly, if not entirely, in the removal of interposed soft parts or small fragments which, if not removed, would delay or prevent reunion or cause persistent deformity. Such removal of possible obstacles to reunion played a rather large part in the arguments advanced in favor of operation, but the percentage of failure of union, in all cases, was small, probably not more than one or two per cent., and in the great majority of these the cause was not the interposition of a removable object. The claim that only by operation could an ideal restoration of form be obtained was one that appealed to the imagination, to the natural desire that the work should be of the highest class and results without blemish. Repair was slower after an operation in which the fragments had been temporarily still further displaced, as had to be done for the placing of a suture. The manipulation necessary in drilling and suturing the fragments delayed union, probably by the additional injury to the periosteum.

Fractures of the Neck of the Femur.—Dr. ROYAL WHITMAN of New York read this paper. He said that his paper was on a technical treatment of fracture of the neck of the femur designed to restore function, and limited therefore to a class of cases in which effective local treatment might be applied. This class was much larger than was indicated by statistics. For it was not generally recognized that the neck of the femur was a weak point in the skeleton and that it might be broken at any age by slight violence. Thus the fracture in early life was often mistaken for hip disease, and in the vigorous adult for contusion or rheumatism. The abduction method was designed to apply surgical principles to the treatment of this fracture, the disregard of which explained the present low standard of success. The patient should be anesthetized and the deformity should be corrected, by rotation and traction if the fragments were separated; by traction, downward pressure on the trochanter, and by the leverage of gentle abduction if the fracture were incomplete. The limb should then be placed in full abduction and securely fixed by a long spica plaster bandage. The advantages of abduction in the treatment of complete fracture after shortening had been overcome by traction were: (*a*) It made the capsule tense and thus aligned the displaced fragments. (*b*) It directed the surface of the outer fragment toward that of the inner. (*c*) It relaxed the muscles whose contraction caused distortion. (*d*) It opposed the trochanter to the side of the pelvis and thus checked upward displacement. In the treatment of incomplete fracture abduction by fixing the neck enabled one by further abduction, aided by traction and pressure, to adjust the shaft in its normal relation to it, and thus to correct deformity without violence or danger of displacement. Fixation in abduction and extension during repair, prevented the contraction which induced flexion and adduction, so often present in cases treated with the limb in the line of the body. Repair after this fracture must be slow, and could hardly be completed within a year, thus prolonged after-treatment was essential to restoration of function.

Radical Conservatism in the Treatment of Compound Fracture.—Dr. MARTIN B. TINKER of Ithaca said that the first essential in the treatment of compound fracture was the successful management of the lacerated and contused wound. The usual methods of treatment were uncertain and illogical. During scrubbing infectious material was often scrubbed into the wound rather than removed, and injured tissues were still further damaged by scrubbing and irrigation with antiseptic solutions and were left to slough. Two methods of dealing with such cases were suggested: (1) In the less severe injuries packing the wound with oiled tampons while the surrounding skin was scrubbed, and later swabbing with some strong, certain disinfectant, followed by excision of damaged tissue and closure as an incised wound. (2) In severe crushes where tissues were pulpified and it was certain that considerable areas would become necrotic, the wound was covered with oiled compresses, the surrounding skin was disinfected, the wound was swabbed with a powerful germicide and dressings applied until the line of demarcation formed. More of the injured part always lived than was expected and a later operation saved all that would prove useful. He advocated the use of local anesthesia and nerve-blocking to minimize shock. An immunizing dose of tetanus antitoxin should be given, in doubtful cases. Blood-vessel anastomosis, bone-grafting, and transplantation, skin-grafting, nerve and tendon suture, should be employed in a wider range of cases than was now usually employed. He presented photographs and radiographs showing an arm saved after being run over by a freight car; also a movable knee after compound, comminuted fracture of patella with soiling of joint cavity as the result of a kick of a horse; a foot saved after car-wheel crush; a useful hand and fingers after gunshot wound, and after buzz-saw injury. There was at present a tendency to neglect common surgical diseases and injuries in favor of the surgery of stomach, pancreas, brain, heart, and other unusual work. Hospital surgeons turned over fractures to internes without personal attention or even instructions. If results were to be improved, surgeons must give their best efforts to compound fractures.

Remote Results Following Excision of the Shoulder Joint for Trauma and Disease.—Dr. CHARLES L. SCUDDER of Boston read this paper, and referred to the conditions for which an excision of the shoulder was to be done, and the uncertainty of the results of an excision in the minds of the profession was emphasized. Many cases were reported and the results given.

Volkmann's Ischemic Paralysis and Contractures.—Dr. R. H. SAYRE of New York said that Volkmann's ischemic paralysis resulted from an undue pressure which was applied to an extremity, usually in the treatment of fracture. The inflammation of the muscles which resulted caused subsequent fibroid degeneration with marked contraction. Efforts to restore the vitality by means of massage and electricity had proven almost universally useless; therefore, operative procedures had been adopted.

A Case of Leukemia with Unusual Blood Findings.—Dr. H. G. WEBSTER of Brooklyn reported the case of a woman who gave a history of rheumatoid pains and progressive loss of flesh and strength for three years. The blood picture, on thorough examination, was that of myelogenous leukemia. Under treatment there were rapid changes to the lymphatic type, and then a gradual restitution to the normal. The subsequent development of the painful osseous tumors proved to be syphilitic.

New Plastic Operation for Cicatricial Palatopharyngeal Contractures and Adhesions.—Dr. JOHN O. ROE of Rochester told of the frequency of cicatricial contractures or occlusions of postnasal space resulting from ulceration or traumatism, as well as the difficulties encountered in the attempts at relieving the conditions because of the persistence with which the adhesions recurred. The permanent relief of the condition followed new plastic operations for covering the opposing raw surfaces, after the liberation of the adhesions, by mucous membranes taken from the neighboring parts.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

Two Hundred and Nineteenth Regular Meeting, Held December 11, 1908.

The Secretary, Dr. J. S. Thacher, in the Chair.

Facial Nevus Treated by Radium.—Dr. Robert Abbe showed this patient, a young woman, who came to him in the spring of the present year with an extensive nevus occupying the eye, nose, lip, cheek, and right temporal region. Under one treatment with radium the temporal part was nearly cured, the red areas giving place to patches of white skin that were velvety to the touch and quite normal in appearance. The advantage of radium over other methods consisted in the prevention of scars, such as were formed when the old method of treatment by means of the cautery was used. Radium sealed in a glass tube was used in this case, being moved over the entire surface, pressing for ten minutes on each successive spot covered by the little tube. Some tumefaction followed the application of radium, the symptoms of reaction continuing for two or three weeks. After this subsided normal white skin appeared at the areas that had been exposed to the action of the salt. Slight atrophy of the skin might result from the cured vascular tissue, but cicatricial tissue was never formed unless the application was overdone. Dr. L. Wickham of Paris had substituted a plaque for the radium tube, more even exposure being possible with the use of the former appliance. The plaque simply consisted of very strong radium mixed with varnish and spread over an even surface. Whether the tube or the plaque was used, the dosage should be carefully graduated; too long an exposure to the action of the salt resulted in atrophy of the skin; too little did not produce any curative effect. No untoward symptoms from any neighboring organs, such as the eyes, had been noted in exposing the temporal patch of nevus to the action of the radium salt.

Bone Pegs in the Treatment of Fractures of the Femur.—Dr. Abbe presented this patient, a scene shifter in a theater, who had both his femurs broken at the neck by the falling of a piece of scenery on his back while he was in a kneeling position. The case seemed hopeless so far as the attaining of good functional results were concerned. The use of bone pegs to hold the fractured parts was decided upon, and surprisingly good results were obtained with this technique. The patient recovered all the functions of the hip joint and could walk, run and jump with ease. The technique of using the pegs was very simple. Large pencil-shaped pieces of ox thigh bone were shaped and, after being sterilized, were simply driven through the broken parts, a small incision through the skin being all that was necessary to prevent laceration. The cancellous tissue of the femur offered but little resistance, so that no drilling of holes was necessary. An *x*-ray picture showed the peg in position, reaching horizontally through the trochanters and neck well into the head of the bone; a second picture, taken six months later, showed partial absorption of the pegs, their outlines being indistinct. It was probable that complete absorption would result within one year's time. The use of bone pegs had been followed by much better results than had been previously attained in similar cases with the use of screws and nails of metal. Any animal bone might be used to serve the purpose of pegs. A toothbrush handle, properly shaped and sterilized, had been successfully used once by Dr. Abbe.

Dr. Joseph D. Bryant said that the results in the case presented by Dr. Abbe were very good indeed, but heretofore failure had attended the use of metallic pegs in this connection in the majority of instances, so much so that the inclination to employ them had not kept pace with the opportunity. The technique employed by Dr. Abbe, namely, the driving in of the bone peg through a small skin incision, was much better than the making of a deeper incision for the purpose, for obvious reasons. It was important to remember, in his opinion, that impacted fractures should not be broken up because of the fact alone of impaction, but only when as the result of the impaction ungainly or obstructive deformity arising therefrom could be corrected or made less objectionable. The notion that impacted fractures of the neck of the femur should be broken up because of the fact of impaction, and treated thereafter by any accepted method, was not sustained by the common results which the treatment of the unimpacted fractures by the best of means appeared to secure. He had in mind two cases of impacted fractures now under his charge in Bellevue Hospital, with no appreciable deformity but shortening. These fractures were going on to perfect recovery after three and five weeks' time respectively. The diagnosis in both instances was confirmed by *x*-ray plates.

Leukemia in Advanced Years.—Dr. A. A. Smith read this paper (see page 169).

Dr. L. A. Conner said that the blood picture in the second case described by Dr. Smith was a very unusual one for leukemia. The great number of polynuclear leucocytes with the small percentage of lymphocytes would make him hesitate in classing this case as a primary disease of the blood.

Dr. Smith said that he examined the patient very carefully for signs of malignant disease that could account for the blood picture, but could discover none whatever. No viscus was enlarged in this patient with the exception of the spleen, which was felt distinctly about three and one-half inches below the free border of the ribs during quiet breathing. He was, of course, familiar with the doubts expressed in such cases, but as he saw the patient only once, he could add nothing more to the statements in his paper except to repeat the fact that the blood examinations were in every case made by very competent observers. The special point, however, that he tried to bring out in his paper was the advanced age of all three patients. He would like to know whether any of the members had ever had cases of leukemia under observation in persons of advanced age.

Dr. Kinnicutt said that he had never seen a case of leukemia in a person of advanced age.

Importance of Laryngeal Examinations in Early Pulmonary Tuberculosis; also, of the Probable Presence of Malaria without Organisms Being Discovered.—Dr. Robinson said that within the last three weeks he had two patients come to him for examination and diagnosis who had symptoms and signs which indicated possibly pulmonary tuberculosis. In neither case, however, did microscopic examination show any tubercle bacilli. In the first case, seen previously on two occasions by a prominent practitioner of New York, a diagnosis of a dilated bronchus had been made. In the other case, no positive diagnosis was made other than cough with expectoration. There was no hoarseness, no dysphagia; hence, probably, the larynx had not been examined in either case. Upon laryngeal examination of the first case referred to, Dr. Robinson found already beginning infiltration and edema of the epiglottis, which to him meant indubitably beginning laryngeal tuberculosis, and pointed almost with certainty to tuberculosis being present in the lungs. In the second case was an area of redness, with slight vascularization of the left vocal cord, and also redness of the posterior surface of the epiglottis. The left vocal cord was also slightly sluggish in approaching the median line during phonation. The rest of the larynx was possibly paler than normal. In this case the intralaryngeal appearances made the diagnosis both of the beginning

laryngeal tuberculosis and pulmonary tuberculosis probable. In some such cases the intrapulmonary disease might grow worse and the intralaryngeal disease remain almost stationary during many months, and sometimes, even though no local treatment had been used. Indeed, the local laryngeal symptoms were always slight, if any, in the cases referred to, they did not direct special attention to the larynx. In these instances he regarded the intralaryngeal appearances as especially important from the point of view of an early diagnosis. Personally, Dr. Robinson believed that the outcome both of laryngeal and pulmonary disease at this stage was notably helped by suitable inhalations persistently and properly used.

Dr. Robinson had another patient whose history and symptoms, with the addition of a considerably enlarged spleen, seemed to show malarial poisoning. The blood was carefully examined microscopically, but no malarial organisms were found. Chilly feelings, general malaise, and notable disturbances of temperature, apparently promptly disappeared with frequent and rather large doses of cinchona bark, and after other remedies had proved useless. Were such cases malarial? Dr. Robinson had observed them not very infrequently among adults, and more frequently among children. Very rigid, careful searching of the blood microscopically, before quinine or bark had been taken, had several times resulted negatively, so far as the finding of the plamadium is concerned. The examinations of the blood were made by skilled and reliable observers with the best microscopes. The importance of the recognition of malarial poisoning, despite negative microscopic research, and in view of rapid and manifest benefit from the use of quinine or bark, seemed to him to make a diagnosis by exclusion proper, especially when the symptoms previously manifested, such as chilly feelings, malaise, lassitude, and intermittence not infrequently, pointed in that direction. Influenza, gastric catarrh, ephemeral fever, etc., did not satisfy his mental requirements. Again, he was not satisfied always as to his ultimate diagnosis in difficult or obscure cases, with the use of quinine even in large doses, and mainly because he had known quinine to fail utterly at times to relieve or cure malaria, although the malarial organisms had been seen repeatedly.

Dr. Robinson said further that he would add a word to what he had previously written, about the great importance of a laryngeal examination to fix a doubtful diagnosis of pulmonary tuberculosis, and it was strange how frequently this examination was still ignored by men who were careful and well informed, and who were considered to be specialists in this dread disease.

An Interesting Microphotograph of the Kidney.—Dr. L. B. Bangs showed microphotographs of the kidney, of the liver, and of the lung. The special interest attached to them consisted in the fact that the person to whom these organs belonged died in the year 1792 and was exhumed 113 years later, when a partial autopsy was performed and several organs prepared for microscopical examination. The members of the society had, of course, guessed that the body was that of Paul Jones. The photographs were of further interest because they enabled the diagnosis of the pathological condition to be made so many years after death. The wonderful preservation of the parts was probably due to the method of burial used in the case of Paul Jones. His body was placed in a leaden coffin, which was then filled with alcohol through a small opening left at the head of the coffin. This opening was then sealed, so that the body was really buried in an hermetically sealed coffin filled with alcohol. The body was exhumed in 1899, the autopsy being performed by Professor Cornil and his assistant, showing death to have been caused by chronic nephritis. The biography of Paul Jones tells of a chronic cough from which he suffered during the later years of his life, and it was of interest to note that unmistakable evidences of a tuberculosis of the lungs were found by Professor Cornil; no tubercle bacilli could be found, however, the search only revealing the presence of crystals of tyrosin in parts of the lung tissue. A remarkable fact was the close resemblance of the features in the well-known bust of Paul Jones Houdon to the original; indeed, this resemblance helped very materially in the identification of the body. Dr. Bangs showed photographs of this bust and of the face of the exhumed body. The resemblance between the two was very striking; moreover, a composite picture made of the two showed the agreement of almost every line in the work of the sculptor with the features of the original.

Meningococcus Septicemia.—Dr. F. C. Kinnicutt reported this case. It occurred in his service in the Presbyterian Hospital, and was of such interest that it would be reported in full, with a review of the literature, by Dr. Bovaird, in the forthcoming volume of the "Transactions of the Presbyterian Hospital." The question of a primary meningococcus blood infection had been a subject of much discussion, Dr. Kinnicutt said, and in a recent review of the subject, with a report of a case of meningococcus septicemia occurring in the Montreal General Hospital, Duval stated that there was no authentic case where the meningococcus had produced lesions outside of the meninges, in the absence of a preexisting meningitis. Since the publication of Duval's paper Dr. Bovaird had found two cases in the literature, one reported in 1906 by Andrews, pathologist to St. Bartholomew's Hospital, London, and one by Liebermeister in October, 1908, which, Dr. Kinnicutt said, must be accepted as cases of primary meningococcus blood infection without meningeal inflammation. A review of the literature also showed that the meningococcus had been isolated from the blood in a comparatively small number of cases; that in almost every instance where the organism had been found in the circulating blood there had been a fatal issue and the body had shown various associated lesions, viz., of the joints, anterior chamber of the eye, of the pericardial, endocardial, and pleural cavities. Hypopyon iritis had been reported in only four cases, to which must be added the present case. The case of meningococcus occurring in Dr. Kinnicutt's service furnished the following points of interest: (1) The meningococcus was recovered from the blood in pure culture. (2) The symptoms from the beginning were those of a general infection. There were very abundant and widespread hemorrhages, varying in size from a pinhead to 2 cm. in diameter, cutaneous and into the mucous membranes, the affection of a large number of joints, and a severe hypopyon iritis. There was a rapid superficial sloughing of a large proportion of the cutaneous extravasations and of those in the buccal cavity. The cerebrospinal fluid was under normal pressure and was either clear or slightly blood-tinged, and the smears showed only red blood cells, and these only in the blood-tinged specimens. It gave sterile cultures from all the lumbar punctures made at various stages of the disease. Ninety c.c. of cerebrospinal fluid was removed at different times. (3) The symptoms of a meningitis consisted in a moderate stiffness of the neck, occurring rather late in the disease, and Kernig's sign of very temporary duration. (4) The very rapid improvement in all symptoms following the use of Flexner's serum, given once 20 c.c. by the intradural method, followed directly by the intravenous injection of 25 c.c., and twenty-four hours later by 30 c.c. given subcutaneously, and once again after seventy-two hours, 30 c.c. subcutaneously. (5) Complete recovery, with the exception of loss of sight in one eye, due to detachment of the retina either by hemorrhage or other retinal exudate. Doctor Kinnicutt, in conclusion, said that although the dominating symptoms from the beginning of the ill-

ness were those of a grave blood infection, and the cerebrospinal fluid gave no signs of a meningeal inflammation, the recovery of the patient did not permit him to go further than to report the case as one of meningococcus septicemia with a sterile cerebrospinal fluid.

Dr. M. Allen Starr said that the case reported by Dr. Kinnicutt was of special interest to him, because he was called to see a patient two weeks ago who presented a picture very similar to that described by Dr. Kinnicutt. His patient was a girl of sixteen, who developed symptoms of cerebrospinal meningitis after having gone through an attack of measles. Dr. Starr saw the child on the fifth day of the disease, and at that time the picture of meningitis was unmistakable; paralysis, hypersensitiveness, Kernig's sign, etc., were all present. A lumbar puncture was done and 11 c.c. of cerebrospinal fluid obtained; this was, however, pronounced sterile after an examination in the laboratory of Dr. Flexner at the Rockefeller Institute. The patient remained in about the same condition for a week, when a second lumbar puncture was performed; this time, too, the fluid proved to be sterile. In view of these findings Dr. Starr did not feel justified in using the antimeningitis serum of Flexner, because the indication for the latter would seem to be the presence of diplococci in the spinal fluid. Huss's serum was tried in the case, and the employment of it was followed by a fall of temperature from 100°-102° to 99°, by some relaxation, and by improvement in the mentality of the patient. He would like to know what course one should take in such a case in reference to the use of the Flexner serum. Dr. Flexner was appealed to in reference to this point, but was unwilling to recommend the use of the serum in such a case.

Dr. Kinnicutt said that in his opinion the serum should not be used unless the meningococcus was discovered in the spinal fluid or recovered from the blood of the patient. In the case reported by him the second condition was present, which, of course, called for the use of the serum. As there were no extrameningeal symptoms in Dr. Starr's case, one could suppose that no septicemia existed, though only a blood culture could settle this point. In his case, immediately on the recovery of the meningococcus from the blood the serum was given, both subcutaneously and by the intradural method, within the period of an hour. In the absence of the organism in the cerebrospinal fluid obtained by lumbar puncture, the serum was not again introduced into the spinal canal, but was given subcutaneously and injected directly into a vein.

Dr. L. A. Conner said that the negative examination of the spinal fluid and the whole picture of the disease as described by Dr. Kinnicutt did not, in his opinion, exclude the possibility of cerebrospinal meningitis. The small amounts of spinal fluid obtained might have been due to the occlusion of the foramen of Magendie, and it occasionally happened, even in acute cases, that the organisms could not be recovered from the spinal fluid. That a meningococcus septicemia, such as this case had been proved to be, could be recovered from was a fact of extreme interest and importance.

Dr. Kinnicutt said that the possibility suggested by Dr. Conner naturally was considered, as cases had been reported in which a fibrinoplastic exudate in the neighborhood of the fourth ventricle had effectually closed the outlets for ventricular fluids; it was believed, however, to be improbable that such large amounts of cerebrospinal fluid could be obtained by lumbar puncture as had occurred in his case (90 c.c. altogether, flowing under about normal pressure) if the foramen of Magendie had been sealed.

Dr. J. S. Thacher asked Dr. Kinnicutt whether the striking cerebral symptoms in the patient did not indicate the presence of meningitis.

Dr. Kinnicutt said that the patient was stuporous only during the first few hours after admission to the hospital. After twenty-four hours the mind of the patient seemed quite clear. Moreover, there was no stiffness of the neck at first, both this and Kernig's sign having appeared much later in the development of symptoms. On the other hand, the systemic symptoms were the striking feature of the case from the beginning, and were explained by the recovery of the meningococcus from the blood of the patient.

Dr. Joseph D. Bryant said that one path of communication of the cerebrospinal fluid and the systemic blood had not been mentioned by previous speakers, viz., that of the longitudinal sinus into which it directly entered after reaching the surface of the brain. In these circumstances the infected fluid could mix with the blood in which germs would be found, while absent in the fluid of the spinal cord because of closure of the foramina of Magendie and of Luschka. Perhaps this might have been the path of blood infection in the case under consideration. Possibly, also, that of Dr. Starr might have been influenced by this means.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Texas State Board of Medical Examiners.

Dallas, November 10, 11 and 12, 1908.

ANATOMY.

1. Describe the tibia and name the muscles attached.
2. Describe the collateral circulation around the knee.
3. Describe the kidney.
4. Name the muscles of the femoral region.
5. Give subdivision of the large intestines and source of blood supply to each.
6. Give origin, course and distribution of the ulnar nerve.
7. Give origin, course and distribution of the radial artery.
8. Give the origin, course and distribution of the dorsalis pedis artery.
9. Describe Hunter's canal, naming the structures found therein, and their relation to each other.
10. What structures would you cut through in an amputation at the middle of the humerus?

HISTOLOGY.

1. Give the divisions of the urethra and give histology of the prostatic portion.
2. What is the pelvis of the kidney?
3. Describe nonstriated muscular tissue and name its principal locations in the body.
4. Give histology of arteries, veins and capillaries.
5. Name the tunics of the eyeball and give its refractive media.
6. Describe a lobule of the lung.
7. For description the olfactory organ is divided into three regions; name them, and give histology of the Schneiderian membrane.
8. Name the three divisions of ear, and the bones of the middle ear.
9. Describe the musculature of the uterus.
10. Describe the mucosa of the stomach.

PHYSIOLOGY.

1. Name the glands secreting the saliva.
2. Give specific gravity, chemical reaction, and physiological reaction of saliva.
3. Give name, origin, distribution, and function of the fifth cranial nerve.
4. Where are the following cerebral nerve centers: (*a*) saliary, (*b*) visual, (*c*) respiratory, (*d*) mastication, and (*e*) micturition?
5. Given an exposed artery and vein in the living subject, how would you distinguish them without reference to anatomical landmarks?
6. What portion of the spinal cord is affected (involved) in locomotor ataxia?

7. Describe the physiologic functions of the kidneys.
8. Name the four divisions of the circulatory system and describe the circulation of the blood.
9. Describe the portal circulation; name vessels carrying the blood to and from the liver and into what does the latter empty?
10. Define (*a*) hyperopia, (*b*) heterophonia, (*c*) euthanasia (*d*) myopia, (*e*) necremia, (*f*) hydremia, (*g*) diopter, (*h*) aphasia, (*i*) astigmatism, (*j*) chyluria.

CHEMISTRY.

1. Describe the chemical change in starch during digestion.
2. Describe oxygen.
3. What are the symptoms of acute arsenic poisoning?
4. Give chemistry of respiration.
5. Give the chemical formula for alcohol; for ether.
6. To what salts do most cathartic mineral waters owe their virtue?
7. Give two chemical tests for albumin in the urine.
8. Give two chemical tests for sugar in the urine.
9. Give the formula and properties of chloroform.
10. Define an alkaloid and name several used in medicine.

BACTERIOLOGY.

1. Name and give classification of fungi that are connected with diseases in man.
2. Name chief forms of bacteria.
3. Name the most important surgical microorganisms, *i.e.*, those most frequently met with in surgical work.
4. What bacteria are likely to be mistaken for the tubercle bacillus, and how may this error be avoided?
5. Describe ptomains and name three sources of ptomain poisoning.
6. Give detailed description of Widal's microscopical test in typhoid fever.
7. Name and describe a malarial parasite.
8. Define (*a*) phagocytosis, (*b*) chemotaxis, (*c*) opsonin.
9. State accurately the steps you would take to stain, mount and examine a specimen of sputum from an advanced case of tuberculosis.
10. Define (*a*) aërobic, (*b*) anaërobic, (*c*) diplococci.

PATHOLOGY.

1. What are the pathological changes that take place in the blood in malarial fever?
2. Lobar pneumonia; name its different stages and describe each.
3. Describe the characteristic lesions of typhoid fever.
4. Pathology of emypema.
5. Pathology of erysipelas.
6. Pathology of acute gastroenteritis.
7. Pathology of diphtheria.
8. Describe union by first intention; describe union by second intention.
9. Hernia—Name three varieties of external hernia, and give usual contents of the sac in oblique inguinal.
10. What is the pathology of rheumatism?

PRACTICE OF MEDICINE.

1. Give diagnostic significance from topographical occurrence of edema.
2. State clinical significance of arrhythmia (irregular pulse), and its principal varieties.
3. Describe symptoms of aneurysm of ascending aorta.
4. Differentiate between acute pericarditis, acute endocarditis, and acute myocarditis.
5. Differentiate between acute pneumonia and exudative pleuritis.
6. Differentiate between hypertrophy and dilatation of heart.
7. Differentiate between acute miliary tuberculosis and enteric fever.
8. State symptoms of gastroptosis.
9. Discuss acute yellow atrophy of liver.
10. Differentiate carcinoma of stomach and chronic pancreatitis.

OBSTETRICS.

1. Describe fertilization of the ovum.
2. Describe the placenta and give its functions.
3. Give normal duration of pregnancy and method of calculating duration.
4. Give some of the most reliable signs of pregnancy.
5. Differentiate between a first and a subsequent pregnancy as regards changes in the uterus.
6. Give causes of vomiting in pregnancy.
7. What conditions in pregnancy are dangerous to the life of mother and child?
8. Define placenta previa; classify, and give treatment.
9. What is the significance of albuminuria in pregnancy? And give treatment.
10. Name some conditions which might complicate pregnancy or be mistaken for it.

GYNECOLOGY.

1. Give blood supply, and nerve supply, and lymphatics of the womb and ovaries.
2. Define kraurosis vulvæ.
3. Give cause of inversion of the uterus, its diagnosis.
4. What are symptoms, and cause of pudendal hematocele?
5. What is caruncle of the urethra?
6. Give differential diagnosis of tuberculous and gonorrheal cystitis.
7. What are the causes of pelvic peritonitis?
8. Give differential diagnosis of acute salpingitis, oöphoritis, and appendicitis.
9. What is pathology of (*a*) hydrosalpinx, (*b*) hematosalpinx? Give diagnosis.
10. What is acute parametritis? Give its etiology, pathology.

SURGERY.

1. What is an aneurysm?
2. What is a fracture?
3. What is a contused and lacerated wound?
4. Describe Colles' fracture and give treatment.
5. What is your treatment in Pott's fracture?
6. Describe an amputation of lower third of thigh.
7. How would you treat a case of wry neck?
8. What is fistula in ano, and how treat it?
9. Describe technique of appendectomy.
10. Give symptoms and operative technique for gallstones.

HYGIENE.

1. Mention and describe the diseases of animals that are communicable to man, and state the means that should be employed for the prevention of these diseases in man.
2. What are the alimentary principles of food, their functions, the object of cooking food?
3. What is the object of clothing, its virtue in different seasons; with reference to material, color, texture, and hygroscopic quality?
4. Give the best methods of disinfecting a room and contents after exposure to the contagion of smallpox.
5. When are diseases said to be "epidemic," "pandemic," "endemic"?
6. Classify the following diseases, whether contagious or infectious: typhoid fever, typhus fever, cholera, scarlet fever, smallpox, yellow fever. Give method of stamping them out.
7. What is the difference between fermentation, oxidation, and putrefaction?
8. What deleterious gases accumulate in an imperfectly ventilated schoolroom? State amount of fresh air required per minute for each child. Also state the evil effects from inhaling air rendered impure by respiration.
9. Define ptomain. Give sources of origin and describe their agency in inducing diseases and give the symptom produced by them.
10. How would you guard against the bowel disturbance of infants during their first and second summers?

MEDICAL JURISPRUDENCE.

1. What is meant by last sickness, and what are its relations to the law?
2. How may human hairs be distinguished from fibers or the hair of the other animals?
3. What are the most important questions arising in connection with gunshot wounds?
4. What is the cause of death following burns?
5. How is it possible to distinguish false from true pregnancy?
6. How do you distinguish between injuries to the head, produced during delivery by accident, and those made with criminal intent?
7. What is meant by the age of consent?
8. What is meant by the expectation of life?
9. Describe the coroner system.
10. What is a wound and what are the most important questions that arise in connection with wounds?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

TEXAS STATE BOARD OF MEDICAL EXAMINERS.

Dallas, November 10, 11, and 12, 1908.

ANATOMY.

2. *The arterial anastomosis about the knee-joint* is formed as follows: (1) *The superior external articular artery* anastomoses with the descending branch of the external circumflex, the inferior external articular, the anastomotica magna and the superior internal articular. (2) *The superior internal articular artery* anastomoses with the anastomotica magna, the inferior internal articular, and the superior external articular. (3) *The inferior external articular artery* anastomoses with the inferior internal articular, the superior external articular, and the anterior recurrent branch of the anterior tibial. (4) *The inferior internal articular artery* anastomoses with the inferior external articular, and the superior internal articular. *The whole* forms a superficial and deep plexus; the former being situated between the fascia and skin round the patella, and the latter on the articular surfaces of the lower end of the femur and the upper end of the tibia.

4. *Muscles of the femoral region*, are: Tensor vaginæ femoris, Sartorius, Quadriceps extensor femoris (Vastus externus, Vastus internus, Rectus femoris, Crureus), Subcrureus, Gracilis, Pectineus, Adductor longus, Adductor magnus, and Adductor brevis.

5.

SUBDIVISIONS OF LARGE INTESTINES.	ARTERIAL SUPPLY.	BRANCH OF
Ileocecal valve, Cecum, (Appendix)	Ileocolic and Right colic	Superior mesenteric
Ascending colon	Right colic	
Transverse colon	Middle colic	
Descending colon	Left colic	
Sigmoid flexure	Sigmoid	Inferior mesenteric
	Superior hemorrhoidal	
Rectum	Middle hemorrhoidal	Internal iliac
	Inferior hemorrhoidal	Internal pudic

9. *Hunter's canal* occupies the middle third of the thigh, beginning at the apex of Scarpa's triangle, and extending to the femoral opening in the Adductor magnus muscle. It is bounded *externally* by the Vastus internus; *internally* by the Adductors longus and magnus. It is covered in by a fibrous expansion from the Vastus internus to the Adductors; over this roof lies the Sartorius. It contains the femoral artery, and femoral vein, in a sheath; and the long saphenous nerve outside the sheath. The vein is behind and external to the artery; the nerve is at first external to the vessels, then it crosses over them.

10. *Structures cut in an amputation at the middle third of the humerus*, are: Skin; fascia; muscles: biceps, coracobrachialis, brachialis anticus, triceps; arteries: brachial, superior profunda, inferior profunda; veins: basilic, cephalic, brachial, superior profunda, inferior profunda; nerves: median, ulnar, musculo-spiral, internal cutaneous, musculo-cutaneous; bone: humerus.

PHYSIOLOGY.

1. *The glands secreting the saliva*, are: The parotid, submaxillary and sublingual glands (and the small mucous and serous glands of the mouth).

2. SALIVA. *Specific gravity:* about 1002 to 1006. *Chemical reaction:* Alkaline. *Physiological reaction:* Through the ptyalin which it contains, it begins to convert starch into maltose.

3. FIFTH CRANIAL NERVE. *Name:* Trigeminal, or trifacial nerve.

Origin: (1) *Superficial*—from the side of the pons varolii; (2) *Deep*—from the medulla, and the floor of the fourth ventricle.

Distribution: First, or ophthalmic branch, to conjunctiva, and skin of upper eyelid, cornea, skin of forehead, and nose, lachrymal gland, and skin of nose. *Second, of superior maxillary* branch, to skin and conjunctiva of lower eyelid, nose, cheek, upper lip, upper teeth, and palate. *Third, or inferior maxillary branch*, to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, and skin of lower part of face. Also to muscles as indicated under *Function*.

Function: It supplies sensation to all the parts mentioned above; but, in addition, the *Inferior maxillary branch* supplies motion to the muscles of mastication (Masseter, Temporal, External, and Internal Pterygoids), and the Mylohyoid, and anterior belly of the Digastric.

4. (*a*) The *salivary* center, is in the medulla; (*b*) *visual* center, is in the occipital lobes; (*c*) *respiratory* center, is in the medulla; (*d*) center for *mastication*, is in the medulla; (*e*) center for *micturition*, is in the lumbar enlargement of the spinal cord.

5. *Arteries* are recognized by: (1) their pulsation, when no proximal constriction is used; (2) their swelling proximally when compressed distally (where no constrictor is used); (3) their firm, round, resisting, elastic, cord-like feeling; (4) their peculiar sensation when compressed between the fingers, presenting a central depression and two lateral, elevated ridges; (5) their thicker walls; (6) their rubber-tube-like feeling when touched and tendency to glide from beneath the fingers; (7) the force required to compress them; (8) their regular outline; (9) their pinkish or pinkish-yellow color.

Veins are recognized by: (1) not pulsating (where no Esmarch is used); (2) by having thinner coats; (3) by swelling toward the periphery when compressed centrally (no constrictor being used); (4) by being softer and less resisting to touch; (5) by the flat, ribbon-like feeling throughout their whole width when compressed between the fingers; (6) by their purplish color; (7) by their wavy, irregular contour; (8) by their accompanying the arteries, in many regions, in pairs or companion veins; (9) by their larger size than the corresponding arteries; (10) by the ease with which they are compressed. (From Bickham's *Operative Surgery.*)

6. The posterior columns of the spinal cord are involved in locomotor ataxia.

8. The four divisions of the circulatory system, are: (1) The heart; (2) arteries; (3) capillaries, and (4) veins.

9. The vessels that carry blood to the liver, are the hepatic artery and the portal vein; the vessels that carry blood from the liver, are the hepatic veins, which empty into the inferior vena cava.

10. (*a*) *Hyperopia* is a condition in which the anteroposterior axis of the eye is abnormally short, and parallel rays are focused behind the retina.

(*b*) *Heterophoria* is a condition in which the visual axes of the eyes tend to deviate.

(*c*) *Euthanasia* is painless and easy death.

(*d*) *Myopia* is a condition in which the anteroposterior axis of the eye is abnormally long, and parallel rays are focused in front of the retina.

(*e*) *Necremia* is death of the blood.

(*f*) *Hydremia* is a watery condition of the blood.

(*g*) *Diopter* is the unit of measurement for refractive power; it represents the refractive power of a lens at a focal distance of one meter.

(*h*) *Aphasia* is loss of the power of expression by speech or writing.

(*i*) *Astigmatism* is a condition in which owing to a greater curvature of the eye in one meridian than in others, the refractive power of the eye varies.

(*j*) *Chyluria* is a condition in which the urine appears to be milky, from the presence of fat.

CHEMISTRY.

1. During digestion, starch (by means of the ptyalin of the saliva, and the amylopsin of the pancreatic juice) is converted into dextrin and maltose. The dextrin is afterward converted into maltose also.

2. OXYGEN is a colorless, odorless, tasteless gas, heavier than air, slightly soluble in water, has an intense affinity for other elements, combining with almost all of them except fluorine. It is necessary to life, and is a supporter of combustion. It occurs free in the air and in combination in water, rocks, minerals, etc. It is more abundant than any other element, forming about 40 per cent of the total weight of the earth.

3. The *symptoms of acute arsenical poisoning* "In acute cases the symptoms usually begin in from twenty to forty-five minutes. Nausea and faintness. Violent, burning pain in the stomach, which becomes more and more intense, and increases on pressure. Persisting and distressing vomiting of matters, sometimes brown or gray, or streaked with blood, or green (Paris green). Purging. More or less severe cramps in the lower extremities." (Witthaus' *Essentials of Chemistry.*)

4. The chemical changes produced in the *air* by respiration are:

	INSPIRED AIR.	EXPIRED AIR.
Oxygen	21 per cent.	16.6 per cent.
Nitrogen	79 per cent.	79 per cent.
Carbon dioxide...	0.04 per cent.	4.4 per cent.
Other gases.....	Rare.	Often present.
Watery vapor.....	Variable.	Saturated.

In the *blood* the chemical changes are: (1) The giving up of the CO_2 by the venous blood; (2) the absorption of oxygen during inspiration, and (3) the blood loses a small amount of watery vapor.

5. The chemical formula for *alcohol,* is C_2H_5OH; for *ether,* is $(C_2H_5)_2O$.

6. Most cathartic mineral waters owe their virtue to the following salts: Magnesium sulphate, sodium sulphate.

7. TWO TESTS FOR THE DETECTION OF ALBUMIN IN THE URINE: "The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent, it is to be treated with a few drops of magnesia mixture and again filtered."

I.—*The heat test:* "The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3."

II.—*Heller's modification of the nitric acid test:* "Place in a test-tube a layer of HNO_3 about 2 centim. in thickness; then, with a pipette carefully float upon the surface of this a layer of the urine in such a manner that the liquids do not mix. If albumin be present, a cloudy ring appears *at* the point of junction of the two layers, the borders of the cloud being sharply defined. A cloudy ring may be formed by the presence of an excess of urates, but in this case it is not *at,* but *above,* the point of junction of the layers, and its upper border is not sharply defined, but fades off gradually." (Witthaus' *Essentials of Chemistry.*)

8. TWO TESTS FOR THE DETECTION OF SUGAR IN THE URINE: The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

(1) *Fehling's test:* Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

(2) *Boettger's test:* Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by the dark or black color of the bismuth powder, the litharge retaining its natural color. (From Witthaus' *Essentials of Chemistry.*)

9. CHLOROFORM. *Formula:* $CHCl_3$. *Properties:* It is a colorless liquid, volatile, with a sweet taste, and agreeable odor. It is heavier than water; is a good solvent for fats and other substances; it mixes with alcohol, and ether, but not with water.

10. An *alkaloid* is a basic nitrogenous substance of alkaline reaction and capable of combining with an acid to form salts in the same way that ammonia does.

Several alkaloids used in medicine: Strychnine, quinine, cocaine, atropine, morphine, codeine, pilocarpine, apomorphine, aconitine, eserine.

BACTERIOLOGY.

1. The fungi which are connected with diseases in man, are:

(1) The Blastomycetes, or yeasts.
(2) The Hyphomycetes, or moulds; and
(3) The Schizomycetes, or bacteria.

2. The three basic forms of bacteria are: (1) The *coccus,* which is round or oval, and may appear singly, in pairs, in groups of four, in chains, or in bunches. (2) The *bacillus,* which is rod shaped, with the longer sides parallel, and the short ends either straight, rounded, or concave. (3) The *spirillum,* which is spiral.

3. *The most important surgical microorganisms,* are: Staphylococcus pyogenes aureus, staphylococcus pyogenes albus, staphylococcus pyogenes citreus, staphylococcus cereus aureus, staphylococcus cereus albus, staphylococcus cereus flavus; streptococcus pyogenes; micrococcus tetragenus, micrococcus pyogenes tenuis; gonococcus; pneumococcus; bacillus pyocyaneus, bacillus typhosus, bacillus tuberculosis; streptococcus of erysipelas; bacillus of tetanus; bacillus of anthrax; bacillus coli communis; and spirocheta pallida.

4. *The bacteria liable to be mistaken for the tubercle bacillus,* are: the bacillus of leprosy, the bacillus of the smegma, and Lustgarten's bacillus. "The differential diagnosis between these four organisms depends upon the following reactions: When stained by the carbol-fuchsin method, commonly employed in staining the tubercle bacillus, the Lustgarten's bacillus becomes almost instantly decolorized by treatment with mineral acids, particularly sulphuric acid; whereas the smegma bacillus resists such treatment for a much longer time, and the lepra and tubercle bacillus for a still longer time. On the other hand, if decolorization is practised with alcohol instead of acids, the smegma bacillus is the first to lose color. The bacillus tuberculosis and the bacillus of leprosy are both very retentive of their color, even after treatment with acids and alcohol. If, then, we treat the preparation, stained with carbol-fuchsin, with sulphuric acid, Lustgarten's bacillus becomes almost at once decolorized. If it is not immediately decolorized, heat with alcohol; if it is then decolorized, it is the smegma bacillus. If it is still not decolorized, it is either the leprosy or the tubercle bacillus." (From Park's *Pathogenic Bacteria.*)

5. *Ptomains* are basic, nitrogenous organic substances produced from protein material by the bacteria which cause putrefaction. "Owing to the wide variations in the chemical constitution of the ptomains, they possess no characters by which they can be distinguished as a class. Some are strongly alkaline and basic, others only feebly so. Some are liquid, oily and volatile, others fixed and crystalline. Some are very prone to oxidation, and are active reducing agents, others are quite stable. For the same reason, no analytical method is possible by which vegetable alkaloids and ptomains can be separated from each other *en masse,* nor are any reactions known to which all ptomains respond while vegetable alkaloids do not, or the reverse." (Witthaus' *Manual of Chemistry.*)

Three sources of ptomain poisoning: Canned meats, ice-cream, and decomposing fish.

6. Widal's test in typhoid fever "depends upon the fact that serum from the blood of one ill with typhoid fever, mixed with a recent culture, will cause the typhoid bacilli to lose their motility and gather in groups, the whole called 'clumping.' Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. * * * A positive reaction is obtained when all the bacilli present gather in one or two masses or clumps and cease their rapid movement inside of twenty minutes." (From Thayer's *Pathology.*)

8. (*a*) *Phagocytosis* is the faculty of certain cells (notably the mononuclear and polynuclear leucocytes) to take up and destroy bacteria.

(*b*) *Chemotaxis* is the property by virtue of which certain living cells approach *(positive chemotaxis)* or move away from *(negative chemotaxis)* certain other cells or substances.

(*c*) *Opsonin* is that quality of a serum which makes a microorganism more susceptible to phagocytosis.

9. To demonstrate the existence of *tubercle bacilli* in the sputum: The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbol-fuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it

thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

10. (*a*) *Aërobic* is a term which denotes that a microorganism requires the presence of oxygen as an essential to its growth.

(*b*) *Anaërobic* is a term which denotes that a microorganism requires the absence of oxygen as an essential to its growth.

(*c*) *Diplococci* are cocci (see Answer 2 above) associated in pairs.

PATHOLOGY.

1. *The pathological changes that take place in the blood in malarial fever,* are: The red cells are destroyed, and therefore reduced in number; the red cells lose their coloring matter; the serum is colored with hemoglobin; granular pigment appears in the blood; the plasmodium malariæ may be found in the blood; the white cells may be diminished; the total quantity of the blood is diminished; the specific gravity of the blood decreases.

9. *Three varieties of external hernia:* Inguinal, femoral, and umbilical.

Usual contents of the sac in oblique inguinal hernia: Intestine and omentum.

PRACTICE OF MEDICINE.

1. Topographical occurrence of edema. A. *General edema:* (1) Beginning at the feet and extending upwards—cardiac weakness or disease. (2) Beginning in the face and extending downwards—renal disease. (3) Beri-beri, multiple peripheral neuritis, trichinosis, and lymphedema.

B. *Edema of upper half of body:* (1) In early stage of renal dropsy. (2) Of arms, head, and neck, in thoracic aneurysm, large double hydrothorax, and mediastinal tumor. (3) Edema of one arm, in enlarged lymphatic glands and tumors, and thrombosis of axillary vein.

C. *Edema of lower half of body:* (1) In early stage of cardiac dropsy. (2) Hepatic cirrhosis. (3) Abdominal tumors, enlarged liver, spleen, pancreas, or mesenteric glands. (4) Chronic malarial poisoning, anemias, cachexiæ, wasting diseases, long continued slight hemorrhages, thrombosis of femoral vein, lymphedema.

D. *Circumscribed, and usually single swellings:* (1) Over precordial space, in purulent pericarditis. (2) Over affected side, in empyema. (3) Over mastoid process, in mastoiditis. (4) Over parotid gland, in mumps or parotid suppuration. (5) In right hypochondrium, in hepatic abscess. (6) Over posterior lumbar region, in perinephritic abscess.

E. *Circumscribed multiple swellings:* In angioneurotic edema, purpuric edema, and giant urticaria. (Condensed from Butler's *Diagnostics of Internal Medicine.*)

2. Cardiac arrhythmia has no particular clinical significance, unless it accompanies some disease. According to Butler *(Diagnostics of Internal Medicine)*, search should be made for one or more of the following: (1) Valvular cardiac disease, especially mitral lesions, in which it is usually, but not always, a sign of beginning failure of compensation, passing in many instances into delirium cordis; simple dilatation, chronic myocarditis, sclerosis of the coronary arteries, and fatty degeneration; possibly obscure changes in the cardiac ganglia, and overstrain or impaired nutrition in wasting diseases or long-continued fevers. (2) Poisons circulating in the blood, such as alcohol, coffee, tea, tobacco, digitalis, aconite, and belladonna, or the toxines of the infectious diseases, especially of typhoid fever and pneumonia. (3) Diseases of the intracranial contents, meningitis, hemorrhage, abscess, softening, concussion, and not infrequently mental excitement. (4) Neurasthenic conditions resulting from excesses or overstrain. Brief attacks of moderate arrhythmia are not uncommon in neurotic individuals, following even a slight departure from their usual habits in food, drink, or exertion. (5) Digestive disturbances, acute or chronic, and jaundice or constipation, particularly if associated with an unusually hypochondriacal frame of mind. (6) More rarely arthritis deformans, exophthalmic goiter, and renal disease.

5.

ACUTE PNEUMONIA.	EXUDATIVE PLEURISY.
Onset very sudden and symptoms severe—convulsions, etc., cough first, followed by pain in the side.	Onset moderately sudden, and symptoms not severe—chilliness and pain in the side, followed by cough.
Temperature very high, 104° or often 105° F.	Temperature not high, 101.5° or 102° F.
Pulse - respiration ratio greatly disturbed.	Pulse-respiration ratio not disturbed.
Bright crimson flush on the cheeks, and the muscular prostration is considerable.	Face is pale, and there is little loss of muscular power.
Cough is short and hacking or in paroxysms; and the sputum, when brought up is rusty and tenacious.	Cough is dry and painful, and patient tries to repress it.
Organs not displaced.	Organs displaced.
Dullness on percussion not complete, and the sense of resistance almost nil.	Dulness complete, with sense of great resistance
Respiratory sounds tubular, and fine crepitation heard at border of consolidation.	Respiratory sounds much diminished, and friction heard at upper margin of effusion.
Vocal resonance increased.	Vocal resonance greatly diminished.
Vocal fremitus increased.	Vocal fremitus diminished or absent.
The physical signs are limited to the front or back of the chest.	The physical signs are found both at the back and front of the affected side.

7.

ACUTE MILIARY TUBERCULOSIS.	ENTERIC FEVER.
Temperature curve is irregular.	Temperature curve is characteristic.
Diarrhea is not common.	Diarrhea is common.
Roseolar eruption not common.	Roseolar eruption is generally present.
Widal reaction is negative.	Widal reaction is usually positive.
No typhoid bacilli in blood, urine or feces.	Typhoid bacilli in blood, urine, and feces.
Tubercles may be found in the choroid.	No tubercles in the choroid.
Pulse and respiration are usually much more rapid.	Pulse and respiration rapid.
Epistaxis is rare.	Epistaxis is common.

OBSTETRICS.

2. At full term the *placenta* is a soft, spongy mass, roughly saucer-shaped, from six to nine inches in diameter, about three-quarters of an inch in thickness at the central point, and weighs about one pound. Its *functions* are: (1) To supply nourishment to the fetus; (2) to act as a respiratory organ for the fetus; (3) to act as an excretory organ for the fetus.

4. The *most reliable signs of pregnancy*, are: (1) Hearing the fetal heart sounds; (2) active movements of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) hearing the umbilical or funic souffle.

6. *Causes of vomiting in pregnancy*, are: (1) Reflex disturbance, due to rapid growth and excessive distention of the uterus; (2) disease or displacement of uterus, tubes and ovaries; (3) disease of pelvis or gastrointestinal tract; (4) excessive sexual intercourse; (5) renal disease or disturbance.

GYNECOLOGY.

2. *Kraurosis vulvæ* is a progressive atrophic shrinking of the tissues of the vulva.

5. *Caruncle of the urethra* is a small, red, fleshy growth, situated generally on the posterior part of the meatus of the urethra.

6.

TUBERCULOUS CYSTITIS.	GONORRHEAL CYSTITIS.
1. Located chiefly about the trigone.	1. Not at all so confined.
2. Inflammatory reaction zone absent.	2. Clear inflammatory reaction zone, later changing to dull brown color
3. Local tuberculous cystitis not very common; general tuberculous cystitis very rare.	3. Of common occurrence both local and general.

TUBERCULOUS CYSTITIS.	GONORRHEAL CYSTITIS.
4. Characterized by presence of small tubercles situated about the trigone and ureteral orifices.	4. Characterized early by insular areas of reactive inflammation, with healthy or nearly healthy intermediate mucosa. Later insular areas becomes confluent and extend over whole mucosa.
5. No projecting tufts of pus.	5. Projecting tufts of gonorrheal pus are apt to be present. In chronic stage regions of elevation may be excavated by ulceration.
6. No subperitoneal extravasation of blood.	6. In very acute stage there is subperitoneal extravasation of blood.
7. Bacillus tuberculosis.	7. Gonococcus.
8. Often extension from kidney and from general tuberculosis.	8. Extension from vulva, vagina, or urethra.
9. History of tuberculosis. Great pain; hematuria.	9. History of gonorrhea. Less pain; seldom blood in urine.

—(Dudley's *Gynecology.*)

HYGIENE.

2. The *alimentory principles of food*, are:

I. Inorganic { Water. / Salts.

II. Organic { Nitrogenous—Proteids. / Non-Nitrogenous. { Carbohydrates. / Fats.

The *function* (and constituents) are shown in the following table, adapted from Notter and Firth's *Hygiene:*

FOOD.	FUNCTIONS.
Proteids.	
1. All substances containing nitrogen, of a composition identical with, or nearly that of albumin; proportion of N to C being nearly as 2 to 7.	Formation and repair of tissues and fluids of the body. Regulation of the absorption and utilization of oxygen. May also form fat and carbohydrate, and yield energy sometimes. In most foods the above, both animal and vegetable, are largely converted into albumoses and peptones during digestion.
2. Substances containing a larger proportion of N are apparently less nutritious; proportion of N to C about 2 to 5½.	These perform the above functions less perfectly, or only under particular circumstances.
3. Extractive matters, such as are contained in the juice of the flesh.	These substances appear essentially as regulators of digestion and assimilation, especially with reference to the gelatin group.
Carbohydrates.	
Substances containing no N, but made up of C, H and O; the O being exactly sufficient to convert all the H into H_2O.	Production of energy and animal heat by oxidation. Form fats and possibly some proteids.
Fats.	
Substances containing no N, but made up of C, H and O; the proportion of O being *less* than sufficient to convert all the H into H_2O.	Supply of fatty tissues, nutrition of nervous system; supply of energy, and animal heat by oxidation.
Salts.	Support of bony skeleton, supply of HCl for digestion, regulation of energy and nutrition.

The *objects of cooking*, are: (1) To destroy parasites, and so avoid danger of infection; (2) to break up the starch grains, and so allow the digestive juices to come in contact with the granulose; (3) to loosen the fibers of the meats, and so render them more accessible to the digestive juices; also to convert the insoluble collagen into soluble gelatin; (4) to make the food more palatable, more desirable and more digestible.

9. *Ptomains* are basic compounds containing nitrogen, and produced from proteid material by the bacteria which cause putrefaction. They are *found* in decaying animal tissues and fluids.

The *chief poisonous ptomains* are: Tyrotoxicon, mytilotoxin, cholin, neurin, neuridin, putrescin, cadaverin, gadinin, muscarin, tetanin, typhotoxin.

The *general symptoms of ptomain poisoning* are: Onset in less than twenty-four hours after the ingestion of the noxious "food," chilliness, vertigo, headache, thrist, abdominal pains, nausea, vomiting, diarrhea, cyanosis, weak and rapid pulse, cutaneous eruption sometimes, subnormal temperature at times, convulsions.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	July 5
Arizona*	Ancil Martin, Phoenix	Phoenix	April 5
Arkansas*	P. T. Murphy, Brinkley	Little Rock	April 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April 6
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	April 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	March 9
Delaware	J. H. Wilson, Dover	Dover	June 15
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	April 13
Florida*	J. D. Fernandez, Jacksonville	Tallahassee	May 19
Georgia	E. R. Anthony, Griffin	Atlanta	May —
Idaho	W. P. Howard, Pocatello	Boise	April 6
Illinois	J. Egan, Springfield	Chicago	April 15
Indiana	W. T. Gott, Indianapolis	Indianapolis	May 25
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	D. P. Cook, Clay Center	Kansas City	Feb. 9
Kentucky*	J. N. McCormick, Bowling Green	Louisville	April 27
Louisiana	P. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 20
Maine	Wm. J. Maybury, Saco	Portland	March 9
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 15
Massachusetts*	E. B. Harvey, State House, Boston	Boston	March 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	April 6
Mississippi	S. H. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	May 4
Montana*	Wm. C. Riddell, Helena	Helena	April 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Feb. 2
Nevada	S. L. Lee, Carson City	Carson City	May 3
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	July —
New Jersey	J. W. Bennett, Long Branch	Trenton	June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	April 12
New York	C. P. Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	Feb. 2
N. Carolina*	B. K. Hays, Oxford	Asheville	June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	April 6
Ohio	Geo. H. Matson, Columbus	Columbus	June 8
Oklahoma*	P. P. Davis, Enid	Chicasha	
Oregon	B. E. Miller, Portland	Portland	July 6
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	June —
Rhode Island	G. T. Swarts, Providence	Providence	April 1
S. Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Watertown	July 14
Tennessee*	T. J. Happel, Trenton	Memphis / Nashville / Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Cleburne	June 22
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	April 5
Vermont	W. Scott Nay, Underhill	Burlington	July 13
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	K. Turner, Seattle	Seattle	July 6
W. Virginia	H. A. Barbee, Point Pleasant	Huntington	April 13
Wisconsin	J. V. Stevens, Jefferson	Madison	July 13
Wyoming	S. B. Miller, Laramie	Cheyenne	Feb. 10

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending January 23, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	457	179
Diphtheria	377	49
Measles	468	21
Scarlet Fever	359	18
Smallpox	—	—
Varicella	152	—
Typhoid Fever	34	8
Whooping Cough	23	4
Cerebrospinal Meningitis	—	3
Malarial Fever	—	—
Totals	1870	282

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THE EYE OF YESTERDAY AND OF TO-DAY.*

BY FRANCIS VALK, M.D.,

NEW YORK.

I APPRECIATE fully the honor of appearing before this Society to-night, and while I am aware of my own shortcomings in an address that may prove interesting, yet I could not refuse the kind invitation of your genial chairman. But, having accepted that invitation, the question was at once presented to me in this way. What shall my title be, or what subject can be of sufficient interest to repay you for your presence and your attention? Now, your president has kindly allowed me to select any subject pertaining to the eye, and it has occurred to me that a partial history of the eye of yesterday and of the eye to-day may prove of sufficient interest. With that thought in mind I trust you may find some food for reflection and for instruction, while on my part I am sure your free discussion must be of much benefit to myself. As I understand, this Society is composed chiefly of members of our honored profession who have taken as their life's work that of the general physician, the greatest part of all specialties of medicine. If I am correct, I may well ask the question: What shall the general physician know of the diseases and abnormal conditions of the eye and the ocular apparatus? Now, to present a paper on the strictly scientific side of the question is not my object to-night, but just to touch upon the eye as it was presented to his classes by one of the most eminent men of America many years ago, and then to discuss the many advances that have been made in the past three decades, during which I have had the pleasure and the profit of my work in the diseases and in the abnormal conditions of this most important organ of pleasure and of special sense. Now, for a few moments let me take your thoughts to a time one hundred and thirteen years ago. At that time the celebrated Benjamin Rush was the professor of physiology at Philadelphia. Listening to his teachings there was a young man, evidently very bright and an excellent penman, and while listening to these lectures, this young man took them down in his notebook in longhand. (They had no stenography and typewriters in those days.) Those notes he then copied in a well-bound book with many flourishes, headlines, and an index, the whole comprising two volumes (which I have treasured in my library). Now, surely by such testimony as this we may know the thoughts of the eminent lecturer not only on general medicine, but on the eye, in which we are chiefly interested to-night, and as we seek this information, what do we find? You will pardon me if I quote to you a few sentences from these remarkable lectures. The first on the "Sense of Seeing," the second on "Vision," and the third on the "Pleasures of the Eye." In the first we have, "Light I believe to be matter . . . it is invisible in the night because it is in a quiescent state." "Light analyzed in a prism discovers seven colors." On "vision" we have "Rays coming from different points of an object are by the humors and cornea refracted to a point on the retina." It is so to-day, but you will note he makes no mention of the lens. Lastly we have "the Pleasure of the Eye," in which he describes the pleasure of the mind as we appreciate "light, color, figures, motion, sights, distance, and magnitude all combined to pour an ocean of pleasure on this sense." Then we are told that the "Queen of Sheba died from the sudden pleasure of seeing the buildings of Solomon," and the lecturer also relates his own pleasure of seeing a balloon on fire in the sky. And finally, as he combines the pleasure of the eye and the ear he says: "Lewis, fifteenth king of France, used to mix a bed of roses and a band of music with his venereal pleasure," but adds "these combinations have arisen from ignorance of the laws of sensation." Such is the physiology of the eye more than one hundred years ago, and what shall we say of to-day? How shall we present to you the vast advance that has been made in ophthalmology since my entrance into this honored profession, now three decades ago? To-day our knowledge of the diseases of the eye in all its etiology, its diagnosis, and its treatment is remarkable, and ophthalmology has become a true science, one that is so large that it has been well said "we now have specialists in a specialty."

Now, in the time at my disposal let me briefly review some of the most notable advances that have proven of immense advantage to the human race and that have prevented so many cases of what might have been permanent blindness or, at best, diminished vision. I shall be able to cite only a few of these, but most notable of all I find the advance that has been made in the prevention and in the treatment of that most dreaded disease, ophthalmia neonatorum. You are all familiar with the characteristics of this disease of early childhood with its copious secretion, its gonococcus, its tendency to extend to the cornea and its rapid threatening of the integrity of the sight. You have all met these cases with the large white leucoma covering the cornea after recovery, the perforation of the eyeball, the cornea, iris, and lens so massed together as to destroy any possibility of a restoration of the vision by any operative treatment. These cases were often presented to us at our clinics in the dispensaries and in the hospitals, and how hopeless the surgeon's art would seem as the eyes of the little one were opened and it was discovered that the destructive process

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had finished its work. But to-day I am happy to say that, thanks to the excellent method of prevention instituted by Credé and our knowledge of the necessary care and treatment of these cases, it is now seldom that we are called upon to tell the anxious mother that nothing can be done to restore her child's eyes. Now, you are all aware of this method of prevention by which the dropping into the child's eyes a solution of silver, ten grains to the ounce, will effectually destroy the bacteria and render this disease innocuous. And furthermore, if this disease, through neglect or inattention, should be established, do we not know that the daily instillation of the solution of silver and the constant attention to cleanliness will in nearly all cases, if the cornea is not involved, result in a complete cure? In this connection allow me to suggest to you, as a remedy of prevention or of cure, a solution of nitrate of silver that I have used in my practice with a result that to me has been exceedingly useful and effective. It is well known that the usual solution of nitrate of silver tends to deteriorate by the deposit of an oxide of silver, in this way making that solution of silver much less effective and more unreliable to combat this disease. But some years ago I noticed a formula advising the addition of the sweet spirit of niter to the solution, by which we prevent the precipation of the oxide from the free nitrous acid in the solution of niter; hence we have a solution of pure nascent nitrate of silver, in which state it is well known to be much more effective. My formula, as used for the past fifteen years, has been five grains of nitrate of silver, two drams of sweet spirit of niter, and six drams of water. This makes a clear solution and may be freely applied to the delicate structure of the cornea and the conjunctival sac without the slightest fear of injury to these structures. Now, in the treatment of all cases of gonorrheal ophthalmia in the adult and of ophthalmia neonatorum, it seems to me that the most important points to remember are cleanliness, asepsis, and gentleness. I have seen the eyes very seriously endangered, if not lost, by too great an effort to dislodge all secretion from the conjunctival sac. The corneal epithelium is exceedingly delicate, and the slightest injury to this membrane may be the point of rapid introduction of the disease germs to the corneal tissue, which will rapidly lead to destruction of the eye. In the acute stage when the lids are swollen and hard, we cannot evert them or even force a pipette between them. Now, they must be kept clean by washing every two hours with a solution of boracic acid or a solution of peroxide of hydrogen. If necessary, the lids may be gently raised with the retractor so that we may be informed as to condition of the cornea. If the lids can be everted, I apply daily with a small cotton swab the solution of nitrate of silver as suggested. Atropine is not necessary in these cases, unless the cornea is involved.

Aside from the conjunctival disease we may have an implication of the eye from the systemic infection following an acute attack of gonorrhea. Bull reports five cases that were followed by very severe attacks of iridochoroiditis, with pain, swelling of the lids and chemosis, discolored iris, and reduced vision. Leber claims that these microscopic germs must find their way into the circulation and by those paths enter the tissues of the eye. De Wecker claims that all cases of iridochoroiditis associated with an inflammation of the joints are always due to gonorrheal infection.

These systemic complications, fortunately, are very rare. But the local condition or disease is not infrequent, and unless carefully watched, will leave a dense white opacity in the cornea with adhesions of the iris to its posterior surface. At a symposium on this subject I closed my remarks with these words: "A disease so serious in its acute stage, so fatal to sight in its consequences, so serious in the reduction of the earning power of the individual, and yet so easily prevented, is well worthy of our serious consideration."

In connection with the advancement that has been made by the use of the Credé method of prevention, I may mention a condition of paresis of the accommodation in children following an attack of diphtheria. Some years ago I frequently noticed these cases in my clinical work in which I would see children of seven or ten years of age unable to read, and with some diminished vision at the distance. This had occurred suddenly and in taking the history it was usual to find that the child had had an attack of diphtheria. While this condition tends to recovery, it is to be noted that these cases are very seldom presented at the clinic to-day. Now, we find that from investigations by R. Bylsena of Middleburg, Germany, of all children who have been treated with the serum, not a single case has shown this postdiphtheritic paralysis of the accommodation. I think this is a notable advancement in medicine and one that should be more fully noted and confirmed by the general practitioner. May we not consider these two conditions as remarkable advancements in the practice of ophthalmology to-day, and in which the credit is wholly due to the advancement of general medicine?

To-day, the diseases of the interior of the eye are as an open book to the ophthalmologist by the use of the ophthalmoscope, and though this instrument is truly one of precision, yet its use should be more common in the hands of the general physician. By its use we can note the condition of the blood-vessels, both the arteries and the veins, as well as the general background of the eyeball. In this limited space do we not see the changes produced by many systemic conditions, in many cases before they are noted by their general symptoms? Can we not see the changes produced by an arteriosclerosis when we note the depression in the veins as the hardened arteries pass over these vessels almost closing their lumen? How often do we notice the changes in the vessels and retina in disease of the kidneys, which produce the characteristic appearance of albuminuric retinitis by which we can confirm the diagnosis and warn our patients of their danger. It is also by the use of the ophthalmoscope that we see the conditions indicating diabetes, syphilis, anemia, and the various pathological changes due to disease of the retina itself. All these conditions were many years ago classed as amblyopia or amaurosis—general terms which simply indicated loss of vision, but to-day their true character and significance are well known. We turn the examination with the ophthalmoscope to the disc or optic nerve entrance, and here we may find the evidences of the "choked disc," that frequent forerunner of some neoplasm or disease of the brain, or we note its peculiar color, we may suspect a rectrobulbar neuritis, a disease so common among those who worship too freqnently at the "flowing bowl."

All these conditions can be readily seen by the physician who will perfect himself in the use of this valuable instrument. To see the normal conditions

of the retina is not difficult, nor does it require a special amount of practice; and if one appreciates the normal conditions of the eye ground as shown by the ophthalmoscope, he can readily note all abnormal or pathological conditions. Some years ago I had the pleasure of reading a paper before our State Society on the use of the ophthalmoscope, and concluded as follows: "We do not contend that the general practitioner must of necessity become an expert in the use of the ophthalmoscope, but we believe that he must depend upon its revelations, if he would early recognize certain disorders of the brain, arterial degeneration, and renal complications."

Now, in the treatment of the diseases of the eye to-day I have little to say, as I think the medical armamentarium of the oculist is small indeed. But a few general thoughts may be of interest as to diagnosis and treatment. At the last meeting of the Academy of Ophthalmology, held in Cleveland last August, a very interesting discussion took place in reference to the subject of how much knowledge of ophthalmology the general physician should have, or, in other words, how much the undergraduate shall be taught in our colleges. This question is difficult to answer and is one that needs an answer from the physician in constant general work. It seems to me that in the larger cities, when the services of an oculist can be so readily obtained, the general practitioner should burden himself very little with the diseases of the eye and the various phenomena pertaining thereto, as the subject is too large to understand it all, and we may well say, where shall we draw the line in his studies of the subject? But on the other hand, the country physician, from the isolated nature of his practice, must inform himself of all the knowledge possible of the care and treatment of the eyes. To this end I shall endeavor to point out some general objective symptoms by which the cases may be treated so as to prevent serious complications or the result of serious impairment of the vision. As I have conducted my clinical work at the Post-Graduate Hospital, it has seemed to me, that from the appearance of a patient, as he is seated before me, and before asking any question, we may at once conclude what is the probable cause of his present disease of the eyes. You may say, that is a "snap diagnosis," and you would be correct; yet in many cases it will be confirmed in the examination, and I am not speaking for the benefit of those well versed in the practice of ophthalmology.

Now, let us consider the more common diseases of the eye, that is to say, those of the cornea and iris and those of the conjunctiva. What of our "snap diagnosis" in these cases? May we not just notice if we have a condition of photophobia or dread of light? And if so, what does it indicate? If our patients do not present this symptom, we may consider it doubtful if we have any disease of the deeper or most important parts of the eye; in other words, a case that does not seem to suffer from this dread of light, probably has some affection of the conjunctiva which, if proved by examination, may be treated with the usual astringents, but if they do shade and close the eyes, then our diagnosis is more serious and atropine is indicated. Now, this simple rule will cover many cases and, if followed, will prevent much serious injury to the sight. Let me illustrate this. A case of conjunctival disease may not cause any serious injury, but if we have an inflammation of the cornea or iris, which always is accompanied by photophobia, then the use of atropine will prevent an opacity of the cornea, if that substance is involved, or an adhesion of the iris, if an inflammation of that delicate membrane is present. I have many times seen an iritis treated as a simple conjunctival disease until the iris was completely adherent to the capsule of the lens, when a few drops of atropine in the early stages of the disease would have prevented these adhesions. This simple rule will prevent many complications until a more full and complete diagnosis can be made and the proper treatment instituted. A little child is brought to us with the head pressed against the mother's shoulder, the eyes tightly closed, but no evidence of any secretion. In such a case we may at once conclude, that the little one has an inflammation of the cornea—a keratitis, and on opening the eyes we find the infiltration of the cornea, as we see the more or less localized whiteness of the membrane with the "rosy zone" of congestion or redness around the cornea. These cases are very common, and proper attention to the diet and the use of atropine will rapidly cure them.

I shall not attempt to review the advance in the surgery of the eye to-day. It has made the same rapid strides as the treatment, and seldom do we see the cases of eye diseases and eye operations shut up in dark rooms devoid of light and air in the fear of some unknown danger. To-day our eye wards are well lighted and ventilated, and the tendency to take off the bandage is more or less prevalent. To-day the progress is much more promising and the percentage of failures is much less in all our operative cases. The prognosis in cataract is now very promising, and I feel confident in saying that our percentage of failures in the operations for senile cataract, either simple or combined, has fallen from 8 or 10 per cent to almost, if not fully, one per cent. Such excellent work is due to a more complete technique and antisepsis in the operations and after-care of our cases.

In this connection, the drug cocaine has played a very important part, and our patients with senile cataract need not fear the operation, as under this beneficent drug the procedure is perfectly painless and we avoid the unpleasant aftereffects of an anesthetic. Glaucoma—that dread disease with its increased tension, its slowly decreasing field of vision, and the final result in complete and incurable blindness, may now be controlled by eserine or pilocarpine, or, these failing, then a well-performed iridectomy will seldom fail to arrest the progress of the disease and may improve the failing sight. Ocular surgery has also advanced in the domain of ocular motility, and the little one whose eyes are crossed need no longer suffer the teasing of its companions, as at the proper time a careful operation will place the abnormally turning eye back to its proper position. I think it is now conceded that all cases of squint are due to some defect in the rotation of the eye, in other words, that we have a want of development in one of the lateral moving muscles, always showing as a deficiency in the rotational power, and to-day I think that our first consideration should be to increase this by a suitable operation. For some years I have followed out this rule with uniform success, always doing the shortening operation on the weak externi, in convergent squint, and then, if necessary, a guarded tenotomy under cocaine, until the position of the optic axes is correct. By this method every case is finally successful; in many we have binocular vision, and an over-correction by this method is very rare.

To-day the advances that have been made in the examination of the refraction have been very great and perhaps the day will come when my prophecy made two years ago will prove true. At that time I stated that the day would come when we, as physicians, would be able to fit glasses without questioning our patients; or, in plainer words, I trust that we may so perfect our objective tests of the refraction that we may know what correction will be required. Perhaps I was too optimistic, but to-day we can tell if a myope's refraction is benign or is pernicious, that is to say, that it will remain stationary or that it will increase with all the possible dangers of a posterior sclerochorioiditis, detachment of the retina, floating bodies, and diminished vision. All this may be known if we will study the radius of the cornea. Benign myopia is well shown in the shortened radius of curvature, if we accept 7.65 mm. as the normal curve; while progressive myopia will always show the flat cornea or one with a much longer radius. Hypermetropia, that condition of refraction which in children causes them to be dull, nervous, and backward in their studies, is readily corrected by glasses, while astigmatism, a word so common to-day on the lips of the laity, is readily diagnosed and measured by the retinoscope and the ophthalmometer. The normal eye may not need glasses until old age brings presbyopia, but an abnormal condition of refraction must bring distress unless corrected if our people will continue to use the eyes for constant reading. We see too many children wearing glasses in all our large cities but we cannot turn these children out to play in the fields; the streets of the city are no place for them; they must turn to their books for amusement, and if they have an error of refraction they must use the glasses or suffer from the symptoms of eyestrain. It is true that many reflex symptoms are of functional origin and that they have their commencement in an eyestrain from an error of refraction. This should call for the services of the physician and not those of the optician, as the latter cannot fully complete the work in many cases. To my mind one of the most important advances in modern ophthalmology to-day has been the results of the investigations in the motility of the eyes, that is to say, the ability to move the eyes in their automatic and in their volitional function. To-day we find that the movements of the eyes seem to be controlled by two distinct and separate functions, first the power to fuse the images on the two retina; this is binocular vision. This function is purely automatic, controlled by a special centre in the floor of the third ventricle, and is in no way under the control of the will. Now, secondly, we have the movements of the eyes, fully under the power of the will, controlled by centres in the higher brain or cortex, which enable us to move the eyes, by conjugate motion, to any and all parts of the field of space. It seems to me reasonable, though denied by many, that an end-organ so delicately poised on the contents of the orbits, so beautifully moved and controlled by the action of twelve muscles, so perfectly turning in unison with each other, must cause certain reflex symptoms and distress if this delicate muscular action should be abnormal in any way. Hence, the study of heterophoria, or ocular imbalance, will well repay the student of ocular rotations and these investigations in orthophoria, dextrophoria, anophoria, esophoria, and exophoria will be extremely interesting as they may be the prime cause of many reflex symptoms, of which I may mention, headpain, nervousness, pain in the back of the neck, and even, as claimed by some, chorea and epilepsy. I am somewhat in doubt in reference to these claims in the last two conditions, but I have noted many cases of chorea and of migraine very much relieved by the proper adjustment of an evident imbalance of the ocular muscles. In the treatment of these cases we may have success by the use of glasses and prisms; but some will not tolerate these and we must look to operative eye surgery for the correction of these cases of heterophoria, in which I prefer the shortening operation on the weak muscles as the best and the safest procedure.

One of the most complex problems of the present day, associated with the advancements of ophthalmology, one that has caused much controversy in the profession and that is many times denied by some, is the symptom complex, generally called eyestrain. If we listen to the arguments of many of my confrères in the domain of ophthalmology, we would conclude that eyestrain is the prime and essential cause of "all the ills that flesh is heir to," and that the simple process of examination for, and selection of, a pair of glasses may and will relieve all cases of epilepsy, chorea, migraine, and many other obscure conditions; but when we read these reports, how much shall we place on the facts and how much on the enthusiasm of the writers?

Now, I cannot endorse any of these, which seem to me, extravagant propositions. Recently we had a paper by a very prominent oculist in which the argument is elaborately advanced that even the symptom complex of Ménère's disease of the semicircular canals is due to an error of refraction, and that the correction of this with glasses will stop the dizzy sensations, the vomiting, and the tinnitus. Gould's argument is very elaborate and almost convincing,* but I cannot accept the theory of any such close connection between the eye and the ear. We do know that some cases will suffer certain symptoms similar to those of Ménière's disease, as dizziness, which may be promptly relieved by the use of suitable glasses, but that this procedure should have any connection with the tinnitus and deafness is almost too "far a cry" to satisfy my own experience. A simple hyperopia will frequently assert itself as the age of presbyopia comes on, and dizzy sensations are frequently the most pronounced symptom.

I have not seen the case that had the other symptoms associated with it, nor have I seen a case of Ménière's disease cured by glasses. On the other hand, if we listen to the arguments of the neurologists, we must conclude that eyestrain has no relation to any of the so-called reflexes, be they functional or organic; and to claim that eyestrain may be an occupational neurosis seems to cause a very decided obsession in my friend Patrick of Chicago, as he says the use of the eyes is merely a normal function and is physiological. But Patrick says we may abuse some of our functions and then we must "pay the penalty," even if the use of the eyes is a normal physiological function. Yet we can abuse this function by overuse and then we must "pay the penalty" which means that we must suffer from eyestrain. But may we not accept a much broader view, be more conservative in our opinions and try to understand the subject in its true light? It seems to me that the general consensus of opinion by the profession may be summed up in this way, that eyestrain does exist and that it does cause certain symp-

*Gould: Medical Record, Oct., 1908.

toms that are functional. But, even if functional, they do cause much distress and suffering, and these symptoms are relieved by the correction of this strain on the organs of vision. If we accept these propositions, then we may well ask: What are the causes of eyestrain, what are its symptoms, and what are the means of relief in the armamentarium of the physician? Granting then that we do have such a complex condition as eyestrain, we may well ask the question: Why is this eyestrain so prevalent at the present time? Now, we may say that our present civilization is the cause of so much eyestrain, if by civilization we mean the constant use of the eyes for near work. The demand for reading matter has increased a thousandfold during the past two decades, our country is dotted all over with the circulating libraries lending out books to "old men and maidens, young men and children," whereby they spend their time reading instead of indulging in that healthy relaxation and exercise that the general system needs. If we glance at the subject in this way, the etiology of eyestrain becomes very apparent, as it goes without argument that if the muscles which control our seeing function are constantly in action and we have an abnormal condition of the ocular apparatus, then nature must rebel and we have the phenomena of eyestrain as the result. The normal or emmetropic eye may stand an immense amount of physiological work, but too many fail to have this normal eye; nature has furnished them with what we as physicians consider an abnormal condition, and if so, these individuals must suffer, must "pay the penalty" if they attempt to use the eyes too freely.

Now, I shall not attempt to define the normal eye, but to discuss the question what are the causes of the abnormal condition? Primarily, we have the condition of the eye designated as an error of refraction, such as an hyperopia, a myopia or an astigmatism, due to an unequal refraction in the two principal meridians of the cornea; and secondarily, a want of balance, heterophoria, in the straight muscles of the eyes which will cause an inequality in the ocular motility.

I do not intend to burden this paper with special cases, but to illustrate my contention that eyestrain may be due to an error of refraction or to a want of motility in the ocular apparatus, that is to say, an imbalance, I will give you a few details of three cases in my private practice. Furthermore, I am willing to acknowledge that the vast majority of all cases of eyestrain are due simply to an existing error of refraction, yet certain cases also point to the fact that the symptoms may be due to a want of balance in the external ocular muscles without any objective or subjective evidence of a refractive error. The following cases will illustrate this condition:

Case 3953.—Mrs. A. L. B., age 25. Eyestrain. V. 20/15 each. Rejects all glasses. Refraction almost emmetropic: Latent convergent squint, 10°. All asthenopic symptoms relieved by prisms.

Case 4190.—Mr. D., age 25. Eyestrain, V 20/15. Refraction emmetropic, no astigmatism. Rejects all glasses. Latent convergent squint, esophoria. Prisms of no service; all asthenopic symptoms relieved by shortening the externus.

These are two very similar cases, in one of which we have perfect relief with the use of prisms worn constantly, and in the other we could not get relief until the muscular balance was restored by an operation.

Case 4744.—Mrs. M. W. N., age 25. Worn glasses without relief; eyestrain and asthenopia. V. 20/15, w + 1 D. cyl. ax 90°, each eye. Latent convergent squint or esophoria with dextrophoria. Complete correction of the astigmatism with glasses gives complete relief.

Here we present the relief of eyestrain by correction of the refraction alone.

These three cases illustrate very clearly the usual means or method of treatment of eyestrain, in which the final result cannot be predicted until these means are tried; as correction of the refraction may fail, prisms may be tried without benefit, and finally a suitable operation may be performed. Under this method of procedure, success will come in many cases, and our failures to relieve eyestrain will be very few.

It would be a long story to relate the many symptoms, as stated to us in the consultation room by our patients, and from which they seem to suffer more or less. I might say that many of these symptoms are heard in the stories of all patients; but it seems to me that some of them have a special reference to the ocular apparatus, and these must call for a special examination. Among the latter we find backwardness in children, inattention at school, rubbing, blinking, and pressing the lids, blurring of the vision, tilting or holding the head forward or backward, headpain caused by reading, writing, and sightseeing, vertigo and dizzy sensations, and headpain around, or back of the neck and around and in the eyes. All these symptoms evidently refer or point to some abnormal condition of the eyes, either refractive or muscular, and, unless there is some other obvious cause for the symptoms, call for a careful examination of the ocular conditions. This examination is imperative before we try to relieve certain symptoms with drugs that may be due to an abnormal condition of the eyes. Headache, that most common expression of the present day, has been referred to the eyes by the laity, but this is only a symptom that may be due to many other conditions; yet it is the one most commonly related in the office of the oculist. As a corollary to this paper I would refer the reader to a recent paper by Coggeshall and Maccoy* on this subject, in which they take the position that "eyestrain headache is due, not only to a refractive error, but may be due to a muscular imbalance;" and on the subject of migraine these writers state that an individual with migraine and having a decided neuropathic diathesis, will probably have an error of refraction or a muscular imbalance as the exciting cause of the phenomena of migraine. At the same time we must admit that other conditions of autointoxication may be the underlying cause of the pain.

It goes without argument that the diagnosis of eyestrain must be along certain lines that necessarily require certain special training. It is also, without doubt, a part of the work of a physician, a part of his armamentarium for the relief from the ills that flesh is heir to; and if the demands of a so-called civilization require more use of the eyes than in the good old days we like to talk about, then these demands must result in certain symptoms, be they functional or not, which come within the practice of medicine as much as the mechanical fittings of a truss or a brace for an orthopedic deformity. An optician may be qualified to fit certain refractive cases and may do it perfectly, but he is not qualified to do all the work that is required for the correction

*Journ. Am. Med. Assoc., January 4, 1908.

of all cases of eyestrain; while the law requires and demands that all conditions of the eyes that may arise do come within the domain of the practice of medicine. I do not believe that the eye and its appendages are any different to-day from what they were fifty years ago; our population has increased a hundredfold, our opportunities to use the eyes at the near point have enormously increased, and our boys and girls are constantly using the eyes reading the many books and papers so freely and cheaply supplied. The result is that we must meet this condition by all the means at our command, when the anatomical condition of the individual requires our aid. The mere fitting of glasses is not the *sine qua non* of the treatment of eyestrain. Many other conditions must be taken into consideration, and indeed the intelligent practitioner will realize that the correction of a refractive error, or that of an imbalance of the eyes, may be of vast importance in the successful treatment of certain of his cases. Perhaps this statement might raise the question in our minds, should all physicians be oculists? By no means. If civilization has advanced in the past two or three decades, so has ophthalmology; so much so, that the subject has become too extensive for a physician to master all its details, as I have before remarked, even those of eyestrain, and yet be a good general practitioner. But while the physician in our larger cities may refer his cases, the country physician cannot readily do so, and he should be able to understand the subject of the refraction and the motility of the eyes. Let him know at least what may be considered as the standard of vision and motility of the eyes, as well as the normal sounds of the heart and the percussion note of normal lung tissue, and then, having recognized an abnormal condition of the eyes, he may or may not decide to correct it.

Is there a normal condition of the eyes? That question is too broad and scientific to answer in a paper of this scope, but we may make some suggestions in relation to it. To do so, I will not consider all the intricate methods of diagnosis used at the present day—we must leave these cases to the ophthalmologist, who is more or less proficient in the use of certain scientific instruments—but every physician can have a test card displayed in his office for the purpose of testing the visual acuity. Furthermore, he may have a candle placed at twenty feet in front of his patient, and with a small set of prisms or even the rod of Maddox, he can test the motility of the eyes. Now, with this simple outfit, and bearing in mind that we do have a standard of vision and of motility, he can readily decide the presence of an abnormal condition that may be the cause of an eyestrain and of its functional symptoms. Let me give that standard in a few words. Our standard vision is usually designated as 20/20, which implies that the eyes are adjusted for rays of light coming from infinity or twenty feet, and that the dioptric apparatus will focus these rays perfectly on the retina with the eye at rest. But our people are so familiar with the size and shape of the letters that I find we must raise this standard somewhat, and I think that 20/15 would be nearer the normal standard; that is to say, we should see letters at twenty feet whose secondary axial rays form a smaller angle than one of five minutes, or, to make this subject more simple, we can see letters at twenty feet that should be seen only at fifteen feet. To repeat, if each eye will see letters at twenty feet that are marked for fifteen feet, then we may say that the eye has normal vision. It is true that many eyes with abnormal refraction may have normal vision, but that subject comes within the domain of the specialist and not that of the general physician. Our object is to call the attention to, and to point out, the method of examination where the vision is below the normal, as, if the record only shows V. 20/40, then the sight is subnormal, and we may have some evidence of the cause of the eyestrain.

Having examined the visual power, we now proceed to test the motility of the eyes, or their power to fuse images, by the prism test. First, place a red glass before one eye, and as the patient looks at the candle, note if he has double vision and if so whether the images are crossed or homonymous; that is to say, is the red glass on the same side on which the red light is seen, or is it on the opposite side? If on the same side, it indicates a possible paresis or, at least, a weakness of one of the abductors or externi. If on the opposite side or crossed, it indicates a possible paresis or weakness of one of the adductors or interni. The Maddox rod is used in the same way and shows the same conditions. We follow this test by removing the red glass and placing a prism of six degrees over one eye with the base of the prism placed inwards. If this does not cause any diplopia, then remove that prism and place a prism of twenty degrees over the eye with the base outward. Again, if we have no diplopia, we may use stronger prisms in the same way. If, after finding the strongest prisms, base in and base out, with which the patient can fuse or blend the images of the candle at twenty feet, we then discover that the degrees of these prisms bear the relation of one of abduction to three or four of adduction, it is very doubtful if we have any muscular imbalance. Such is the simple, yet excellent test for the standard of the motility of the eyes. These are tests that should be in use in every physician's office, and the routine use of them in all cases that present any symptoms of eyestrain may assist in the diagnosis. To carry our examination beyond this point would come within the work of a specialist, who is more fully competent to work out the possible latent conditions, as astigmatism and certain muscular errors. These simple tests were the first ones that I was taught in my early work in ophthalmology, and, in my experience since that time, they hold as good to-day as three decades ago.

In presenting the above statements of the correct vision and motility, it must be understood that in some cases we may have eyestrain with the most perfect vision, and it has been suggested, as an axiom, that "the better the vision, the more the reflex troubles." While I doubt this, yet we do find that many slight errors of refraction are the prime cause of certain reflex symptoms. It is doubtful if any line of treatment will be successful, if these cases are due to a refractive error, or to a muscular imbalance. These people must submit to a careful scientific examination of the eyes for the correction of the existing abnormality by glasses or such other methods as may seem necessary. This examination is essential so that we may eliminate eyestrain as the cause of certain other reflex symptoms. But even accepting the proposition that eyestrain may be the cause of the symptoms, yet, with their accurately fitted glasses, even under a mydriatic, such persons will still feel the strain on the accommodation with pain about the eyes. If so, then we may find indicated certain general tonics, restricting the use of the eyes, outdoor exercise, and,

as a local application. I have found very useful a solution of eserine sulphate, 1/40 gr. to the ounce, one drop in each eye three times a day. This drug has a tendency to stimulate the ciliary muscle to action, and to lessen the strain on the accommodation in reading. The use of eserine as a ciliary tonic was suggested by the late Dr. C. R. Agnew at the time he was surgeon of the Manhattan Eye and Ear Hospital, and it has been of much service to me in many cases of eyestrain after the full correction of the refractive and the muscular errors. Furthermore, as regards any internal treatment in these cases of eyestrain that may be due to any muscular imbalance, Seguin, in 1892, published a very interesting article in the *New York Medical Journal* on eyestrain, particularly in reference to an original weakness of the nerves of adduction and abduction, in other words, any lateral muscular imbalance. In his final conclusions as to treatment in cases where the symptoms are increased by an act of accommodation and by convergence, or, we may say, where there is a tendency for the eyes to roll outward when at rest, exophoria, Seguin recommends the use of nux vomica or strychnine, and claims they are sometimes cured by a course of this drug. Furthermore, he says, if we find the fault in the power of abduction, or a tendency for the eyes to roll inward, esophoria, then the use of cannabis inrica, bromides, and atropine for the complete rest of the accommodation, is indicated.

I think this line of treatment will hold good at the present time. These are all cases of muscular imbalance, or as Roosa, the late president of the New York Post-Graduate Hospital, would call it, latent strabismus, and may be corrected by drugs, as Seguin suggests, by wearing prisms, or by an operation if needed. Change of scene and travel are useful, but should not be ordered until we have fully corrected all the visual defects. Again, after all these things have been done, we may find it necessary to allow the patients to use the eyes only by degrees, by the method called Dyer's plan—which I have found useful in some cases—in which we allow them to use the eyes only for stated periods a certain number of times a day.

We must all admit that eyestrain does exist in far greater numbers than in former years, that it is due to a civilization that demands much more constant use of the eyes, that many of our people must have certain abnormal development of the visual apparatus as regards the refraction and the motility, and that the general physician should have, or be aware of, some means by which he may realize the possible presence of eyestrain and then be able to take such means for its correction as may seem best.

I trust that I have not exceeded my time in this rapid and very incomplete record of my personal experience in this interesting field of ophthalmology during the past three decades. The study of all ocular conditions that present any pathological changes in the eye, with the estimation of all the complicated errors of refraction that we meet in our consultation hours, the exceedingly difficult questions to solve in many obscure cases of heterophoria, paresis, and paralysis of the ocular muscles, has been and always will be en exceedingly interesting study to myself. Hence I feel that some of you may have listened to the paper with interest and that I may have mentioned some fact or some condition that may be of much service to you. In a paper of this nature I have omitted many things. I have tried to replace the scientific side of my subject with the conditions that meet the oculist in his work of every day, and to give you my personal experience in as few words as possible, at the same time referring to those subjects that may be most interesting.

One more subject to touch upon, and my task is done. Every physician meets the conditions of double vision or diplopia in the course of his practice. What does it portray, where is the lesion, and what is the condition that is the cause? It seems to me that we can consider this subject in a simple, practical light. We know that the eyes are moved in the orbit by certain straight muscles, which, having their origin at the apex of the orbit and passing forward in their respective sheaths, partly encircle the eyeball to their insertions into the sclera, while the oblique muscles tend to keep the eye steady and essentially to keep the vertical meridians of the eyes parallel to each other. Now, an interesting physiological function of the eyes is that of binocular vision, controlled and governed by the unique fusion force, which enables us to see singly, at all times, though we have two eyes. Hence, if these straight muscles are normal in their development, their size, and their insertion into the eyeball, we must have single vision in all parts of the field of space. All this goes almost without saying, but when we consider all this and appreciate how delicately the eyeballs are poised (if I may use this word) in the orbital cavity, resting on a cushion of fat, their only attachments being the nerve behind and the tendons of the muscles surrounding, we can readily see how the slightest impairment of this beautiful mechanism can disturb the fusion force, and we have diplopia, or double vision. Now I wish distinctly to state that the double vision must be due to some pathological condition in the ocular apparatus when the look is in infinity; that is to say, a heterophoria, or weakness of one of the muscles, will not cause diplopia at infinity, though it may do so if we tend to destroy the fusion force by a cover over one eye, by a red glass, or when the eye is in the extreme parts of the field of rotation. But if we have the slightest disturbance of the nervous supply, a slight paresis of any one of the straight ocular muscles, then we must have diplopia, and the character of that diplopia will indicate which muscle is affected. Now, while the diplopia may indicate some pathological condition of some one or more of the twelve muscles of the eye, we must by some simple reasoning decide what muscles are affected, and perhaps where the lesion is situated. In the presence of diplopia it will be noted that one image, as seen by the patient, is not so distinct, is blurred; this must evidently belong to the deviating eye, and we must now make our diagnosis from the position of the false or blurred image. This we do by what is called the law of projection. Now, projection is a physiological function of the eye, by which the image of an object, as formed on the retina, is projected or seen in space and must follow certain laws which I will interpret in a few words. The location of an image in space always proceeds from an image on the opposite side of the retina, that is to say, an image seen outward comes from an impression on the inner side of the retina. Hence, when the image is seen outwards, we have homonymous diplopia, and crossed diplopia when the image is seen on the opposite side of the affected eye. Those are the two important rules, as nearly all pareses affect the

lateral moving muscles. Granting that, our diagnosis becomes simple, as homonymous diplopia must show that the image comes from the inner side of the retina, or that the eye is turned inward from weakness of the externi, and crossed diplopia must show that the image comes from the outer part of the retina or that the eye is turned outward from weakness of the interni. Following this rule and remembering that the indistinct image belongs to the deviating eye, the diagnosis of paresis of the ocular muscles is apparent. In paralysis of the ocular muscles the diagnosis is obvious, as the position of the almost immovable eye in certain directions at once indicates the muscle affected.

If there is one excuse that may be offered for the reading of this paper tonight, it is in the desire to bring before you some of the essential points that the general practitioner should know on the subject of opthalmology. He cannot know all the intricate means of diagnosis and of treatment, but I have endeavored to present the essential conditions as found in diseases of the eye and the ocular apparatus. If I have failed to illustrate the conditions fully to you, I must plead the want of time and trust that your discussions may correct these failures of mine. Ophthalmology as well as general medicine has made many and rapid advances in the past three decades, and yet we have much to learn and much to understand, as we study these complex end organs of the brain. To this end I trust I may always be a student of the eye of yesterday and to-day.

SOME SERIOUS LAPSES IN ADMINISTRATIVE HYGIENE.*

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The aim of my paper this evening is to direct the attention of the profession to the prolific causation of disease involved in the pathogenesis of a group of factors which may be classified as decadent proteins, and including degenerate nucleins, degradation albumins, putrefactive products, and divers renegade tissue extractives when ingested as food.

It has long been a stigma on our fair country that, notwithstanding that we are now supplying a large portion of the world with food products which we produce in such prodigious quantities, owing to our lax hygienic laws we are ourselves probably the worst provided for of any civilized country: and, moreover, we pay more for wholesome foodstuffs at home than American products can be bought for abroad.

We expend millions of dollars annually for State and municipal departments of health which, owing to lax laws, avail us little in the protection of the people against this class of unwholesome and disease-breeding provisions. We are ignoring the causes of tuberculosis in cattle while fighting its transmission. We are forgetting the toxicity of retrograde metabolism and decomposition products, while we are too optimistic in our confidence in parasitic organisms as responsible for all our pathological woes.

We poison ourselves with decomposition and degradation nitrogenous products in milk, rank butter, bitter cream, musty eggs, decomposed poultry, etc., with perfect complacence in the knowledge that they have not been condemned from the bacteriological point of view. Our laws are thus exceedingly unequal and inconsistent. We overestimate our security from disease by inhibiting bacterial infection and growth on the one hand, and leave our fences down on the other. Pasteurization is not a panacea for retrograde metabolic and decomposition products any more than for dirt or dung contents.

The Hygiene of the Cow versus That of Milking and the Preservation and Delivery of Milk.—In the discussion of this subject I would not be construed as in any way deprecating the good work done, or the great strides really made by health authorities in this country. However, without underrating the importance of modern sanitation about the dairy, the storage and delivery of chilled milk, the maintenance of bacteriological and butterfat standards, as determined by skillful and careful daily inspection and certification, I would emphasize the fact that another factor is too often entirely neglected, namely, the hygiene and health of the milch cow.

This is the age *par excellence* of the recognition of the preventive factors of that class of affections formerly so prevalent and now so relatively scarce, namely, struma and scrofula, antecedent and predisposing to tuberculosis—especially sunlight, fresh, pure air, and adequate physiological exercise. New tenement laws, legislation against overcrowding, the opening of recreation piers and floating hospitals, cruising excursions of fresh-air funds, open air and school gymnasiums, etc., elegantly express the full present day recognition of good light, air, and exercise as factors of health in the human subject.

But how about the poor cow? Summer excursions to the dairy districts, especially to a few model dairy farms under the inspection of municipal health departments, present an exceedingly rosy picture of bovine conditions. The cows are driven in from the green pastures into ideal milking sheds, where they are cleansed and milked by white-garbed milkers, and the milk is then handled by sanitary methods and stored and delivered to the consumer in bottles which are sterilized and kept chilled.

If we inspect the average dairy in winter we have present in many respects a far different picture. The recognized requirements for light, air, and exercise of the human subject evidently are not believed to apply to the cow, for we find her housed in sheds with low ceilings. The recognized number of cubic feet of air per capita is deficient, the atmosphere is heavily laden with vile contaminations of decomposed urine and dung. The sheds are nearly dark in efforts at exclusion of exterior cold, the cow is so fixed by the neck bars that she can scarcely move out of her tracks, and she is not exercised out of doors often for weeks or more at a time.

According to Lane, "An investigation of fifty dairy herds in Pennsylvania by *Hoard's Dairyman* developed that 'about 75 per cent. of the barns were reported not sufficiently warm. This caused a waste of food nutrients. Not more than 10 per cent. of the stables were provided with any system of ventilation other than windows, holes in the floor over the stable, and hay chutes. In addition to pure air, sunshine was also lacking in most cases.'"

Apropos of my commentaries on food, Lane in his conclusions observes: "Too often the carbohydrates in the rations were far in excess of what the cow could utilize in milk production, and this resulted in waste. In some cases cornstalks were fed to the stock dry and uncut, only a part being eaten. Where protein crops were grown to supple-

*Read before the Medical Association of the Greater City of New York, January 18, 1909.

ment the pasture an increased milk yield and a greater profit were secured." And he might have added, a healthier cow resulted.

To cap the climax, the modern winter feeding has evolved from the bran and ground cereal feeds of the past to ensilage, an acid fermentation product of cornstalks; also brewing refuse, etc. As a consequence of this modern feed, the milk comes from the udder with an acid reaction. The ensilage of green maize (cornstalks), in common use in this country owing to its cheapness—also termed sour fodder—is characterized by La Far[5] as containing a relatively high percentage of volatile (fatty) acids. As compared to sweet fodder, or sweet ensilage, which is most popular in Great Britain and the continent of Europe, in which lactic acid predominates over butyric, acetic, and valeric acids, the sour ensilage exhibits a more mixed fermentation, with the acetic fermentation usually dominant. In sour ensilage the destruction of albuminoids is about 40 per cent., against from 13 to 31 per cent. of total nitrogenous matter in the sweet ensilage, thus greatly reducing the nutritive elements. The loss in carbohydrates is greater than in albuminoid elements.[5] According to La Far, "the ferments consume a large amount of the albuminoids initially present, and decompose them into amide compounds, ammonia derivatives, and even ammonia, all substances of but little, if any, use for the nutrition of animals which are to be killed as food." (p. 263.)

I believe it is customary for New York physicians to disregard the character of the feed of cows as related to the milk, and the difficulties of differentiating ensilage from bran and meal fed cows are admittedly insurmountable. I am aware of the fact, however, that in the smaller towns and villages the local physicians give preference to dairies feeding bran and meal over those feeding ensilage, when the milk is consumed by infants and invalids.

What is the effect of her winter's imprisonment upon the cow? I hold that it is exactly the same as we have learned by hard experience occurs in the human species, namely, primarily glandular disease, and, secondarily, tuberculous infection. The present market values of beef and milk bring home to us the effect of the wholesale destruction of cattle on the basis of the tuberculine test, and however unreliable that test, and the probability that bovine tuberculosis is innocuous to man, we must appreciate the existence of an unnecessarily large invasion of Winter housed milch cows by tuberculosis, a disease which is correspondingly uncommon in Western herded cattle.

The limitations of this paper preclude any discussion of the resulting pathology of the cow, other than to mention that we learn from veterinary works that the cow is subject to about the same variety of glandular diseases as the human subject, ranging from the acute to the chronic forms, thus providing suitable soil for the tuberculous and other parasitic infections, and hence for decadent hypalbuminosis, for toxins, degradation albumins in the blood, peptonuria, and albuminuria. That toxic proteins are imparted direct to human consumers of the milk of such cows, I believe is undoubted.

Scarlet fever, which is so much of a lymphatic disease that Hawley has proposed that it be designated as lymphatic fever, has an analogue in the Hendon disease of cows discovered by Klein in 1875.[4] Dr. E. F. Brush[1] of Mt. Vernon, N. Y., at the April meeting of this association last year, related instances occurring at Mt. Vernon, Ossining, and other places where scarlet fever was traced to the milk supply from herds affected with this disease. At Mt. Vernon sixty cases reported within eight days were traced to one herd so affected. And yet no more cases were reported when this herd was isolated. How exclusively glandular fever and measles depend on this source remains to the future to determine.

Johannessen's statistics, as cited by Forchheimer,[4] show the highest mortality for scarlet fever in Sweden and in Berlin to be in the coldest months of winter, when cows are most closely sheltered from the outer cold, while conversely all authors agree that in southern climates, where cows remain in the meadows the year round, scarlatina is rare or unknown. Statistics from medium climates are indecisive on this point.

That a toxic product exists in the blood of scarlet fever patients is proved by its excretion in the urine. This "scarlatinine," so called, has been proved poisonous by injection into lower animals,[2] and that it is a suboxidation product has been determined by artificially rendering it inert by oxidation. In previous monographs I have pointed out that all general suboxidations of sufficient degree are characterized by autointoxications and by glandular involvement.

Apropos of the above, it may be said that the so-called *Streptococcus scarlatinæ* of Klein is concerned simply with the septic element of severe cases, and, to speak plainly, it is nothing more than a case of infection of glandular suppuration by the ordinary *Streptococcus pyogenes*, and the same is the case in the Hendon disease in cows. That this disease extends to the milk is attested by the involvement of the teats and udder.

It is interesting here that the Department of Agriculture has been wrestling for some time with a disease prevalent in the Middle West, which is communicated to man through the medium of cows' milk, termed milk sickness, or trembles, the manifestations of which are said to resemble ptomain poisoning.[3] It is most typically characterized by nausea, vomiting, severe constipation, restlessness, muscular tremors, prostration, atypical pain, great thirst, and tendency to subnormal temperature

It has been variously attributed to eating corn fodder, white snakeroot, etc., the latter having recently been found negative. That the *materies morbi* is a product eliminated in the milk is proved by the appearance of the typical symptoms in the cow when milking is suspended for any reason, and the fact that the cow never exhibits it when milking is uninterrupted. Here appears another instance of retrograde metabolism and degradation albumins in the milk. Why do we so freely recognize milk protein toxins in the human subject from such a variety of causes and ignore them in the cow?

I do not hold that bad housing of cows during the cold months is the exclusive cause of the Hendon and other glandular diseases, for I recognize pronounced atmospheric humidity, wet and upturned soil, etc.—in fact the same general elements which we attribute as factors of etiology with the human subject.

No pathognomonic organism is as yet known in human scarlatina, yet I am not here to-night to discuss general parasitic pros and cons. Take the above for what it is worth

My object is to bring to your notice the obvious fact that milk plays the role of carrier of toxins as

well as infections, and thus point out a serious lapse in administrative hygienics in the neglect of this very important source of disease.

In this enlightened era of the recognition of degradation albumins, of toxic properties, toxic dissociation extractives, and general autointoxication and the general physiological and pathological chemistry of the proteids, milk should no longer be neglected from this standpoint.

It is interesting that our lawmakers have already taken cognizance of the baneful influence of the ordinary waste products in flesh foods by the enaction of laws against butchering animals for food until after any fatigue engendered in driving them to slaughter has been recuperated from and the products have been duly eliminated.

Former time practices of purposely fatiguing animals—in fact, torturing them to give the meat the "hazel nut" quality imparted by the metabolic products in excess, which we now get in beef teas and bouillon, and is so prized by connoisseurs—are now forbidden for the twofold purpose of preventing cruelty and preserving public health. These qualities are, however, provided by the flesh of the deer and hare, which are the victims of the chase, by livers, the cells of which envelop much of the waste products; the wild geese, especially during flight periods, and, lastly, cold-storage undrawn poultry, the flesh of which becomes impregnated with the decomposition products of the decadent viscera, decomposed fat, etc.; the latter, however, as we shall see shortly, is not a stable product, and when too long stored the flesh is as bitter as though impregnated with bile. As is well known, the normal human urine quite strongly exhibits the nutty odor of waste products.

The Pathogenesis of Undrawn Cold Storage Poultry.—A long suffering public has been imposed upon with many forms of "taxation without representation" since the establishment of American independence and such as our revolutionary forefathers never would have stood for. Among the many examples of imposing upon the public at an expense to the public far transcending the intrinsic value of the same is the now exclusive policy of weighing in to the consumer the undrawn entrails of poultry, in addition to the heads and legs complete—the so-called New York dressed, which has now become universal over our fair country for all manner of birds and poultry sold for food. While this custom is alleged to have been nationalized by the meat trust, and the market is thus cornered and monopolized in restraint of trade, since its establishment a few years ago, and it is still under control of these interests, it is also permitted by our lawmakers, in spite of the fact that the edible tissues absorb the toxins and decomposition products from the decadent entrails, and despite that laws are constantly enforced against the same or equivalent conditions in animals killed and sold for food, and notwithstanding that the poultry tissues are the more absorbent of the two.

Any school boy would comprehend the danger involved in attempting to preserve for any length of time an undrawn fowl without freezing, yet by the maintenance of a subfreezing temperature, when the day of reckoning does come and the poultry is thawed by the retailer, a much *worse* danger obtains from eating these birds. Slow mortification has long proceeded in the enteric viscera, as exhibited by the green discoloration, and many other evidences.

As the thawing extends from the surface inward the parenchyma is more widely expanded and loosened than before freezing, the surface tension is correspondingly lowered and free diffusion of the enteric toxins and decomposition products obtains, especially in those places unobstructed by bone, such as the thighs as they come into apposition with the bony openings of the carcass so affected. The thin abdominal wall contiguous to the inner aspect of the thighs appears to act as an osmotic membrane which enteric toxins appear to traverse, and serves as a collecting surface. Also fat degeneration in this location is quite pronounced.

Notwithstanding Miss Pennington's[8] report that putrefaction is not found before thawing, certainly, however skillfully thawed by the slow ice pack method, putrefactive products, indol, skatol, etc., are found in much of this cold storage poultry by the time it reaches the consumer. The parenchyma of the thighs thus becomes so impregnated with the bitter extractives and decadent products of the entrails as to make them unfit for ingestion, and even in varying degrees poisonous, ranging from a reducing action to albumose and possibly ptomain poisoning.

The well-fattened birds preserve the best exterior appearance. In fact, they are easily palmed off as fresh-killed, dry-picked specimens after a year in storage, and hence these are the types upon which the public is most gulled. Modern perfection in the methods of thawing the frozen poultry enables warehouse men to deliver from their storehouses the fattened types in external appearance like those fresh killed.

In these types, however, of well-nigh perfect appearing exterior, the meat on cooking is found much denser and dryer than when fresh; the subcutaneous fat, while present in situ and often expanded, is decomposed, and, besides being exceedingly bitter and ill smelling, is often acrid with dissociated fatty acids. It is also observed that the muscle sheaths and the intermuscular adipose tissue are most decomposed, the exceptional being the fat and the aponeurotic fibrous tissue interposing the abdominal wall and the inner aspect of the thighs.

Interposed between the abdominal wall and the thighs is to be found the greatest collection of decomposition detritus on the bird. It is of liver color, soft, gelatinous consistence, foul smelling, and of acrid bitter taste. The contiguous tissues exhibit a greenish tinge, and a taste and odor similar to the detritus.

The pathogenesis of these decomposition products may be divided into direct and ultimate. Of the symptoms of the former may be enumerated nausea, vomiting, anorexia, headache, drowsiness, and pyrexia; and of the latter, intestinal inflammation and intoxication, nephritis, and general subcatebolism.

The long overdue report on refrigerated undrawn poultry of the bureau of chemistry of the Department of Agriculture has finally appeared in the 1907 Year Book just issued, in an article by Mary E. Pennington,[8] of the bureau of chemistry. This report is such as any ordinary layman could have made, no less superficial. It is neither bacteriological nor chemical, but deals with the superficial aspects of poultry of one, two, and three years' storage, discoloration, odor, atrophy, softening, macroscopic changes of texture, etc. Upon the development of toxic albumoses she is silent.

The impression gained in reading the report is that an innocent type of enzymic autodigestion occurs which renders the tissues tender, easily torn, etc., instead of being a postmortem degeneration of serious import. She does close, however, with a suggestion that possibly some of the intestinal disorders and imperfect metabolism of dwellers of large cities may be due to this cause; nothing definite, however.

The Prime Evil of Cold Storage Egg Preservation.—The advent of great cold storage facilities which has in so many ways profited mankind has not been an unmixed blessing. And it is paradoxical that a product that has been most benefited by it is associated with one of the greatest abuses, namely, the egg.

It was a great thing when it became possible to preserve food products beyond the limited period of their availability, to be supplied to the consumer during the unproductive seasons. Now, however, as a result of the keeping qualities of refrigeration, we suffer by its use as a means of cornering the egg market and hoarding eggs at a time of year when eggs should all be fresh and cheap, and holding them at other seasons of the year at figures almost prohibitive to any but the wealthy, for general consumption, during the winter months.

A natural consequence of withholding from the market to the extent of maintaining high prices from one spring to another, owing to the restricted sale thus produced, a surplus is engendered at the end of the fiscal year, and these are then unloaded on the public as fresh eggs, while the really fresh ones are bought up from the producers and stored, to repeat the process for another year. The ultimate consumer thus largely uses stale eggs the year round or pays a substantial advance for the really fresh ones brought in by dairymen and others who take advantage of the high market to realize well for their products. I will omit the discussion of the chemical changes and pathogenesis of stale eggs, other than to say that they represent but another type of degeneration products and toxic degradation albumins, or albumoses.

As eggs and poultry of uncertain age, extending from one to three years in storage, are continually palmed off on the public as fresh, it is obvious that if laws were enacted obliging the dating of eggs as daily gathered and poultry as killed, with adequate penalties for fraud, and for offering either for sale, or selling either poultry or eggs after one year from date so marked, much good would be accomplished. Also punishment for the sale or offering for sale any products undated or imperfectly preserved for the period allowed. I am not so sure but what six months for poultry and nine months for eggs would be a practical, and certainly would be a more salutary, limit. The sale of poultry after one year of cold storage preservation should constitute a felony. All undrawn poultry and birds in market should be confiscated and destroyed.

In general, our departments of health fairly outdo themselves in bacteriological inspections of milk and other foodstuffs, and conversely they are correspondingly remiss in defending the consumer against the decadent and degradation protein products and their toxic derivatives. They occur in milk of pretuberculous cows, in refrigerated flesh food products, and in stale cold storage eggs. They are pathogenic directly as toxic albumoses, and secondarily as predisposing to infection, yet they are generally ignored.

Commercial avarice imposes them upon the public often under false representations and disguised appearances, and medical men and their families are duped as well as the most uninformed layman. Price paid is no guarantee of fresh poultry and eggs, of the health of a dairy herd, or the freedom of milk from toxic products.

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ACUTE (HEMORRHAGIC) ENCEPHALITIS, WITH REPORT OF CASES.

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Besides the acute purulent inflammation of the brain substance known as purulent encephalitis, or brain abscess, there are at present recognized several forms of acute *non-purulent* inflammation of the brain substance known under the collective name of acute non-purulent encephalitis. Here belongs Wernicke's acute superior poliencephalitis, Strümpell's acute (anterior) poliencephalitis in children, or, which is more correct, acute infectious encephalitis in children, also known as Strümpell's paralysis, and, finally, the acute non-purulent encephalitis in adults, commonly described as acute hemorrhagic encephalitis. Then there also occurs non-purulent combined inflammation of the brain substance with that of the medulla and of the spinal cord which conditions are known as poliencephalitis superior and inferior, bulbomyelitis, poliencephalomyelitis, etc.

Wernicke described his form in 1881,[1] while the two other forms of non-purulent acute encephalitis were established as separate clinical entities by Strümpell in 1885 when he first described the disease in children,[2] and then again in 1890 when he observed it in adults.[3] Leichtenstern showed the probable connection of non-purulent encephalitis in adults with influenza,[4] and this encephalitis is therefore mentioned by some authors (as Oppenheim, for instance) as Strümpell-Leichtenstern's form. Before Strümpell's publication on this subject, there was described under encephalitis cases not only of inflammation, but also of softening of the brain substance (red softening, yellow softening) whatever the cause thereof might be.[5]

The clinical picture of either form of encephalitis, as well as the anatomy and pathology, is quite characteristic, so that a diagnosis usually does not

offer any particular difficulties, especially in Wernicke's form where the external ophthalmoplegia is pathognomonic, and in Strümpell's infantile paralysis where hemiplegia sets in after an acute febrile course. The only form that often presents very great difficulties in the diagnosis is the third form, the acute hemorrhagic encephalitis, which either remains unrecognized altogether or passes under some other diagnosis, as meningitis, typhoid fever, intestinal toxemia, hysteria, etc.

Meningitis is the disease for which acute hemorragic encephalitis is commonly taken, both having sometimes the same clinical picture, and even the same etiology. The other reason for confusion of these two morbid conditions is that the authors of text books on nervous diseases devote too much space to discussion of different forms of meningitis and speak very little or nothing at all of non-purulent hemorrhagic encephalitis. Therefore, physicians coming across the latter do not even suspect its existence.

As an illustration how difficult it is sometimes to differentiate between encephalitis and meningitis, I will briefly cite a case which I saw seven years ago in Nothnagel's clinic in Vienna and in which such an experienced physician as Nothnagel himself was utterly helpless in making a correct diagnosis.

The patient was a boy, fifteen years of age. He was brought in the lecture room in a comatose condition. The eyes and the head were drawn toward the right and the left half of the body was paralyzed. About two weeks previously he had undergone a surgical operation, an osteotomy for genu valgum. He felt well after the operation for three days, *i.e.* there were no complications on the part of the wound, but on the fourth day he began vomiting. On the eighth day a left-sided hemiplegia developed with epileptiform twitchings in the paralyzed side, and the patient fell in a comatose condition in which he was brought to the lecture room. The examination showed some rigidity of the neck, no edema of the papillae, and lumbar puncture was negative; it gave a clear transparent fluid which did not coagulate.

Nothnagel could exclude fatty embolism, tumor, and abscess of the brain, and made a probable diagnosis of tuberculous meningitis with cerebral edema.

The boy died the same day, and the post mortem performed by Weichselbaum on the following day confirmed the existence of edema of the brain, but the cerebral membranes were found perfectly normal, and no tuberculous meningitis was found. Neither was an abscess nor a tumor found, but the thymus was large, and Nothnagel ascribed to this enlarged thymus the cause of death with all mentioned symptoms. "Formerly," said Nothnagel, "when I was a student one frequently spoke of asthma thymicum, a peculiar dyspnea in children, who succumbed to this morbid state. Death was supposed to result from compression of the trachea by the lobes of the enlarged thymus, but Friedleben proved that death in such cases is due not to pressure, but to some disorder in the central nervous system. The expression 'asthma thymicum' was introduced by Arnold Paltauf of Vienna. The anatomical substratum of this disease is a hyperplasia of the lobes of the thymus; hypertrophy of the tonsils, as was the case in our patient; hypertrophy of the retrobronchial and tracheal glands, of the glands at the base of the tongue; hyperplasia of the spleen, etc. Such patients are of a lymphatic constitution, anemic, and easily fall sick after some physical or psychical trauma, chloroform narcosis, etc. Cases of sudden death have been ascribed to chloroform narcosis, when the patient really suffered from status thymicus. Death usually occurs within eighteen to twenty-four hours from the beginning of the disease. That Friedleben's theory is correct, that the central nervous system is really affected in this condition, being the chief factor, has been also proven by our case, by the edema of the brain, which was also noted in the four cases observed in Rudolf Spital of this city. Thus, the main symptoms in this case were as follows: Three days after the operation the patient was feeling well; after eight days of vomiting paralysis set in with convulsions followed by coma and death. All this speaks for status thymicus, which is a very rare disease."

This elaborate discussion by Nothnagel of a thymic state by which he wanted to explain a case of acute encephalitis was entirely upset by Weichselbaum, who found from further studies of this case that the cause of the clinical symptoms and death was not status thymicus, but influenza. Weichselbaum made cultures from the brain tissue and found pure cultures of Pfeiffer's influenza bacilli. The patient had had grip some time before the operation, and the lesion of the brain substance that followed soon after the operation was an encephalitis as the result of influenza.

Nothnagel did not give an elaborate report of the anatomical and pathological findings in this case, but I distinctly remember that there was no mention made of any hemorrhages which usually are found in similar cases. These hemorrhages may be capillary, *i.e.* very small, or large enough to destroy entire portions of brain tissue. They occupy the gray as well as the white matter, and may be scattered all over the central nervous system, not only in the brain tissue, but also in the medulla, spinal cord, and cerebellum. Usually they affect the large central ganglia, as can be seen from Schmidt's case, which was dissected by Weigert and more minutely studied by Edinger.[6] The nucleus caudatus was reduced by hemorrhage to mere fragments, the lenticular body was covered with fissures filled with blood, and the same lesions could be seen in the internal capsule, and numerous capillary hemorrhages were also found in the internal capsule and in the putamen and lenticular body. Bloody fissures and capillary hemorrhagic foci were also found in the right central ganglia where the internal capsule and the entire lenticular body were transformed into a bloody mass, and a small hemorrhage had also taken place between putamen and external capsule. Microscopically there were to be found hyperemia of the vessels of the cortical and subcortical regions, proliferation of the neuroglia tissue, vessels with unchanged walls, dilatation of perivascular lymphatic spaces surrounded by corpora amylacea (Brooks),[7] while Dana and Schlapp found epithelioid cells around the distended capillaries and round-cell infiltration around the vessels.[8] The nerve fibers were found broken up, the pyramidal fibers degenerated, and the nerve cells themselves were in a state of chromatolysis; sometimes the nerve cells are entirely destroyed, as well as the nerve fibers. The cerebral membranes were sometimes found congested, especially when the cortex was much involved. In such cases the name "meningoencephalitis" is justified.

The anatomical lesions just described are to be met with only in severe cases of acute hemorrhagic encephalitis, but there undoubtedly also occur cases with less destructive lesions in the brain, capable of complete or partial restitution, in which the clinical course is accordingly less pronounced. Here must be included the following case which I observed about eight years ago in Russia.

The patient was a young man twenty-three years of age without any bad antecedents. He took sick with fever, pain in the limbs, and headache, which symptoms his physician diagnosed as due to influenza. The patient recovered in a few days, when he was suddenly frightened by a dog. The next day he began to vomit, complaining of headache and fever. When I saw him, about six days later, he had a left hemiparesis with involvement of the left facialis and a pronounced sensory aphasia. He forgot the names of things shown him, did not understand questions which remained unanswered, and, though he could talk, his speech was unintelligible. The temperature at the time of my visit was normal, the pupils were unequal, but reacted to light and accommodation; Kernig's sign was absent, and there was no rigidity or pain in the neck and back. Sensibility was not impaired, tendon reflexes were normal, while the skin reflexes were diminished on both sides. There was retention of urine and feces.

The sensory aphasia, combined with the hemiparesis, and the history of an infectious disease, were sufficient to justify the diagnosis of encephalitis. The patient was in a stationary condition for about two weeks more, when I left the city permanently, and I therefore cannot tell what was the outcome in this case. Judging from Oppenheim's cases,[9] some of which much resembled this one, the prognosis in such cases is not bad: after weeks and even months of illness the encephalitis passes away leaving no traces at all or some more or less serious defects in the central nervous system.

Besides the aphasia which was here the most striking and pronounced symptom, the probable etiological moment, the fright, is of interest, this fright playing, in my opinion, an important rôle in the etiology of encephalitis. This can be seen from the history of the following case:

Doctor D. S., fifty-one years of age, married, suffered from emphysema and chronic bronchitis for the last eight years. During the last six years he twice had bronchopneumonia and in the winter (December) of 1906 had the grip which passed away in about seven days. In March, 1907, the doctor again took sick with bronchitis and fever from which he recovered in a few days. On May 6, 1907, he was taken with fever, headache, cough, and severe acute bronchitis, recovering in about nine days. During the following four days he was out of bed, but felt extremely weak, though complaining of nothing else. He was up, enjoying outdoor life in his garden, and intended to go to his office in a few days. On the seventh day after his apparent recovery he accidentally noticed in the evening edema of the feet, which so frightened him that he at once took to bed with a temperature of 104°. He did not sleep the whole night, was delirious, trying to get out of bed, and was in the same condition the next day. He complained of severe headache in the occipital region, was perfectly rational, and refused to take the thermometer because "it made him nervous." There was no vomiting, no stiffness of the neck, the bowels moved after an injection, the urine was voided normally. The lungs, heart, and throat were normal. He had some appetite and ate a slight meal. In the evening of the same day he had profuse sweating, chills, and headache, but no vomiting. The night was very restless. The bowels moved from calomel. The next day, May 24, vomiting set in, the temperature was 103°, the headache was terrific, but otherwise the condition was the same till about 3 P.M., when he vomited twice, and became quite exhausted after this, staring vacantly at the walls. At night he showed drowsiness and slight twitchings in the right leg, did not answer questions, though he talked a little and asked for water. In the morning of the third day of the disease he again had profuse sweating (the clothes had to be changed), severe headache, constipation, and retention of urine. The urine was drawn through a catheter and showed absence of albumin. He could walk, supported, to another bedroom, complaining of a terrible headache, and after lying down, he began to twitch with the lower jaw, as if he had a chill. He understood everything, but it was hard for him to talk. About 1 P.M. he became very restless, the look was staring, questions remained unanswered, he hardly could be kept in bed and was not quiet even for a minute, constantly trying to get up. He remained in this condition the whole day and the following night, the temperature keeping at 103°, no vomiting, but constipation and retention of urine. Stiffness of the neck was noticed by a physician during my absence, but I did not see it. Kernig's sign was absent, the pulse was regular, full, not above 90. The restless condition with the above symptoms continued the whole next day, May 26, so that examination was impossible. The left arm and leg became rather stiff, ptosis of the left eye appeared in the evening, also involuntary passages from the bladder and intestines, and complete left-sided paralysis. Death occurred on the next day with the symptoms of edema of the lungs.

To recapitulate briefly: a man fifty-one years of age, without any antecedents as syphilis or alcoholism, a sufferer from chronic bronchitis and emphysema, falls ill with influenza from which he recovers in about nine days and, when ready to follow his usual occupations, is suddenly frightened on seeing his feet swollen. At once he has chills, sweats, and headache accompanied by high temperature. These symptoms increase in intensity during the next three days, followed by extreme restlessness, complete aphasia, left-sided hemiplegia, coma, and death. In this case four days elapsed between the influenza and beginning of the nervous symptoms. The majority of authors show that some time must elapse between the recovery from influenza and the beginning of encephalitis. This interval may be days, weeks, and even months. Then the age is given as young, between fifteen and thirty, while in this case the patient was fifty-one years of age, and Dana's patient was even older, sixty-seven years. Oppenheim says that the female sex is chiefly predisposed to encephalitis, but all my cases were in males.

In the fourth case the patient was a boy eleven years of age. He was perfectly well till July 4, 1907, when he was picking strawberries the whole day in the woods. In the evening of the same day he developed a high fever, but did not complain of any headache. He remained in this condition for

about three days, when I was asked to see him. The temperature was then 105°, pulse 108 of good quality. The throat, ears, heart, lungs, and abdomen were normal. Respiration also was normal, about 24. The pupils were of equal size, normally reacted to light and accommodation, reflexes, cutaneous and cremaster, were lost, while the tendon reflexes were normal. What struck me in this case was the absolute indifference of the patient to my examination, even to that of the throat; questions remained unanswered; the patient would not obey instructions, would not show his tongue or open his mouth, and was absolutely indifferent to the surroundings. When any part of the body was irritated, he would remove it mechanically or rather in reflex manner, just as in experiments with frogs whose hemispheres have been removed. There was no expression of suffering in the boy's face; he was lying quietly, looking indifferently at some subject in the room, paying no attention whatever to the people about him.

I diagnosed acute encephalitis on the ground of the complete aphasia, as there were no other signs or symptoms of brain lesion. While examining the patient I could notice slight twitchings in his right leg and lips, and, before I left the place, clonic convulsions appeared in the right leg. This new sign of focal lesion in the cortex, together with the aphasia and the peculiar apathy of the patient, confirmed my diagnosis, and, taking into consideration the rapid course of the disease and the course in the previous case, I made an absolutely unfavorable prognosis. The boy died the next day.

The histories of these cases, short as they are, contain all the clinical facts a physician can find at the bedside, on which few facts he must build his diagnosis, and, what is equally important in these cases, the prognosis. The laboratory methods are here of little benefit, because the blood does not give any particular signs in favor of encephalitis; the examination of the eye fundus sometimes gives the picture of edema of the papilla, sometimes the ophthalmoscopic examination is entirely negative, and lumbar puncture, which is of such a great aid in diagnosis of meningitis, is here of no avail. In the first case reported here lumbar puncture was negative, so was it in the hands of other observers, and Oppenheim[10] even warns against performing the same in acute hemorrhagic encephalitis in view of the tendency in this disease to hemorrhages. Therefore, we must base our diagnosis of acute encephalitis chiefly on clinical facts, and these usually are very scanty. It is a great temptation to make a diagnosis of typhoid fever, as it was diagnosed or suspected in the last case of mine, or of intestinal toxemia, as in the case No. 3, or meningitis, as in the first case, with a corresponding favorable prognosis, which sometimes must be changed within a few hours. Therefore the presence of aphasia which never fails even in curable cases of non-purulent encephalitis and which appears earlier than the rest of cerebral symptoms, if looked for, will greatly help in making a timely and correct diagnosis. Hence follows, that in a case of doubtful acute symptoms accompanied by high fever, vomiting, headache, and severe restlessness, aphasic symptoms should be looked for, and a complete neurological examination carried out, or, at least, the diagnosis should be postponed for a day or two, and the prognosis should not be made at all. The difficulties in making at once a correct diagnosis of encephalitis are increased by the fact that the symptoms of this disease are not always alike, which is due to the fact that the pathological lesions are not always the same, as in each case different portions of the brain are affected.

There can be no doubt that the diagnosis of encephalitis was correct in all four of these cases. In the first case this was confirmed by post mortem, in the second case the sensory, or Wernicke's asphasia, and in the last two cases the asphasia with the subsequent paralysis leave no doubt that we had in all these four cases to deal with an inflammation of the brain substance itself. There were no etiological symptoms of meningitis, as in all cases the ears, heart, and eyes were normal; there was no history of traumatism, but in three out of the four cases there was a history of influenza, and in these three cases there was a free interval of apparent health between the time of influenza and that of encephalitis. That influenza is responsible for encephalitic lesions was first firmly established by a number of German clinicians as Leichtenstern,[4] Königsdorf,[11] Fürbringer,[12] Bückers,[13] Oppenheim,[9,10] and later on it was pointed out that any other infectious disease, even mumps[14] and gonorrhea,[15] and any intoxication, as poisoning with fish, meat, or sausage, are capable of producing encephalitis. But influenza is by far the more common etiological factor, so that acute hemorrhagic encephalitis is also known under the name of influenzal encephalitis. Sometimes there is no history of influenza, or any other infectious disease, and the encephalitis must then be looked upon as an independent infectious disease. This happened in my fourth case, and Oppenheim[17] thinks that a specific organism is the probable cause.

Thanks to Strümpell and Oppenheim acute nonpurulent encephalitis, at present, is rightly placed among recognized brain diseases and as such it is mentioned in all recent textbooks on nervous diseases, while in the textbooks of a few years ago (Gowers, Hirt, Dieulafoy) we look for it in vain.

Another point which I would like to emphasize is the rôle of fright as an etiological factor. In the first case there undoubtedly was a psychical factor in the etiology in the form of a surgical operation. The boy had not long since recovered from influenza when he had to undergo a surgical operation on the knee joint, and the nervous excitement connected with the operation undoubtedly affected his central nervous system, and together with the previous infectious disease, influenza, was instrumental in producing encephalitis. The same factor figures in the second case, where a dog badly frightened the patient who a few days before had an attack of grip; and in the third case, the cerebral symptoms developed when the doctor, recovering from his grip and intending to resume his practice, was badly frightened by edema of the feet and at once developed a set of symptoms which were misunderstood for a relapse of the grip. This moment, fright, is mentioned by B. Sachs[16] in the history of a case, and by Oppenheim.[9] The latter says: "It is hard to decide what was the cause of the encephalitis—the influenza which the patient had a few weeks before or the psychical excitement which he experienced before he took sick; or, probably, both these moments must be taken into consideration." The last point to which I wish to call attention is absence of uniformity of symptoms Rigidity of the neck was absent in all my cases, though it is mentioned in the first case, and in the

third case this was observed by another doctor for a short time, but even if the rigidity was present, it was not so marked as in meningitis, and was not found by the majority of authors. The genito-urinary organs show incontinence in the period of coma, otherwise there may be retention, as in cases 2 and 3; the reflexes are sometimes absent, sometimes exaggerated. In short, the neurological examination gives such misleading results, that time is absolutely necessary to get more facts for an exact diagnosis. Of course, twitchings or convulsions in the limbs are a good and reliable sign, but they appear comparatively late. Therefore, I must again point out the diagnostic significance of *aphasia*, which, in combination with the peculiar *restlessness* and following apathy, indicates a serious lesion of the brain substance which, upon careful examination, will prove to be acute encephalitis.

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535 SOUTH MARSHFIELD AVENUE.

SOME FACTORS IN THE ETIOLOGY OF A COMMON COLD.*

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A COLD in the head is an affection which probably dates from the time when man first began to use artificial means to protect himself from the elements. The word catarrh, which the ancient writers applied to a cold in the head, is derived from the Greek word Καταρρεω which means to flow down. This word catarrh perpetuates the earliest idea of the etiology of a cold, for, in the time of Galen and Hippocrates, it was supposed that the secretions of the nose flowed from the brain and were in the nature of a cerebral purge. The old view of the cerebral origin of nasal catarrh has left evidences in our modern nomenclature and in various expressions and beliefs of to-day. The pituitary body gets its name from the supposed origin of the discharge in that gland. The French call a cold in the head a *rhume de cerveau*, a cold in the brain. Various sternutatives, hellebore, for instance, are supposed to clear the understanding. The cerebral origin of a cold in the head was believed in until the end of the seventeenth century when Schneider of Wittenburg proved conclusively that the nasal mucous membrane was the source of the catarrh. In honor of Prof. Schneider, we call the lining membrane of the nose, the Schneiderian membrane.

An acute rhinitis, or what is commonly known as a cold in the head, is an acute inflammation of the Schneiderian membrane. A catarrhal inflammation (which is the character of the inflammation of a mucous membrane such as the Schneiderian) is a reaction of nature like any other inflammation, and its exudation depends upon the nature of the tissue. Catarrhal exudation in general consists of abundant mucin, cast off mucous cells, and leucocytes. The number of leucocytes determines whether the inflammation is purulent or nonpurulent. The catarrhal inflammation of the nasal mucous membrane differs from other catarrhal inflammations in the large amount of serum discharged. It has been determined that this serum comes from the membrane covering the turbinate bodies. As there are few serous glands in this tissue, it was supposed that the serum was an exudation from the turbinate vessels, but modern physiologists are agreed that it is a true secretion in which the epithelial cells have a vital part, taking the watery constituents from the blood and depositing them, modified, upon the surface of the mucous membrane. The turbinate bodies become very much congested with blood, the tissue becomes infiltrated with water, and there is a condition of stasis. The swelling of the mucous membrane and the turbinate bodies occludes the nasal passages and interferes with proper drainage and breathing. Passing briefly over the symptoms I will remark that they have a definite sequence depending upon the pathological condition. The first stage is a congestion, followed by the secretion of watery serum, which becomes more mucous as the mucous glands become involved and finally mucopurulent as more leucocytes leave the blood vessels to become part of the discharge. Various symptoms result from lack of drainage and the occlusion of the passages. The inflammation may extend to the contiguous sinuses and passages, but this tendency to extension is not characteristic of earlier attacks and is seen mostly in those who take cold easily and often. As the habit of taking cold becomes more frequent, we find the usual process of extension often reversed and the cold, commencing as a laryngitis or pharyngitis, extending upwards, ends in a rhinitis. But, if there is primarily an inflammation other than a rhinitis, there is always a history of some antecedent inflammation of the nasal mucous membrane.

It is not my purpose to discuss all the causes of coryza. There are a large number of predisposing causes, such as a deviated septum or adenoids,

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which lead to mechanical obstruction. There may be a low grade of inflammation ready to be exacerbated by a fresh attack. Faulty conditions of hygiene may render one especially susceptible to colds. Acrid vapors, when they are inhaled, and also certain drugs when they are eliminated by the nasal mucous membrane, will cause a coryza. It is a concomitant of many infectious diseases, but it is then probably due to the irritation caused by the elimination of the specific poison of the disease and not due to the infecting microbe.

The prevailing opinion among physicians is that a common cold is an infection. There are two theories: One, that the cause is specific; the other, that, the resistance of the body having been lowered by exposure to cold, infection is accomplished by one or more of the innumerable microbes that either normally inhabit the nasal cavity or accidentally happen to be present. On the theory that the cause of a common cold is specific, many observers have isolated from the nasal discharge different microbes and ascribed the cause of the cold to them; but, as yet, no one has been able to cause the symptoms of acute rhinitis from either the pure culture or the discharge of the nose. If the common cold is a specific infection, it is certainly a mild one, having none of the systemic symptoms of an ordinary infection. Knowing what we do of immunity, it seems rather improbable that the nasal mucous membrane should not long ago have become immune to such a mild specific infection. Probably the majority of physicians will incline to the lowered resistance theory. This, however, on investigation, seems more improbable than the other. Exposure to cold for a considerable time will, undoubtedly, lower the resistance of the body but, as we will note further on, a common cold is not acquired from long exposure to great cold, but under entirely different circumstances where there is no evidence of a lowered resistance of the body. One of the main functions of the nose is to filter the inspired air and free it from the germs it contains, so that when it reaches the lungs it is sterile. From long association with pathogenic germs, the resistance power of the nasal mucous membrane has become enormous. It does not seem conceivable that exposure to a slight draft which has no apparent effect on the rest of the body could so lower the resistance power of the nasal mucous membrane as to permit infection from the germs already present. There are so-called colds which are of an infectious nature, but they should be dignified by the name of influenzas. They have prodromic symptoms, and systemic symptoms, and all the earmarks of infection. Dr. Davis of Chicago has shown that the Pfeiffer bacillus is not the sole cause of influenza. There are many other microbes which cause symptoms similar to influenza and which may very likely enter through the nose, although the throat and tonsils are probably quite as often the point of entry. The severe types of colds that appear as epidemics are probably of microbic origin. The nose is by no means immune to infection. According to Metchnikoff, the plague bacillus and that of leprosy, as well as those causing influenza, are among those that gain entrance here, and we have many examples of its infection with the various pus germs, the gonococcus, and diphtheria bacillus.

Many authors, assuming that a common cold was not due to infection but to some vasomotor change consequent to exposure, have advanced various theories to explain its etiology. Rosenthal believes that the chilling of the surface of the body contracts the peripheral capillaries and drives the blood to the internal organs, thereby causing their congestion. Seit advanced the hypothesis that the vasomotor centers having been excited by sensations from a chilled skin, impulses were sent to particular organs, which, being points of least resistance, became congested, and in many persons certain channels seemed to be especially open to the reflected stimuli. Bosworth believes that the function of heat production enters into the question. He thinks that, if this process is stopped in one part of the body by a sudden chill, it must be followed by increased activity in another part. In this way he accounts for the congestion which leads to a cold. Wakefield thinks that exposure to cold produces, in remote portions of the system, areas of suboxidation which become inflammatory foci. I will not discuss these theories severally nor show how, in my opinion, they fail to fulfil the conditions of actual experience or agree with our present knowledge of physiology. But, I might say briefly in answer to Rosenthal's theory, that, though exposure of the body to cold may be conducive to various morbid effects, it can easily be shown by everyday experience not to be the usual way in which a common cold is acquired. Bosworth's theory that heat production is decreased in one portion of the body and increased in another has no foundation in physiology. Wakefield's theory is the opposite of Bosworth's and also has no foundation in physiology. The hypothesis of Seit is probably the most nearly correct, and it is along the lines of his theory that I wish to make a further suggestion. It occurred to me while studying the subject that if a close relation between the functions of the skin and the nose could be established, a theory based upon that relation might be deduced which would agree with our common experience and would also be physiologically sound. The nose has a respiratory function of vast importance. In normal breathing, all the inspired air passes through the nasal cavity. In the nose the air is filtered, warmed, and saturated with moisture, no matter what the external surroundings or atmospheric conditions. That the mucous membrane of the mouth and pharynx is inadequate to furnish the amount of moisture necessary to protect the delicate epithelium of the bronchi and lungs, is shown by the rapidity with which the mouth and throat become dry when mouth breathing is attempted. Physiologists tell us that about 5,000 grains of water (one pint) are added to the expired air in twenty-four hours. It has been proved by experiment that the greater part of this water comes from the nose. There is no mucous membrane of equal area where so much water could be secreted. The mucous membrane of the rest of the respiratory apparatus secretes only mucus, but in the nose we have a special apparatus for the secretion of water. It is the erectile tissue of the turbinate bodies. There are few serous glands in the mucous membrane of the nasal region. The function of secreting serum is undertaken by the cells overlying the turbinate bodies. Unless the blood vessels underlying the membrane were very large and numerous, they would be inadequate to supply this large demand. Nature has, however, furnished this region with tortuous vessels of very large calibre. In addition to supplying the inspired air with moisture, the turbinate bodies have the function of warming the air.

No matter what the temperature of the inspired air, the expired air is warmed to five-ninths the difference between the temperature of the body and the outside temperature. Physiologists have determined that the sole source of heat is in the nose. When cold air is breathed, a notable congestion of the turbinate bodies can be seen. This, on second thought, should impress one as quite remarkable when we consider that cold air, coming in contact with the end organs in the skin, causes the peripheral vessels to contract. In order to warm the inspired air and to evaporate the water secreted, a large amount of heat is required, therefore it is evident that the body must lose a large amount of heat by this means.

The main function of the skin is to regulate the temperature of the body. Whatever the surrounding temperature may be, the body temperature remains under normal conditions at 98 3-5°. The principal source of animal heat is from the individual cells of the body. There the metabolic activity takes place by which the more complex chemical compounds are reduced to simple ones, in the consummation of which process heat is generated. The amount of heat generated in the adult body is estimated to be about one degree for every half hour. In 36 hours the heat of the body would reach the boiling point if it were not continually being lost. The principal method the body uses to maintain a constant temperature is not by interfering with the production of heat, but by regulating the expenditure. Heat is lost through the skin by conduction and radiation, and by the evaporation of the perspiration. When it is necessary that the body should lose heat, the capillaries of the skin are dilated and more heat is lost by radiation and conduction. If that is not sufficient, the sweat glands are stimulated and perspiration is formed which, in evaporating, further facilitates the loss of heat. In order that no vasomotor centers may be accurately informed of the surrounding temperature, there are heat and cold points distributed over the surface of the body which, through the sensory nerves, keep the vasomotor center constantly informed of the changes in temperature to which the body is exposed. Thus the relation between the functions of the turbinate bodies and those of the skin is apparent. By both the body loses heat. The amount of heat lost, though varying considerably under different conditions, can be approximately estimated and the amounts compared. With the temperature at 60 and the atmosphere one-half saturated with moisture, the amount of heat lost by the body in warming the inspired air and saturating it with moisture would be about 300 calories in 24 hours. At the same time, taking a mean between the body at work and at rest, on a moderate diet, about 1800 calories would be lost through the skin, the proportion of heat lost by the nose and the skin being as one is to six. The skin and the nose are governed by the same vasomotor apparatus, a mechanism so delicately adjusted that it responds immediately, and usually accurately, to outside conditions. Is it remarkable that if one organ should fail in its function, the other should be affected? (It is interesting to note here that sternutatives or drugs which cause sneezing, contract the peripheral blood vessels. Indeed, Brunton says that they, by this means, raise the blood pressure, but I have been unable to find confirmation of that statement.)

Before the human race had become accustomed to clothes and overheated houses, colds were probably infrequent. Exposure to cold and catching cold are by no means synonymous. When the body is put to an effort to conserve its heat, as in exposure to cold, there is not much danger of catching cold, but when the body is put to an effort to lose its heat or is, in other words, overheated, there is great danger. It is when the body is at one time overprotected and at another underprotected, that there is the greatest likelihood of colds. When a skin area, which is usually overprotected, is exposed to a draft, an overimpulse is conveyed to the vasomotor center, an exaggerated response is sent out and the peripheral blood vessels are contracted over a large area. If, under these conditions, the temperature is taken, it will be found to have risen slightly. The body, which was attempting to lose heat, finds itself further embarrassed as the radiation from a considerable portion of the skin has been shut off. The turbinates being a means by which heat is lost, it is not strange that, under the circumstances, vasomotor impulses should be sent to them and that the tortuous blood vessels of the turbinated bodies should be dilated to the point of overcongestion. On this theory, both the so-called habit of taking cold and treatment for prevention of colds can be explained. The more often the nerve impulses are sent through certain channels, the easier does the impulse follow that channel, so that in a sensitive person the slightest exposure will result in a cold in the head. On the other hand, through the intelligent use of clothing, right living, and the proper use of baths, the skin may be kept in such a condition that it will send only normal impulses.

Even if we can evolve a plausible theory for the inception of a cold, there remains a still more difficult question to solve. If a common cold is, in its inception, a vasomotor congestion, caused by the exposure of sensitive skin areas, why does the process continue unnecessarily and run its usual course? If the congestion and increased secretion rendered the nasal mucous membrane more liable to infection, the mechanism would be easy to understand, for nature would naturally keep up the depurative process as long as the microbes were attempting to enter, or their toxins acted as an irritant, but the very conditions of congestion and increased secretion are admitted to be those under which infection ordinarily is least likely to occur. Although the nasal mucus is not bactericidal, yet Metchnikoff and others show conclusively that it rids the nose of a large number of germs in a purely mechanical way.

If we try to explain the process without infection, there is greater difficulty. The function of congestion and that of secretion are independent, each having separate afferent and efferent nerves. Congestion is regulated by two sets of nerves, vasoconstrictor and vasodilator. The blood vessels are normally kept in a state of contraction by the vasoconstrictors. The vasodilators must be inhibitory nerves as there are no muscles that can dilate a blood vessel. After the vasoconstrictor has relaxed the blood vessel as far as it can, the vessels can be still further dilated by the action of the vasodilators. Though congestion and secretion can take place independently as shown by the action of drugs and various reflex phenomena, yet they are mutually dependent in that the irritation of the organs of secretion is produced by congestion and, in order that secretion can take place for any length of time, an increased blood supply is needed. It is a well-known

fact that nature's reactions are often exaggerated and carried far beyond the point needed to accomplish the result intended. After the secretion is once started, the end organs of the secretory nerves having been stimulated by the primary congestion, a large amount of blood is necessary to provide the serum needed. It is quite possible that, under the severe demands made upon them, the tortuous blood vessels are dilated to a point where they lose their tonus. If the vasoconstrictor nerves in a dog are cut, the blood vessels dilate and remain so for about two weeks, when they gradually recover their tonus. During this time their musculature is still under the control of the peripheral end organs. The overdilatation probably explains the fact that, when a cold is well under way, drugs have little effect upon the congestion, though the turbinates can still be blanched by local applications. That the tonus of the vessels is lost is shown by the fact that, when emptied by gravity, they fill up quickly.

I am aware that some authors explain the continued reaction on the ground that it is inadequate to overcome the bacteria and toxins and that the reaction continues until sufficient antibodies are formed, yet at the same time they say that the conditions of the tissues are rendered more susceptible to infection. I do not think their reasoning is logical. Why is it that a cold may be aborted in the early stages, when surely there has been no time for antibodies to the infection to be formed, by means that are not directed against any infecting agent, but by measures and remedies tending to influence the hyperemia and secretion? Why is it that congestion and stasis render the mucous membrane more susceptible to infection when the Bier treatment is founded on those very conditions? I can readily understand how infection can take place in the contiguous sinuses or a passage like the Eustachian tube. Here the cavities are shut off by the hyperemia and, there being no drainage, pathogenic germs may flourish. It is quite possible that bad drainage of the folds of the mucous membrane makes breeding places for pathogenic germs. But, I believe these conditions are secondary and that germs are not concerned in the inception of a common cold and usually do not influence its course.

In conclusion, I would say that, although I have necessarily spent some time considering the merits of the microbic origin of a common cold, the main purpose of the paper was to present some plausible hypothesis of its mechanism on the ground of its inception being of vasomotor origin.

INTERSTITIAL PREGNANCY, WITH REPORT OF A CASE.*

By B. M. BAKER, M.D.,

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Ectopic gestation is a threadbare subject. In view of this fact and also that it is such a plain story from a standpoint of its history, etiology, symptoms, and the indication for treatment I hesitate about bringing the matter up again. But whereas ampullar and isthmic, the ordinary varieties, are so common, the interstitial is very uncommon, and therefore the temptation to report this case was greater and I believe will be well worth the few moments I will ask you to listen to me. This is given entirely from memory, the records of the case having been burned.

Interstitial pregnancy is a form of tubular gestation in which the ovum is fecundated in the portion of the tube which passes through the uterine wall. The text-books put it down as uncommon, and I was particularly surprised to find how little mention is made of personal experience with the condition by the authors of works on obstetrics. This led me to believe that the condition was even rarer than I had at first supposed. At the same time I cannot but believe that the cases are not always recognized, diagnosis being difficult at times. Then, too, it is perfectly possible for it to go on to a fatal termination and death ensue without anyone knowing of its existence, and, with the great antipathy of the human family to autopsies being held, I feel sure that many of these cases have had no record made of them.

The fact that the tendency of the ovum in its growth is to travel in the direction of the least resistance makes it more likely to rupture into the uterine cavity and be passed off through the natural passages as an ordinary abortion. This is another source of error in estimating the number of cases that actually do occur. Only the ones that happen to fall into the surgeons' hands, men capable of making nice diagnoses, are recognized and treated as the condition requires. These are accurately noted and reported, and they, together with the ones found at autopsies, make up the whole number so far as is known.

The ampullar form of tubular pregnancy is the most common, the isthmic next, and the interstitial least common. The etiology of all of these conditions is the same, and, although there is some obscurity about it, authors in general are agreed as to the one etiological factor, and that it is due to some inflammatory condition of the mucosa which prevents the natural passage of the ovum through the tube to the uterine cavity, and so fecundation takes place before it arrives there. The pathology is about the same in all tubular pregnancies—there is little room for growth and development of either the ovum, placenta, or membranes. The decidua is replaced by hyperplasia of the tubular tissues, including the mucosa and muscular coats, forming a sort of pseudodecidua, the uterine extremity of which has been seen to be open and in direct connection with the uterine mucosa. In the interstitial variety there is a greater hypertrophy in the uterine muscle, in its effort to hold and enclose the growing ovum. The broad ligament also encloses it at times. When the fetus grows so large that the uterine muscle can no longer withstand the strain rupture takes place in one direction or another, into either the uterine or the general peritoneal cavity. The symptoms of this condition are practically those of all tubular pregnancies with some others in addition: disturbed menstruation, pain, and the presence of a tumor. In addition to these symptoms there are, of course, the ordinary symptoms of pregnancy: nausea, physical development, breast symptoms, etc. With the bloody discharge there is sometimes also an expulsion of the decidua as a whole or in pieces. The difficulty of differentiating from physical signs alone can be easily appreciated. With the other symptoms present, and a decided increase in the size of one horn of the uterus rather than the other, or the body as a whole, would aid one in making out the condition clearly before rupture took place, and give him the opportunity to

*Read at the meeting of the Seaboard of Virginia and North Carolina Medical Society.

apply the indicated remedy. The condition could easily be confounded with ovarian tumor or a fibroid degeneration of the uterine body or a blood or pus tumor of the tube. The possibility of a double pregnant uterus may be taken into consideration, but this is a rare condition. Main dependence, of course, is to be put on the train of symptoms previously mentioned.

I need hardly mention the gravity accompanying the existence of an interstitial pregnancy—for the child it is desperate, for the mother a most disastrous accident, the mortality being more than fifty per cent.

The story of treatment is a plain one. Break up the pregnancy as rapidly as possible in a way that seems to give the mother the best chance to live. If it is deemed wise to attempt to open up a way to the fetal tissues through the uterine mucosa, such an effort may be made, this being the solution attended with the least risk, but practically never followed by the surgeon.

Theoretically if one could be certain of the condition, modified cesarian section could be performed with an effort to save both mother and child, provided the child was viable. Practically I find no record of such a case. The treatment generally indicated in these cases is that given my patient, a detailed account of which follows:

V. D. was referred to me by Dr. L. D. Matthews; she was a young married woman, twenty-three years of age, light mulatto, having one child four years of age. She ceased menstruating for a month or two about five months ago, then started to do so irregularly, and at the same time began having distinct pain in the right side in the neighborhood of the right ovary. This was followed by a growing tumor, and this was accompanied by other signs of pregnancy. At first the physician took the condition to be one of ovaritis accompanying true pregnancy. Later, he suspected something more serious, and on March 15, now eighteen months ago, when I was operating for him, he mentioned that he had a young married woman who was pregnant, but that the tumor seemed to him to be too far on one side, and he would like me to see her on the following day. This I agreed to do, but at one o'clock A. M., before the next dawn arrived, I was summoned hastily by him to see the patient. I found her in a condition of profound collapse, with a history of having on the previous day walked several miles and having suffered a sharp shooting pain with a feeling of something having given away as she jumped from a car the evening before. The abdomen was tense, tender, and dull on percussion, expression anxious, face pale and bathed in cold perspiration, conjunctiva blanched, no radial pulse, and constant longing for water and air. I was not long in either determining the condition or seeking a remedy. By two o'clock A. M. she was on the operating table. The abdomen being opened, we found the abdominal cavity filled with blood, which had to be baled out with a pitcher. As soon as we could clear the field of blood the condition was easily made out. A five months' fetus was present in the abdominal cavity, attached to the ruptured uterus by the cord, the placenta still *in situ*, blood pouring out from every direction. Her condition looked almost hopeless. A casual survey of the field convinced me there was nothing to do to stop the flow of blood but to cut off the entire arterial supply by clamps, followed by ligatures. This was done as rapidly as possible; the uterus was removed, and the abdomen was closed hurriedly, the abdomen being left full of warm salt solution. Of course, this work was done very hurriedly because of the patient's condition; and because of that fact, also, with not quite the same precision as such things are generally done. But when we completed the work there was no sign of hemorrhage and the woman was still living, but with no radial pulse and a flickering heart, so feeble and rapid that it was impossible to determine its rate. The operation was done almost with no anesthetic. The patient was in the Trendelenburg position, oxygen was administered, intravenous saline solution given, stimulants by hypodermic and rectum. After the patient was removed to the ward, the administration of oxygen was continued,

the head was lowered, and heat applied, the legs and arms were bandaged, and in an hour or two she rallied considerably. After several hours her pulse again began to fall off and to become more rapid and more feeble. I was hurriedly summoned to her, and felt very sure upon arriving that there must still be some bleeding point. She was taken to the operating room, and, with no anesthetic, the abdomen was reopened, and after a long search one minute spot was found where a drop of blood oozed forth about every two or three seconds. Still, to guard against any possible further trouble, I packed the field of operation from the end of the broad ligament on the one side to the same point on the opposite side with gauze, and left the end of this sticking out of the abdominal cavity just above the pubis. The wound bled no more. The

gauze was removed in forty-eight hours, and the opening was sewed up, and from that time on there was a steady improvement, until at the end of four or five weeks we found her well. The following fall she took up her position as a teacher in the public school. The illustration is from a photograph of the specimen.

THE AVERY NASAL SEPTATOME.*

By JOHN WAITE AVERY, A.B., M.D.,
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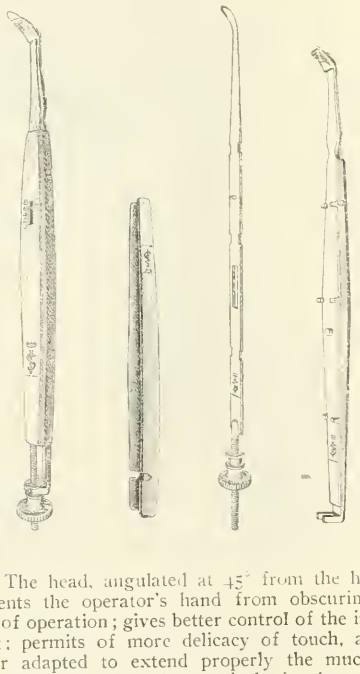
ASSISTANT SURGEON, NEW YORK THROAT, NOSE, AND LUNG HOSPITAL.

The instrument here illustrated is devised for the rapid and accurate incision of the mucoperichondrium, and later of the cartilage in submucous resections of the nasal septum, for deflections of that structure. It has several new features which are a distinct advantage over both the straight scalpel or the right-angled knife with small blade, both of which are generally used for these incisions.



1. The head, angulated at 45° from the handle, prevents the operator's hand from obscuring the field of operation; gives better control of the instrument; permits of more delicacy of touch, and is better adapted to extend properly the mucoperichondrial incision, both superiorly in the septum and inferiorly down and out through the floor of the inferior meatus.

2. The blade is adjustable to cut a depth varying from 1/32 to 6/32 of an inch. By the screw on end of blade any change is quickly and accurately made. Having determined the thickness of the tissue to be incised, the blade is set at a corresponding length, and plunged in up to the head, which prevents too deep a cut, and so lessens the danger of perforation.

3. An indicator on the handle registers the length of the exposed portion of the blade, and hence the depth of the incision.

The septatome consists of three simple parts which are easily exposed for cleaning and sterilizing, and can be quickly reassembled. It is light and well balanced. The Kny Scheerer Company of New York have well embodied my ideas in the instrument here described and illustrated.

576 Fifth Avenue.

*Presented at the Section on Laryngology and Rhinology of the New York Academy of Medicine, October 28, 1908.

Mastoiditis in Infants.—G. Nové-Josserand and Maurice Jacod describe mastoiditis in the infant as of frequent occurrence and appearing suddenly without many premonitory symptoms. An abscess appears superficially without much pain or fever. The condition is predisposed to by states of general malnutrition, infectious diseases, and tuberculosis. The abscess pushes forward the auricle. The mastoid process is much more simple than in the adult, having from one to three large cells. The Eustachian tube is short and widely open so as to allow of easy infection from the naso-pharynx. Otitis, adenoids, and naso-pharyngeal catarrhs are the immediate cause, the form of microorganism being unimportant. The prognosis is good except in tubercular cases. The treatment consists of evacuation of the abscess, removal of diseased bone, and drainage.—*Archives Générales de Chirurgie.*

Treatment of Diphtheria.—In cases marked by severe vomiting and cardiac depression Rolleston has suggested the administration by mouth or rectum of adrenalin chloride in camphor water. Commenting on the frequent inadvisability of giving anything by mouth under the conditions referred to, F. G. Crookshank advises the use of tabloids, each containing 1-100th of a grain of adrenalin chloride and 1-100th of a grain of sulphate of strychnine, to make solutions for hypodermic injection. One or two of these tabloids may be administered every two, three, or four hours according to the gravity of the case; the action of the adrenalin appears to be sustained by the strychnine, which, of course, has its own special value in diphtheria, and the treatment can be continued and carried to a happy issue when neither mouth nor rectal administration is possible. The method is of service even in cases admitted in a desperate condition, but its greatest value is displayed when the administration of the two drugs is commenced immediately that vomiting or cardiac irregularity is noticed. The author makes it a part of the daily routine that immediately on the occurrence of vomiting all food, medicine, and throat treatment are stopped and adrenalin and strychnine be at once given hypodermically. —*The Lancet.*

Cirrhosis and Polyneuritis.—A. Porot and J. Froment tell us that cirrhosis of the liver and polyneuritis rarely develop with the same parallelism and intensity. They result from excessive alcoholism, mainly in females. From the beginning these patients have symptoms referred to the liver which are alarming. We have enlarged livers, including hypertrophic fatty cirrhosis, or pale yellow liver. There is always enlargement of the liver of moderate amount. Ascites is rare; ictperus is sometimes noted; digestive troubles and hemorrhages are prominent symptoms. The neuritis predominates in the lower extremities, and is manifested by pain, weakness, vasomotor troubles, failure of the sphincters, and a marked psychosis. There are insomnia, hallucinations, mental confusion, and delirium. The prognosis is bad, most patients dying within a few months as a result of hepatic insufficiency.—*Revue Française de Médecine et de Chirurgie.*

Errors of Diagnosis in Supposed Tuberculous Arthropathies Occasioned by the Presence of Rheumatism or Hereditary Syphilis.—H. Barbier contends that the family history, past history, and physical condition of the child having a monoarticular arthropathies should be carefully inquired into before instituting anti-tuberculous treatment and condemning the little patient to a long course of immobilization and rest in bed. Such lesions occur in hereditary syphilis. Here pain is absent, there is no deformity except such as results from involvement of the epiphyses, no contraction of muscles, no atrophy. The presence of deformed teeth, palate, and nasal organs, and of interstitial keratitis should be sought for. The family history of arthritic diathesis should be inquired into and rheumatic treatment should be tried before deciding on the tuberculous nature of the swelling. The author gives illustrative cases.—*Annales de Médecine et Chirurgie Infantiles.*

Medical Record.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., Editor.

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A POSSIBLE HEMIC CAUSE OF CARCINOMA.

The mystery of cancer is seemingly impenetrable. In spite of the constant study and investigation being pursued by many acute and trained minds in all parts of the world, we appear to be no nearer an agreement regarding the nature of cancer, its etiology, or even, we may say, its treatment, than we were ten or twenty years ago. The teachings of Cohnheim and Virchow and Beard that the cancer cell is an embryonic rest which in some way becomes stimulated into growth is still held by many; not a few regard the cancer cell as itself a parasite, while others consider it to be simply an epithelial cell stimulated to riotous growth by a microorganism or its toxin. And so we might go on with an enumeration of various and usually conflicting theories, the mere catalogue of which would fill pages. On one point nearly all investigators are agreed, however, and that is that cancer is at first a local disease and becomes generalized only after existing for an indefinite period. It is on this belief that the surgeon bases his insistent demand for early and radical removal of the growth.

The opposite theory, that cancer is a general disease and that the neoplasm is merely its local expression, occasioned by prolonged irritation, overfunctioning, or other factor, is held by a minority —a somewhat despised minority—yet there are some facts which speak in favor of it. One very strong argument is the fact, of which surgical writers always speak, and to which they attribute the very large percentage of failures to cure by operation, that it is almost impossible to recognize and remove the local growth early enough to prevent a generalization of the disease. Roswell Park is a believer in the parasitic causation of cancer and consequently that the disease is primarily local, yet he says, in a paper read at the International Congress of Surgery in Brussels last September (*Surgery, Gynecology, and Obstetrics* November, 1908): "Sad to say, cancer is a disease without a symptomatology of its own, and is to be recognized only by signs which are appreciated and duly recognized, in most instances, at a period too late to permit of the application of radical surgical measures. This aspect of the disease is one which has apparently attracted as yet but little attention, and yet it is the most important feature in the management of the disease, and offers alike the excuse for non-recognition as well as for failure in treatment." Such a statement argues in favor rather of a general disease with local manifestation than of the contrary, since it seems hardly probable that the local trouble would so often infect the general system before it has given any evidence whatever of its existence. Many writers also speak of the "precancerous stage" of malignant disease—a phrase having little meaning, if not that there is a stage preceding the appearance of a new growth in which the disease exists in the blood, but has not yet found local expression.

In a suggestive paper entitled "On an Excitant for the Leucocytes of Healthy Persons Found in the Blood Plasma of Patients Suffering from Carcinoma," published in the *Lancet* of January 16, C. J. Macalister and Hugh C. Ross of Liverpool relate certain findings which suggest the possibility that the cancerous tumor is merely the local manifestation of a disease dependent upon blood changes of a yet unknown nature. In the course of certain observations regarding the diffusion of stains into living leucocytes, Ross discovered that the presence of atropine sulphate caused marked and constant excitation of the cells, as manifested by exaggerated ameboid movements. At the same time Macalister had observed that patients with cancer often presented toxemic symptoms such as would be caused by some narcotic alkaloid, and he suggested that there might be in the blood some substance acting as a stimulant to normal cells and exciting them to abnormal growth. This suggestion led the experimenters to ascertain whether there might not be some such excitant to leucocytes in the blood of cancer subjects. The patient's citrated blood was centrifugalized and the citrated plasma mixed with one-eighth of its volume of the blood of a healthy person. The whole was left at a temperature of 37° C. for half an hour and then a minute drop was examined on a covered slide at a temperature of 20° C. In nine cases of carcinoma examined (and since the paper was written in November, a great many more) the leucocytes showed the remarkable ameboid movements, only more marked, which had been observed under the influence of atropine. In fifty control experiments with the blood of healthy, or rather of noncancerous, persons, the reaction was obtained in only two cases occurring in malarial subjects who had been taking large doses of quinine hydrochloride. Previous experiments had shown that this drug acted in the same way as atropine sulphate as an excitant of healthy leucocytes.

These are exceedingly interesting and suggestive experiments, pointing as they do the possibility of a hemic cause of carcinomatous growths. If further observation shows that the association with the neoplasm of this something in the blood, stimulating to the leucocytes, is constant, it will be a fact that cannot be disregarded in the study of carcinoma. If once the fact of the constant presence of this cell stimulant in the blood of cancer patients is established, it would seem to be a comparatively simple matter to determine its nature. The possibility of the cure of carcinoma by medical means, which

such a discovery would suggest, is also interesting to contemplate. But in the mean time Ross and Macalister have only established the probability that there is a cell stimulant in the blood of a patient with carcinoma; they have not shown whether its presence in the blood precedes the development of the neoplasm or whether it is formed in the tumor and washed out from it into the circulating blood.

THE RAT-FLEA THEORY OF PLAGUE.

The belief that the flea plays the most prominent rôle in the dissemination of plague has during the past few years so increased in strength that it has begun to be accepted on all hands as a proven fact. Indeed, it would not be exaggerating if it were said that it is now generally taken for granted by the medical profession as a whole throughout the world that the rat-flea is the main factor in the spread of plague. It assuredly is true that the theory is most plausible, and further than this proofs do not appear to be wanting in its support, while coincidence points in a like direction. Nevertheless, although the condemnatory evidence brought against the flea is very strong, and although the case against the insect almost seems to be conclusive, it is not well on this account to close one's ears to a consideration of the other side of the question. To fight plague successfully its originating cause and means of propagation must be definitely known.

At a meeting of the British Society of Tropical Medicine and Hygiene, held in London on December 18, 1908, Dr. W. C. Hossack read a paper on the present position of the rat-flea theory of plague, with recent observations in Calcutta. It is needless to say that it is in India, for very obvious reasons, that researches into the causes of plague have been carried on most extensively and carefully. To the result of investigations in India we are indebted for the greater part of our knowledge of plague, and it is in that country the rat-flea theory has been established. Dr. Hossack therefore said that he wished to put the other side of the question, the facts of which were gathered from investigations made by him in Calcutta and by others in Bombay, before the matter was placed practically beyond dispute. In the first instance, Dr. Hossack showed that egregious mistakes had been made with regard to the identity of the rat said to be chiefly responsible for the spread of plague, and that the principal plague rat of Calcutta was one never dreamed of before—the Bengal rat, *Nesokia bengalensis; Mus decumanus,* the brown rat, also played an important part, while the rôle of *Mus rattus* was almost negligible. Now, former investigations appeared to have proved that *Mus rattus* was the particular species of vermin which spread the plague, and that the theory of the flea being the especial agency for the dissemination was due to the habits of *Mus rattus,* as compared with those of *Mus decumanus.* The former is a roof-haunting rat, liable when dead to drop its fleas on man; the latter a sewer and burrowing rat, which leaves its fleas on its demise in its burrows, whence they cannot attack man. Moreover, Dr. Hossack emphasized the fact that flea conditions were quite different in Calcutta from those found in Bombay; *Pulex irritans* was practically unknown; *Pulex cheopis* was found only in connection with cats and dogs; and though the rat flea occurred on rats in numbers comparable to those found in Bombay, neither it nor any other flea had been found in plague houses unless in exceptional cases and in insignificant numbers. As to the question. Does the rat flea bite man. Dr. Hossack, as the outcome of carefully conducted experiments, came to the conclusion that even of starved rat-fleas, only one in six would bite, and considering Veribitski had found by experiment that with very highly virulent plague no infection was likely to take place in a rat when the number of experimental flea-bites was less than five, then there must be sixty starved fleas on a man to produce the necessary ten bites, a man requiring at least twice as many bites as a rat to produce infection. Thus a man must have a very large number of fleas upon him to contract the disease by these means. So far as acutely infected houses in Calcutta were concerned, if the cases of plague therein were due to flea bites the houses should have been swarming with rat-fleas. But no fleas were noticed in these houses. Consequently, Dr. Hossack argues that, if Verbitski's conclusions that even for the rat a minimum of five bites was necessary be accepted, then it followed that the rat-flea could play only an occasional and unimportant part in human infection.

The Bombay Advisory Committee on Plague have maintained in all their recent reports that the essential agent in the transmission of plague to man was the rat-flea, and it has seemed that they had ample cause for their conclusions. Dr. Hossack himself confessed that he had brought forward no positive theories, because his convictions were negative, so it may still be said that the flea-borne theory of plague holds the field. On the other hand, it is wise not to accept theories of the causation or propagation of disease until they have been absolutely shown to be correct.

The Dangers of Mercurial Injection.

The possible dangers that attend any therapeutic or diagnostic measures cannot, of course, be used as an argument for giving up such measures if the benefit of them is surely established for the great majority of instances in which they are used. For example, the fatal result that has sometimes followed the insertion of a needle into the chest for the purpose of exploring the pleural cavity for the presence of pus or of a nonpurulent effusion cannot be used as an argument against the use of this very valuable diagnostic procedure; nor can the more frequent fatal or serious results following the removal of such effusions by means of aspiration be looked upon as contraindicating the use of this method of treatment in preference to leaving the fluid in the cavity, with the hope that spontaneous absorption may take place. But the possibility of such accidents should be looked upon as a sufficient reason for telling the patient or his relatives that such procedures are not completely devoid of danger, as well as for using every known precaution in carrying out the simple operations required. An-

other therapeutic method that has been fast gaining in popularity in the last few years is the intramuscular injection of mercurial salts in the treatment of syphilis, little thought being given to the possible dangers connected with this method. Yet a review of the fatalities and grave accidents that have occurred in such treatment, published by Lassere in the *Annales de Dermatologie et de Syphiligraphie* for December, 1908, shows that seventy deaths have been ascribed to the procedure by various syphilidologists and that over one hundred serious accidents have likewise been reported. Injections of calomel and of the gray oil of the French have most deaths to answer for, thirty-eight fatal cases having been reported after the use of these preparations. Fatalities have been somewhat more common among female patients and among such cases in which unusually large doses of the drug were administered. However, the number of deaths and of serious accidents in other patients, in whom the usual dosage was employed, shows that there are dangers inherent in this method of medication, though, of course, these dangers are greatly multiplied by the failure of the physician to regulate the dosage carefully or take into consideration the condition of the heart and of the kidneys in patients who have come with a special complaint not depending upon these organs. It is probable that the figures published by Lassere represent but a small number of the fatalities that have occurred, as many of these are not reported or are considered to have been caused by other factors. Seventy deaths, however, is a number large enough to put every one employing deep injections of mercury on his guard and to show the advisability of telling patients that some danger beyond the power of the physician to obviate is present with this method of medication.

Typhoid Meningitis.

Typhoid bacilli are devoid of pyogenic effects in their usual localization in the intestinal tract with the production of the series of symptoms which we group under the term typhoid fever. Indeed, Mallory has quite conclusively shown that the toxins produced by the bacillus in this situation cause a productive inflammation, the swelling and the increase in the cells surrounding the intestinal ulcers produced by the bacilli explaining very well the phases in the gradual development of such ulcers from gangrene because of a diminution of the blood supply. That the same bacillus, however, may have a direct pyogenic effect seems to be shown by a case reported by Southard and Richards in the *Journal of Medical Research* for December, 1908. The patient, who was a paretic and under constant observation in an asylum, succumbed after a week's acute illness to a disease which on post-mortem examination proved to be purulent cerebrospinal meningitis complicated by bronchopneumonia. No typhoidal lesions were found in the intestines, but a bacillus isolated from a swollen mesenteric lymph node proved to belong to a typical strain of this organism. The exudate found in the meninges contained polynuclear leucocytes in great numbers, a fact which made the discovery of the typhoid bacillus as the cause of the meningitis very surprising. The authors experimented with animals in trying to produce effects similar to those observed by them in their patient and succeeded in producing inflammations of the meninges, with exudation of polynuclear cells, in guinea-pigs. They, therefore, put forth the hypothesis that typhoid bacilli may produce two very different effects, one of them consisting of the typical proliferative phenomena that take place in the intestinal lesions of typhoid fever; the other of a pyogenic action, which is perhaps due not to the soluble toxins produced by the bacilli, but to the endotoxins set free by the destruction of the bacilli at the side of the infection.

A New Vivisection Peril.

Argument, such as it is, vituperation, and misrepresentation having failed to abolish entirely, although they have seriously hampered scientific investigation in Great Britain, an ingenious Irish anti, possessed of the faith which moves mountains, has devised a new plan to save the lives of guinea-pigs by taking those of physiologists. According to a dispatch in *The Sun* of recent date, this lady, Cowan by name, has sent a circular to the leading surgeons and physiologists of the United Kingdom, warning them that she intends to accomplish their removal through the agency of prayer. The circular says that she had decided first to procure thus the death of Dr. Stirling, professor of physiology at the University College Hospital of London. But "it seemed unfair to give such a stab in the dark," so she made her petition more indefinite, leaving it to the Almighty to choose the victim. She besought Him therefore to remove, if in accordance with His will, the man most likely to cause future suffering to innocents by experiments. About a fortnight later a vivisectionist died. The gentle lady is now assured that she has the approval of Heaven in her righteous undertaking, and warns the recipients of the circular that she will continue to pray against them. There is not the slightest doubt that she will succeed if she only has perseverance and that in time all those who are now working for the saving of human life will die.

News of the Week.

Harvey Society Lecture.—The eighth of the present course of Harvey Society lectures will be delivered by Dr. Philip Hanson Hiss, Jr., on Saturday evening, February 6, at 8:30 o'clock, at the Academy of Medicine, 17 West Forty-third street, New York. Dr. Hiss will speak on "Some Problems in Immunity and the Treatment of Infectious Diseases."

Medical Expert Testimony.—The New York Bar Association in convention at Buffalo recently adopted the report of its committee on medical expert testimony. The report was accepted only after long argument and considerable opposition. After protesting against "the commercialization of scientific knowledge," the report pleads for the insuring of such conditions that expert witnesses, without regard to anything but justice and truth, may give their testimony without bias and without being subjected to improper cross-examination. A proposed statute provides that the justices of the Appellate Division shall designate not less than ten and not more than sixty physicians in each judicial district who may be called as medical expert witnesses by the trial court or by any party to a civil or criminal action; that when so called they shall testify and

be subject to examination and cross-examination, as are other witnesses; and that they shall be paid out of the county funds, the amount of the fee to be decided by the trial judge.

New Emmanuel Movement Rules.—Because of criticism of their work by medical men and others interested, and at the suggestion of an advisory board of physicians, the clergy of Emmanuel church, Boston, have adopted a set of rules designed to bring the physician and the minister into closer cooperation. The rules provide that no person shall be treated except with the approval of and after thorough examination by his family physician, whose report shall be filed with the clergyman's records: that no patient shall be referred to a specialist or assistant except with the advice and consent of his own physician: and that any patient not under the care of a physician must consult one before receiving instruction at Emmanuel church. It thus rests with the physicians to decide whether or not a patient shall be referred to a neurologist or other specialist, and which patients, if any, are suitable for moral and religious reeducation.

Opium Bill Passed.—The Senate on January 26, passed a bill forbidding the importation of opium into the United States except for medicinal purposes, and then only under strict regulations to be prescribed by the Secretary of the Treasury. All other forms of opium, smoking opium, or any derivative of opium, are absolutely shut out. Possession of the forbidden drug, it is expressly stated, shall be deemed sufficient evidence to convict, and offenders may be punished with two years imprisonment and a fine of $5,000. It was thought important to enact this legislation before the meeting of the international congress at Shanghai in February.

Royal Radium Institute.—London is soon to have a Royal British Radium Institute, in which research work will be carried on, and to which a medical department will eventually be attached for the treatment of cases to which experiment may show treatment by radium to be applicable. The work will probably be carried on with the help of the Imperial Cancer Research Fund. The council of the new institute will include Sir Frederick Treves, surgeon to the king, Sir William Ramsay, and Joseph John Thomson, professor of physics at the Royal Institution.

Death Rate in New York.—For the week ending January 23, the death rate in New York was 17.13 per thousand, the total number of deaths being 1,499. For the corresponding week of last year the rate was 17.80, and the total number of deaths 1,510. A slight increase was noted in the number of deaths from measles, bronchitis, and heart disease, while there was a decrease in the number from tuberculosis and pneumonia.

Less Typhoid Fever in New York.—A new record for typhoid fever was established in the Borough of Manhattan last year, according to the figures of the Department of Health. During the year 1,452 cases were reported, 256 of which were fatal. For the preceding year the figures were 2,387 cases with 372 deaths. While admitting that this reduction may be only accidental, the department hopes that its efforts in spreading information concerning the causes of the disease and the methods of prevention, may have had some effect. It is also suggested that the information which is contained in the pamphlets sent out by the department may have influenced the public to be more careful in its selection of summer resorts.

Smallpox in Central America.—It is reported that twelve thousand cases of smallpox are under treatment in Guatemala City and its environs where the disease has been epidemic for some months. Vaccination has been made compulsory and efforts are being made to protect all persons in the infected district. From Jalapa, the capital of Vera Cruz, Mexico, sixty-three cases were reported on January 27, with eleven deaths.

Low Birth Rate in Vera Cruz.—The reproach of race suicide, thrown off by France, has descended upon the city of Vera Cruz, Mexico, where during 1908 the records show 872 births and 2,116 deaths, 451 of the latter being due to tuberculosis.

Yellow Fever in Barbados.—An epidemic of yellowfever is reported from the island of Barbados. Up to January 29, twelve deaths had occurred, and a strict quarantine against the island is being enforced in neighboring ports.

Death from Forceps-retention.—A woman has just died in Philadelphia in consequence of the retention of a pair of forceps in her abdomen at the time of an operation some ten years ago. The cause of the difficulty was not discovered until an *x*-ray picture was taken recently, but the operation for relief terminated fatally. The surgeon who operated originally has since died.

Ferryboat School.—The old ferryboat "Middleton" has been added to the property of the Board of Education of New York, and will be moored at the foot of East 100th street to be used as a school for tuberculous children.

Prize for a Cure for Tuberculosis.—A bill has been introduced into the Pennsylvania Legislature offering a prize of $50,000 for the discovery of a cure for tuberculosis to be as effective as the antitoxin of diphtheria.

Tuberculosis Exhibits Planned in Chicago.—Traveling tuberculosis exhibits are the latest educational propaganda announcement of the Chicago Tuberculosis Institute. Business places in widely scattered sections of the city will be used for the displays, which will consist of posters filled with statistics and other information pertaining to the character, symptoms, and danger of this disease.

Dr. Bull's Condition.—The following bulletin concerning the condition of Dr. William T. Bull, who has been seriously ill for some time, was issued by the attending physicians on January 27. "Owing to the continued erroneous and misleading reports concerning Dr. Bull in certain newspaper articles and to the fact that these reports are arousing false hopes in the minds of many sufferers from cancer throughout the country it seems wise to issue the following statement: Dr. Bull's general condition and the rheumatic complications have improved sufficiently to warrant his departure for the warmer climate of Savannah in the near future. The original growth which was the real cause of his illness has never been cured." Dr. Bull is now near Savannah, Ga.

Medical Journals Merge.—The *Indiana Medical Journal* and the *Central States Medical Monitor* will merge in February under the title of *The Indianapolis Medical Journal*. Dr. S. E. Earp will continue as editor, and Dr. A. W. Brayton, for-

merly of the *Indiana Medical Journal*, will be a member of the editorial force.

Gifts to Charities.—By the terms of the will of the late Mrs. Catherine Conant of Newark, N. J., $5,000 each is given to the Lowell General Hospital at Lowell, Mass., and the Homeopathic Hospital of Essex County at Newark. The Hospital of Women and Children at Newark receives a share of the residuary estate.

Under the will of the late Mrs. Samuel Mather of Cleveland, Ohio, the Lakeside Hospital of that city receives an income of $6,000 a year.

Mount Sinai Hospital, New York, receives $3,000, and the Presbyterian Hospital $1,000, by the will of the late Charles Mayer, of that city.

The Presbyterian Hospital has also received a gift of $2,000 to complete the endowment of a bed from the estate of Mrs. E. L. Lathrop.

The VIII International Congress of Hydrology, Climatology, Geology, and Therapy by Physical Agents.—This congress will meet in Algiers, April 4 to 10, 1909, coinciding with the celebration of the fiftieth anniversary of the School of Medicine of the University of Algiers.

The Worth County (Ga.) Medical Society, at its meeting on January 20, elected the following officers: *President*, Dr. W. C. Tipton; *Vice-President*, Dr. W. K. Stewart; *Secretary-Treasurer*, Dr. G. G. Lunsford; *Delegate to State Medical Association*, Dr. V. P. Stevens.

Chicago Laryngological and Otological Society.—At the annual meeting of this Society, held January 26, the following officers were elected: *President*, Dr. Henry Gradle; *Vice-President*, Dr. Chas. M. Robertson; *Secretary-Treasurer*, Dr. F. Gurney Stubbs; *Councilor*, Dr. A. M. Corwin.

Chicago Neurological Society.—At its meeting held January 28 the following officers were elected: *President*, Dr. L. Harrison Mettler; *Vice-President*, Dr. D'Orsay Hecht; *Secretary*, Dr. Peter Bassoe; *Treasurer*, Dr. Geo. W. Hall; *Councilor*, Dr. Sydney Kuh.

Illinois Branch of the American National Red Cross.—This branch will soon organize a first-aid legion on a military basis. Dr. Gustavus M. Blech has been appointed director-in-chief by Dr. L. L. McArthur, Chairman of the Executive Committee.

Milwaukee Physicians' Association.—At the annual meeting of this society, on January 19, the following officers were elected: *President*, A. R. F. Grob; *Vice-President*, E. Wells Kellogg; *Treasurer*, Henry J. Gramling; *Secretary*, A. A. Cooper; *Board of Censors*, P. Langland, H. C. Werner, F. W. Riehl.

The Brown County (Wis.) Medical Society, at its annual meeting at Green Bay, recently, elected the following officers: *President*, Dr. C. J. Chloupek; *Vice-President*, Dr. H. P. Hendricks; *Secretary and Treasurer*, Dr. R. H. Sweetman; *Censor*, Dr. A. W. Slaughter.

The Southwestern Minnesota Medical Society.—The twenty-first annual meeting of this society was held on January 19. Election of officers resulted as follows: *President*, Dr. A. H. Brown, Pipestone; *Vice-President*, Dr. A. D. Williams, Wilmar; *Secretary and Treasurer*, Dr. Emil King, Fulda; *Delegate to State Convention*, Dr. W. D. Beadle, Windom. The next meeting will be held in Slayton in July.

The Oxford County (Ont.) Medical Association held its annual meeting at Woodstock on January 22. The following officers were elected for the ensuing year: *President*, Dr. Green of Embro; *Vice-President*, Dr. Angus McKay of Ingersoll; *Secretary*, Dr. Brodie of Woodstock; *Treasurer*, Dr. Neff of Ingersoll.

The Nashua (N. H.) Medical Association, at its annual meeting on January 22, elected the following officers: *President*, Dr. A. S. Wallace; *First Vice-President*, Dr. Henry O. Smith; *Second Vice-President*, Dr. W. E. Reed; *Secretary*, Dr. Eva M. Locke; *Treasurer*, Dr. A. L. Wallace; *Historian*, Dr. C. B. Hammond; *Executive Committee, Chairman*, Dr. S. S. Dearborn, Dr. C. F. Nutter and Dr. Mary Sweeney.

Obituary Notes.—Dr. Francis Joseph Rogers, City Health Officer of Stamford, Conn., died at his home in that city on January 27, after a short illness, aged sixty years. Dr. Rogers was graduated from Holy Cross College in 1870, and from the medical school of the University of Pennsylvania in 1873. In 1877 he settled in Stamford, where he had since practised.

Dr. Arville A. Oleson, until recently of Axtell, Neb., was killed in a railroad accident at Glenwood Springs, Col., on January 15. Mrs. Oleson was also killed and their young son was severely injured. Dr. Oleson, who was a graduate of the Rush Medical College of Chicago, was on his way with his family to Spokane, Wash., where he intended to practise.

Dr. James Fenton Bryant of Franklin, Va., died at his home on January 16, aged 67 years. Dr. Bryant, after serving throughout the Civil War in the Confederate Army, was graduated in medicine from the University of New York, and had practised in Franklin for many years.

Dr. Charles Francis of Reno, Nev., died of tuberculosis on January 14, aged 33 years. He was graduated from the medical department of Northwestern University in 1901.

Dr. William Aitchson of Ortonville, Mich., died at his home, on January 10, after a brief illness, aged 62 years. He was graduated from the University of Michigan in the class of 1873, and was a charter member of the Oakland County Medical Society.

Dr. J. H. Donald of Piedmont, S. C., died suddenly while attending a patient, on January 23, aged 55 years. He was graduated from the Charleston Medical College in 1875.

Dr. John L. Howard of West Baden, Ind., died at his home on January 22. Dr. Howard was a graduate of the University of Virginia, and was at one time a member of the Faculty of the University of Louisville.

Dr. Francis S. McNamara, the oldest practicing physician of Milwaukee, Wis., died on January 22, after several months' illness. Dr. McNamara was born in Ireland and received his medical education there, coming to this country in 1845.

Dr. Thomas Stewart of Carlisle, Pa., died in Cleveland, Ohio, on January 28, at the age of 50 years. He was graduated from the Western Reserve University Medical College in the class of 1874.

Dr. Ira G. Stone of Kingfisher, Okla., died at St. Francis' Hospital, Wichita, on December 31, aged 54 years. He was a graduate of the Rush Medical College of Chicago.

Correspondence.

THE TRANSFER OF MORIBUND HOSPITAL PATIENTS.

To the Editor of the Medical Record:

Sir:—In your issue of January 30, 1909, in an editorial upon "The Transfer of Moribund Hospital Patients," appears a censure of the alleged "practice" of transferring "moribund hospital patients" in ambulances to Bellevue Hospital, and the accusation is made that this is done "in order to keep the mortality statistics within limits pleasing to the trustees and to the contributors of money to the institutions," and further, "that so long as there are any officers of private hospitals whose eyes are fixed on the annual report, and whose hearts are unmoved by the sufferings of the dying, all the hospitals in the city must lie under the suspicion of favoring such practices." The second of the three cases which are cited in support of this grave charge was that of a patient received in a private hospital suffering from fractured ribs and chronic alcoholism. He lived for seven days after transfer to Bellevue Hospital, when autopsy disclosed a fracture of the base of the skull which had given so few symptoms that its existence was unsuspected at either institution until revealed by the post-mortem findings. It cannot fairly be claimed that death was due to transfer in such a case, or was accelerated by it.

It is a misapprehension that those officially connected with hospitals are desirous of exhibiting a low death rate; in fact it is much more for their interest to retain moribund patients in the hope of subsequently deriving the scientific data which autopsies may afford. I have lately asked the superintendents and managers of a half-dozen hospitals what their death rate was, and how it had compared with other institutions, and in not a single instance were they able to inform me. In twenty-five years of official connection with a number of hospitals, both private and public of this city, I have never known of a single instance in which the death rate of the institution was considered in relation to the transfer of a patient, although such allegations are being made constantly by unjust and ill-informed critics. The total number of patients transferred in New York by ambulances exceeds 50,000 yearly. This work is done by sixteen municipal and twenty-eight private ambulances. That an occasional wrong diagnosis should be made, or that an occasional sudden death should occur among so many sick persons, may reasonably be expected, without attaching special blame to anyone. The vital statistics of the city show that among a like number of seemingly well persons, the incidence of sudden death (exclusive of accidents) is 3 per cent. The private hospital ambulance system is maintained in several institutions at a cost of more than $5,000 per annum, yet they have been so persecuted by unjust criticism as their only reward, that they are seriously meditating abandoning this humane part of their public service. The Roosevelt Hospital has already published its intention of giving up its ambulance service for general public work, and another equally representative institution has the same action under discussion. It is to be hoped that such radical measures may hasten the municipal control of the entire ambulance system of the city, with a central bureau, or "clearing house," and local receiving stations, such as exists in Berlin, and has been recommended by the Mayor's Hospital Commission for incorporation in the revised charter.

The public have grown to look upon the ambulance system in an entirely wrong light, with the result that it is greatly overtaxed. Ambulances are demanded with instant service for most trivial ailments or for patients perfectly well able to find their own way into hospitals or dispensaries. For example, in an ambulance record of a single day, taken at random, I find the following calls entered: "Incipient tuberculosis," "destitution," "abrasion of face," "gonorrhea," two cases of "alleged insanity." On another day are included "hysteria" and "epistaxis." This institution answers an average of ten calls per diem, or 3,650 a year. Not a few of the cases which have brought criticism upon hospitals in the past, as being inhumanely transferred were patients suffering from delirium tremens, but very few of the private hospitals have been constructed with any isolation rooms for segregation of such noisy patients. If the patients be admitted to the general wards they disturb everyone else who is very ill, and besides, for their own safety, there are inadequate means for their restraint. Unfortunately, these patients sometimes die quite suddenly, when apparently previously strong, and although transference in an ambulance does them no harm, if they happen to die within twenty-four hours, it is liable to beget censure from those unfamiliar with all the existing conditions. In other cities the ambulance work has not attempted to cover so large a field, and the public do not demand infallibility. For example, in Cleveland and one or two other cities, it is fairly conducted by the private enterprise of the undertakers (!) who own and operate the "busses," and in Rome, Italy, when a street accident occurs the police are permitted to seize any passing carriage, even that of the King, for temporary ambulance service, thus obviating all delay.

I trust, Mr. Editor, that in the interest of fairness you will find space for this refutation of your strictures upon hospital management which has already suffered so much injustice from the sensational lay press as to feel compelled to abandon, in part at least, a work which for many years has accomplished great good for the whole of the local community.

W. Gilman Thompson, M.D.

34 East Thirty-first Street, New York.

[That the practice is not only "alleged," but actually exists, is within the personal knowledge of the writer of the editorial note which Dr. Thompson criticises. One of the instances referred to was not an ambulance case, but that of a patient in the medical ward of one of the private hospitals of this city. He was suffering from advanced nephritis, and had had a meningeal hemorrhage. He was in a stuporous condition, not delirious, and not a cause of disturbance in the ward. He was moribund, but through the prompt action of the authorities he did not "die in the house." Until such occurrences are made impossible it is the duty of physicians and philanthropists to do what in them lies to root out the evil.—Ed.]

THE STATE CONTROL OF VENEREAL DISEASES.

To the Editor of the Medical Record.

Sir:—There has been brought to my notice a letter printed in the Medical Record under date of January 16, written by Drs. Valentine and Townsend, in which attention is drawn to the movement to control the venereal diseases in Iowa. The prominence of these gentlemen in the profession and in the treatment of the venereal diseases, together with the unquestioned sincerity of their wish to protect the physicians and the citizens of Iowa from unwise legislation, will attract the attention of the medical profession and command consideration of their views. My name has been courteously mentioned in the letter, and I am credited by the gentlemen with a share in the work of preparation for legislative control of the venereal diseases in this State. The reasons set forth will be an excuse, I trust, for placing before your readers a brief outline of the steps taken for the control of these diseases, and a defense of the bill that has been subjected to criticism.

As a result of the circulation during the past three years of authenticated statements of ravages of the venereal diseases, endorsements looking to the passage and enforcement of a protecting law have been received and are about to be placed in the hands of the General Assembly. The endorsements have come from many sources, among those not mentioned by your correspondents being the Iowa State Medical Society, the State Society of Medical Women, and the Iowa State Dental Society. It should not be inferred that the societies, colleges, and conventions have approved of the bill in its present form, for it has not been submitted to them. However, the president of the State Medical Society and the president of the State Dental Society have fully accepted the measure and will work for its passage. It may be of interest, and I hope not irrelevant to state here, but one person in the State has, so far as I know, advanced an objection to the ultimate legal control of the venereal diseases. The Women's Christian Temperance Union has worked steadily for two years to introduce warning literature into homes in every county in the State, and has secured the signatures of a large number of medical men to a petition for an effective law. This society will introduce the measure into the legislature solely for the purpose of protecting the homes, and of helping to control Iowa's most destructive plague.

The draft of the bill to be submitted provides for a commission consisting of three regular practicing physicians in each county, to be appointed by the District Courts, to constitute a County Board of Health, to which all cases of venereal diseases shall be reported. This board will be required to fix a bond ranging in amount from a merely nominal sum to five hundred dollars, which will insure that the person afflicted with a venereal disease in an infectious stage shall remain under efficient medical control, and so conduct himself that he will not inflict his disease upon another person. Upon receipt of a certificate from the

physician in charge of the case stating that the patient has passed the infectious stage he shall be released from the conditions imposed by his bond and the record of his case be wholly destroyed by the County Board of Health. It will be seen from this that knowledge of cases reported to the County Board of Health will be confined to a small number of responsible physicians, and that it is the purpose of the law to quarantine only those who will persistently and flagrantly disobey the regulations, which the law provides shall be imposed by the State Board of Health.

With the above statement of fact in mind I am unable to connect the criticism of Drs. Valentine and Townsend, relating to section one, with disruption of families. Nor can it be conceded that venereal diseases will be treated by less competent men than those now handling them, for there are in the eyes of the law no persons practising medicine in Iowa that are not properly qualified to do so.

The criticism of section two resolves itself into the recognition of the contagious stages and the time at which the patient can be discharged without danger of infecting others. In reply to this I will say, first, that the State bacteriologist, Dr. Albert, who favors proper legal control, has not advanced this objection and informs me that an expenditure of but fifteen hundred dollars will enable him to add venereal examinations to his present duties. Second, the long and satisfactory experiences of Germany, Norway, and Denmark have demonstrated the feasibility of this control. Would any one exempt diphtheria from control because it is even less possible to demonstrate the day or week when it is safe to discharge the patient?

The criticisms of sections six and seven are sufficiently answered in a preceding paragraph.

As section ten refers solely to the prohibition of druggists and other unlicensed persons prescribing for these cases I do not feel that it is necessary to offer a defense of it.

Sections twelve and thirteen are practically identical with provisions now in force in Iowa for the control of other infectious and contagious diseases.

Section fourteen provides for a penalty in case any person shall knowingly transmit these diseases by intercourse to another person. This appears to me to be an obviously proper provision of the proposed law.

Drs. Valentine and Townsend truly state that premarital and extramarital coitus will be practised despite the passage of this law. It must surely appear that no especial effect upon the social evil is expected by the operation of the law for which we are asking. We believe, as they doubtless do, that this evil will come under gradual subjection through the normal evolution of social institutions. The sole object of the law is to control the most disastrous diseases we have, and we know of no reason why the intelligence and moral fiber of Iowa physicians and laymen cannot be relied upon for the enforcement of a beneficent law as well as can these qualities in the physicians and laymen of Norway and Denmark.

After an almost daily correspondence, lasting over a period of three years, the writer has to say that he has met with but two correspondents who have not favored at some time and in some way the legal control of the venereal diseases.

He has received much valuable advice and kindly encouragement, and takes this opportunity to thank all his friends, including his present critics, for their patient efforts to guide him.

G. Hardy Clark, M.D.

Waterloo, Iowa.

THE PROFESSIONAL SECRET IN RELATION TO VENEREAL DISEASES.

To the Editor of the Medical Record:

Sir:—In your issue of January 16, I note a letter from Drs. Valentine and Townsend anent proposed antivenereal legislation in Iowa. No doubt we all concur in the views expressed. However, I, for one, have reached the point where, under certain circumstances, regardless of damage suits or professional ostracism, I will not protect syphilitics or gonorrheics.

A young man was under my care for primary syphilis which rapidly developed secondary symptoms. I had given him complete instruction regarding the danger of communicating his infection to others. While mucous patches were present around his anus and in his mouth he married a pure and beautiful girl of twenty years. Six months later she was the victim of malignant syphilis. The divorce court gave her freedom from the man who contaminated her, and also made him free to infect another pure girl.

A young woman of lovely character, whom I had cared for from babyhood, asked me if it was safe to marry a young man who was also my patient. I replied yes. Two weeks later, in the effort to test his potency before marriage, the man acquired gonorrhea. In spite of strenuous opposition he married the girl during the acute stage of his disease. I have since operated upon his wife.

In a similar case another physician notified the girl's parents on the morning of the wedding day, thus preventing marriage. This doctor had previously endeavored to induce the man to postpone the ceremony but without avail. He then threatened to expose him and finally did so in spite of assurance of bodily injury. I honor the doctor.

A young woman whom I knew to be pure brought to me her lover on account of sore throat. Their wedding day was approaching. The man had secondary syphilis; his throat was badly ulcerated. He refused to postpone the marriage. I then told him to leave town within 24 hours or I would explain his situation to the girl. He left. Subsequently the girl married a decent fellow.

In cases where venereal disease is necessarily contagious I will protect the girl and not the man: first, of course, endeavoring to induce the man to afford the needed protection. Most men will do so, but all of us have met instances where they will not.

John C. King, M.D.

Banning, Cal.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE MEDICAL OFFICER'S REPORT FOR THE COUNTY OF LONDON—THE DEPARTMENTAL REPORT ON INEBRIETY—HOSPITAL SUNDAY FUND—SLEEPING SICKNESS—A BACTERIOLOGIST FOR THE ROYAL HOUSEHOLD.

London January 15, 1909.

The report of the Medical Officer of the London County Council for the year 1907 has been issued this week. For the third year in succession the death rate has not exceeded that of any previous year. In 1905 and 1906 it was 15.1 and in 1907 fell to 14.6. The birth rate was the lowest recorded since registration was established, only 25.6. In the middle of the year the population of the county was estimated at 4,758,218. Overcrowding is a condition varying greatly in different localities and of course is associated with other circumstances. In Shoreditch there is overcrowding to the extent of 30 per cent. of the population; in Hampstead not above 6.4 per cent. In the former the death rate is practically twice as high, the phthisis mortality three times, and the infantile mortality twice as high as in the latter. Shoreditch is, says the Medical Officer, but a sample of a much larger population in London and elsewhere whose mortality is increased by causes which must be considered as largely preventable. The suffocation of infants in bed shows a progressively higher rate from the least to the most overcrowded localities. The epidemic death rate was very low—only 1.42. No death from smallpox. Those from measles, influenza, diphtheria, typhoid, diarrhea, and phthisis were all under the average, but scarlet fever and whooping cough were above. Estimates of homeless persons have been attempted and the result is about 1 in 2,000 of the population, and yet it is curious to note that on the night of the inquiry accommodation in the casual wards for 745 persons remained unoccupied, the total accommodation provided in London, which is sufficient for 1,882, being occupied by only 1,137 persons. There have been previous inquiries and it would seem that homeless persons are more numerous, unless perhaps the counting has been more careful. In 1904 on the night selected for inquiry the number was 2,000, in 1905 2,200 were found and in 1907 there were 2,400.

The report of the Departmental Committee on Inebriety and Reformatories was issued on [illegible] and will without doubt give rise to much discussion, for it is a most able and interesting production. The conclusions will not be accepted by all, but no one will deny that they are deserving of careful attention. The original reference was to inquire into the law relating to inebriates and report what amendments were desirable, but this was extended in August last at the request of the committee so as to include the question of treatment by drugs. Improbable as it seems that any such treatment would possess features which would warrant its incorporation, if possible, in a statute, the committee thought it right to communicate with the advocates of these vaunted cures. To embark upon a full inquiry into the comparative merits

of these treatments by drugs of secret composition and obscure action would serve no good purpose, and the committee calls attention to the fact that drugs cannot possibly supply the penal element present in all sentences to reformatories. It may be permitted to remark here that the committee could not be recognized as competent to judge of the value of drugs and that the medical profession has not been able to recognize any pretended "cure" as really efficacious.

The public has long been convinced that legislation as to inebriety has hitherto been a failure and that this is the conviction of the committee is obvious from their recommendation to pass an act repealing much of it, amending more, consolidating the remainder, and adding further laws of a restrictive kind. They propose to substitute the term inebriate for "habitual drunkard" throughout the consolidated law and offer the following definition: "An inebriate is a person who habitually takes or uses any intoxicating thing or things, and while under the influence of such thing or things, or in consequence of the effects thereof, is (a) dangerous to himself or others, or (b) a cause of harm or serious annoyance to his family or others, or (c) incapable of managing himself or his affairs or of ordinary proper conduct." It is recommended that the powers of local authorities as to inebriates be transferred to the Secretary of State, who should have power to remove an inebriate, with his consent, from one retreat to another.

Inebriates should be allowed to enter into a legal obligation before a justice of the peace to abstain from intoxicants for any period not less than a year. They might also apply to a justice of the peace for an order of guardianship, which would give the appointed guardian power to fix the residence of the inebriate, to prevent him from obtaining intoxicants, to submit him to nurses or attendants, and to warn sellers not to supply him. So far the attempt is a voluntary one on the part of the inebriate, but when this has failed or is refused it is recommended that a relative, friend, or a previously appointed guardian may petition a judicial authority to grant a compulsory guardianship or to commit to a retreat. The authority being satisfied that the case requires it, may issue an order to this effect, to operate for at least a year. Guardianship, even when compulsory, is a less severe measure than committal to a retreat. The judicial authority is to be empowered to require the inebriate to bear such expenses as he considers reasonable.

Another recommendation of great importance is that magistrates should have discretionary power to send to reformatories, in addition to or in substitution of imprisonment, all inebriates convicted before them of various offenses, *e.g.* neglect of or cruelty to children, attempted suicide, wilful damage, wounding not amounting to a felony, etc. Another far-reaching proposition is that the State should provide accommodation and maintenance of all inebriates committed by the courts, taking over such existing reformatories as may be suitable or adaptable to the scheme. Contributions may be enforced from the inebriate or those responsible for him. But the State must itself bear the cost of the destitute or very poor inebriates and of troublesome or undesirable inmates. Any person who has become a charge on the rates on account of delirium tremens is to be deemed an inebriate and may be proceeded against by the guardians to whom he has been chargeable.

It is recommended that any future legislation respecting drunkards should apply equally to drug takers.

The report has been received with no little satisfaction by leading members of the Society for the Study of Inebriety and of the temperance societies. Some of them are very enthusiastic, but they have yet to reckon with the difficulty of carrying any act through Parliament. A few persons timidly suggest the danger of restricting the liberty of the subject, but considering the interference with this liberty which has taken place in so many directions of late years, there is not much to be said in defense of the liberty of getting drunk and being a nuisance and a danger to others.

At the Royal Society of Medicine last week Dr. James Mackenzie gave a demonstration of his clinical polygraph, which had been used to record cardiac and other vascular movements. It consists of a small cup to apply over a pulsating part, fitted to a rubber tube connected with a tambour and a sphygmograph. The use of this led to the invention of an ink polygraph, by which tracings of indefinite length can be made with ink on a gradually unwinding roll of paper, moved by clockwork. Dr. Mackenzie showed a number of records and demonstrated the way in which they must be read. He then showed the method of using it on the human subject and stated the inferences he had drawn from the records. He must have been gratified with the reception given to his work, for all the speakers had a good word for it. Dr. Paul Chapman, who had used an instrument to record the cardiac beat, but not, as this new one, the radial pulse, believed it would be of great value. Sir Lauder Brunton, who had used various recording instruments, said this was the most convenient and was much less expensive than others. Sir J. Broadbent and Dr. Herringham, without accepting all the inferences put forward, accorded high praise to Dr. Mackenzie's work. Dr. T. Lewis had for twelve weeks been using the instrument and thought the examination of irregularly acting hearts was futile without it.

The Council of the Hospital Sunday Fund yesterday agreed that the general purposes committee should ask the Rev. L. S. Lewis to attend and state his views. He is the person who made an unseemly disturbance at the meeting of the constituents because no grant was given to the "Antivivisection Hospital."

The Belgian Colonial Minister has decided to establish six new hospitals for the study and treatment of sleeping sickness in the Congo.

Dr. Harold Spitta has been appointed bacteriologist to the Royal Household—a new office, the creation of which seems gratifying to the specialists, as indicating that bacteriology is becoming recognized as of practical value.

Progress of Medical Science.

Boston Medical and Surgical Journal, January 21, 1909.

Some Aspects of Cystitis.—A. L. Chute presents a general description of cystitis both acute and chronic. The diagnosis of the latter variety is often difficult on account of the great similarity of the symptoms with those of chronic renal suppuration. Occasionally a kidney process that does not in the least involve the bladder may present, besides a turbid urine, more or less painful and frequent micturition. Renal processes involving the bladder to only a slight degree may give very marked bladder symptoms. Alkaline urine suggests (but does not prove) a bladder lesion. A urine that after sedimentation by gravity shows a finely turbid supernatant layer is said to point to bladder rather than to kidney suppuration. A bladder that will easily take a considerable amount of distention is against the probability of cystitis. A test of more value is that of comparing a specimen voided with a specimen collected by a catheter left in after the bladder has been washed perfectly clean. If the first few ounces collected after this washing are much less turbid than the voided specimen, the pus probably originates in the bladder; if, on the other hand, the specimen collected after the washing is as turbid as the specimen passed before, it is probable that the pus comes from the kidney. Cystoscopy is often necessary. We should trace every case back to its original starting point as the accurate determination of the predisposing cause will often enable us to predicate the result of therapeutic measures. While the treatment of acute cystitis is almost entirely general, that of chronic is almost entirely local. Nitrate of silver, 5 to 15 per cent., is our most useful drug for chronic ulcerations. The more advanced ulcerations call for putting the bladder at rest by drainage and suprapubic cystotomy. In the author's experience the opsonic treatment is of little value. He notes that the bacteria which may have started the process leading to chronic cystitis have no particular action in keeping up the tissue changes, with the possible exception of the ulcerations. The deep infiltrations and cell changes have become habit, so to speak, and go on automatically, but are no longer due to the mere presence of the organisms in the tissues. The irregular surface of the bladder lining forms a favorable place for them, but they have no real action in keeping up the process. Hence a diminution in their number would have no tendency to heal the process. The opsonic method may help acute cases, but such usually get well anyway. They generally arise from infection through the urethra. If the infection has would have no tendency to heal the process. The

latter may be subacute or chronic from the beginning. Tuberculous cystitis is always, in the author's experience, a secondary disease. The removal of the predisposing cause, which is generally a unilateral renal tuberculosis, will generally effect a cure.

The Value of Hemolysis in the Diagnosis of Carcinoma.—W. Whittemore has made a study of cancer tuberculosis, diabetes, various tumors other than cancer, and of a certain number of normal patients with reference to hemolysis, and also refers to the results obtained by other workers. In his own series of 109 cases, 39 normal individuals were listed. Of this number hemolysis occurred in 7, or 17 per cent. In 22 cases of carcinoma, it occurred in 8, or 36 per cent. It occurred in 50 per cent. of tuberculous cases examined and also in chronic empyema, Hodgkin's disease, tabes, paraplegia, general paresis, and once each in malaria and sarcoma. From these results the author believes that at the present time hemolysis is of no value in the diagnosis of carcinoma. As the process occurs in vitro in normal individuals and in diseases other than cancer, it would seem necessary to do a hemolytic test before transfusion. This is borne out by the occurrence of two deaths following transfusion.

New York Medical Journal, January 23, 1909.

Two Instances of the Simultaneous Occurrence of Hypernephroma and Carcinoma.—The histories of these two cases are given at length by G. B. Foster, Jr., and C. H. Gerhard. They regard the simultaneous occurrence as worthy of record and suggestive of a possibility of similar causation. One might easily fancy, however, the presence of some chemical stimulus or removal of some chemical restraint of growth operating at the same time upon the epithelium of the stomach and upon the cells of an adrenal "rest," or of the adrenal tissue itself. It is of interest to add that in the second case there were definite atrophic changes in the pancreas and that the well known rapidity of growth and the vegetative appearances of the cells in many hypernephromata have some importance if one thinks of malignant tumors as arising, according to Beard's recent theory, from trophoblastic cells. However, even if one were to acknowledge the existence of some degree of value in Beard's suggestion, the sharp difference between the simultaneously occurring tumors would argue against the general applicability of his idea, since, if both types of tumors arise from unused germ cells, the tumors should have been identical, whereas in each case they are distinct and the metastatic growths have followed the type, now of one, now of the other. The occurrence of bone in the hypernephroma of the first case is in line with the suggestion which has previously been made that these adrenal tumors are in reality of teratomatous type and adds somewhat to a restricted application of Beard's theory to this class of adrenal tumors. In further comment upon the applicability of Beard's theory, it may be said that while it is true there existed definite atrophy in the pancreas of the second case, and a slight grade of chronic interstitial pancreatitis in the first, the grade of these changes was by no means excessive or beyond that which is found in a large proportion of autopsies on subjects without any neoplastic formations whatever.

Incipient Tuberculosis of the Lungs and Its Diagnosis.—Gordon Wilson emphasizes certain points which have frequently been exploited in the literature of recent years. The main symptoms of the incipient stage are cough, hemorrhage, loss of weight, a moderate degree of malaise, night sweats, and fever. The author attaches but little importance to palpation. In percussion the finger should be held flat and very firmly against the chest wall. The blow should be given with the end of the finger—not the pulp—and it must not be allowed to rebound. We should percuss from the wrist and not from the elbow, and the percussing finger should be kept at a right angle. In listening for adventitious sounds and changes in respiratory murmur, three types of breathing should be used by the patient. (1) We should listen to the "danger zones" while the patient breathes naturally. A slight alteration in the character of the vesicular murmur together with a difference in the intensity of the breath sounds in corresponding areas should undoubtedly be put down as important evidence of disease, especially if backed by a suggestive history. (2) Get the patient to breathe deeply, but naturally, as one does after climbing a long flight of stairs. This way of breathing many patients will not do unless shown, but by doing it yourself, and telling him to breathe like you and with you, he soon does it in a satisfactory manner. This type of respiration will frequently "bring out" fine crepitant râles, and will make more clear the difference in intensity between the corresponding areas. (3) This is a modification of the breathing in 2, obtained by getting the patient to give a slight cough at the end of expiration, and then take a deep inspiration. This very frequently brings out râles that you are unable to hear by any other means, and by many is considered the most important of all auscultation methods in incipient tuberculosis of the lungs. To justify us in making a definite diagnosis we must have a suggestive history, bacilli in sputa, persistent physical signs in the lungs not accounted for by syphilis. A tuberculous invasion may simulate influenza, and it is such instances that tuberculin may be employed to settle the diagnosis. The author utters a word of caution with reference to the ophthalmotuberculin test. Corneal ulcers as well as severe reactions have followed its use.

Journal of the American Medical Association, January 23, 1909.

Tuberculin Treatment.—E. L. Trudeau considers neither the vaccination nor the toxin immunization theories of the tuberculin treatment of tuberculosis entirely satisfactory, owing to our, as yet, imperfect knowledge of the mechanism of tuberculous infection, and especially of acquired and artificial immunity. If we must have a working theory, however, and must decide between the two, he prefers for the present to hold to the conception of an immunity that is principally at least antitoxic as produced by the treatment, and to consider tuberculin habituation its essential feature and the best guide to dosage. This does not lead us to expect too much, and is, he thinks, more in accord with what we observe clinically as the result of treatment, and explains its very evident limitations. It is in accord, also, with experimental facts showing that only vaccinations with living cultures produce any real immunity, and not those with dead germs or chemical products derived from cultures. Accepting thus the toxin immunization conception as the guide to treatment, instead of measuring the degree of a questionable antibacterial immunity by the opsonic index, or attempting to produce it more empirically by a series of moderate reactions, the severity of which we can not in any way control, the main features of treatment, he says, would be: 1. To raise the degree of tolerance to tuberculin to the highest point attainable in each case by an almost imperceptible and long-continued progression in dosage. 2. To avoid general and focal reactions as much as possible and to consider them as merely evidences of intolerance. 3. To follow no fixed rule as to the rate of increase or maximum dose to be reached, but to be guided only by the degree of toxin tolerance of each case as shown by the symptoms and general condition, whether the highest dose attainable be only a small fraction of a milligram or a cubic centimeter or more.

Hemoglobinuric Fever.—W. H. Deaderick reviews the history of hemoglobinuric fever and points out the confusion which has existed in its diagnosis from bilious remittent fever. He does not find any very convincing evidence of quinine being a casual factor, though he says it is probable that the use of this drug may have increased the prevalence in certain localities. The facts that it seems to be decreasing in some regions with the increasing use of quinine and the large number of cases occurring where quinine had not been previously used are to be considered. He thinks that the increase of the disease has been largely influenced by the influx of susceptible whites into regions where the disease is endemic, especially in Africa, where the natives seem to be almost immune. The importation of quinine may have had its influence and the better diagnosis by competent physicians will also have an influence on the apparent frequency.

Renal Lavage.—E. Garceau presents the literature on the subject of renal lavage and reports some personal cases to show the present status of this mode of treatment. The technique is described in detail. He prefers the Kelly cystoscope and says that the operation is simple though some skill is required. The germ usually found is the colon bacillus, but the gonococcus and other germs have also been found. The solution which has given him the most satisfaction is silver nitrate, beginning with a mild one of 1

to 2,000 and gradually increasing the strength. The amount should depend on the condition of the pelvis and kidney. If there is no dilatation, not more than 8 or 10 c.c. should be given at first; the sensations of the patient will be a good guide in this as also in regard to the frequency of the injections. The method is seldom required and care should be taken in selection of cases. As a rule the patient should be under observation for a considerable time before it is undertaken. Acute pyelitis is not suited to this method. Free drainage of the kidney through the ureter must be secured. The most suitable cases are those of simple chronic suppurative pyelitis without obstruction, but most of these will get well anyhow unless the germ is a very virulent one. It may be used to cure an inflammation in a hydronephrotic sac as a preliminary to nephrophexy, but the kidney should be supported meanwhile by an appropriate apparatus. It should never be permitted in severe pyonephrosis with general systemic infection and it is not suitable for tuberculous pyelitis or pyelonephritis. It does little or no good in ureteritis with marked tissue changes in the ureter tending to sclerosis and thickening. The only positive remedy for such chronic cases is nephrectomy. A permanent catheter in the ureter is dangerous, especially in acute infections and with general symptoms. Renal lavage is seldom followed by serious harmful sequels if properly performed in the right sort of case, but further experience is needed to give the method a definite therapeutic standing.

Ureteral Calculus.—C. L. Leonard advocates the expectant treatment of small ureteral calculi, understanding by this method the use of known medical measures under careful medical supervision with frequent analyses of the urine. This treatment is based on the data derived from careful x-ray examinations, together with a study of the symptoms and signs as shown by other methods. He claims that the results from this expectant treatment show that in 50 per cent. of the cases of urinary lithiasis presenting marked symptoms, natural forces are sufficient for the expulsion of the calculus. It is not only rational and justified with the use of the known methods of diagnosis, but should be resorted to rather than the incurring of the dangers of the surgical operations in many cases.

Abdominal Tuberculosis.—D. N. Eisendrath points out that the lesions caused by the tubercle bacillus often simulate acute forms of disease of the abdominal viscera. The structures affected are most commonly the appendix and the peritoneum. His attention was particularly called to these facts by an experience of a near relative who was taken suddenly ill while traveling in Switzerland and operated on by Kocher of Berne, who diagnosed the case as one of tuberculous appendicitis, due to the ingestion of butter containing tubercle bacilli. Eisendrath emphasizes the importance of this source of infection; the cream is apt to be the most intensely infected portion of the milk, and affording no protection against the germicidal action of sunlight, it is an ideal culture medium for the bacillus. He reports several cases of acute tuberculous peritonitis of his own personal observation, and others from various sources in the literature, etc. To 51 cases of tuberculous appendicitis he can add 7, and of the total 16 patients had symptoms resembling in every detail acute appendicitis. His conclusions are the following: 1. A primary tuberculous appendicitis is not so rare an affection as was formerly thought. 2. Such an infection can be followed by secondary involvement of the ileocecal lymph nodes, which is out of all proportion to the pathological changes in the case. 3. In the majority of cases there are evidences of tuberculous foci in the appendix, but secondary lymph caseous nodes may be found without visible macroscopic or microscopic tuberculous changes. 4. Butter, cheese, and milk from tuberculous cows are the chief sources of infection in primary intestinal tuberculosis. 5. In a fair proportion (27 per cent.) of the 59 published cases of tuberculous appendicitis the clinical picture resembled that of an acute nontuberculous appendicitis. No statistics are available to estimate the proportion of cases of tuberculous peritonitis which begin acutely, but the number is larger than is usually thought. 6. Through early diagnosis and radical removal of the tuberculous appendix and infected lymph nodes (so far as practicable) complete and permanent recovery can occur. Some of the cases of ileocecal tuberculosis and of tuberculous peritonitis may thus be avoided through removal of the probable starting point.

Sputum Examinations.—A. T. Laird offers some suggestions in regard to sputum examination for diagnostic purposes. The main points are a more careful use of terms in describing macroscopic appearances, and certain matters to be noted in the microscopic appearance of the sputum. Under "macroscopic appearance" the specimen is described as watery, mucoid, mucopurulent, purulomucoid, purulent, or bloody. If one of the other varieties is simply blood-streaked the fact is noted, but only pure blood is called bloody sputum. In the microscopic examination the presence or absence of tubercle bacilli is noted. Their number is estimated according to the Gaffky scheme and their arrangement is recorded if desired. Under the heading "cells" particular attention is given to squamous epithelial cells and to pus cells (polynuclears). If the former are present in large numbers they are given preference in the statement of cells present, and if the pus cells are numerous they are accorded first. The presence of small round cells, alveolar calls, and, in appropriately stained cells, of eosinophiles, may also be mentioned. Mononuclear cells are rarely in the majority. As regards secondary organisms it is first noted whether they are few or many and then further details may be added. He gives a table showing how in a series of 541 cases there was a natural grouping into four types, the last of which, the mucopurulent with numerous pus cells, he calls the "bronchial type," and says it is desirable to obtain such to determine the presence or not of tubercle bacilli or organisms causing mixed infection. The tubercle bacilli may be occasionally found in the watery or mucoid type or the purulomucoid with predominating squamous cells, which are usually derived from the mouth or throat, but no inferences as to mixed infection should be drawn from the examination of such specimens.

The Lancet, January 16, 1909.

An Efficient Treatment for Pneumonia.—D. Crowley gives the histories of three cases and refers to six others. He gives an initial dose of calomel, followed by doses every four hours of a mixture containing 4 grains of the iodide of potash, 10 grains of citrate of potash, half dram doses of the citrate of ammonia solution, and occasionally little brandy. The dietary in the series of cases consisted of mixed milk and water when it agreed with the patient and when otherwise whey and cold water wherever desired. He also applied linseed poultices over strips of skin which had been previously blistered.

Ileosigmoidostomy for the Relief of Inveterate Constipation.—In one case Mansell Moullin united the lower end of the ileum by direct suture to a convenient portion of the sigmoid flexure, a lateral anastomosis four inches long being made between the two. The ileum was not divided. Recovery was uneventful. On the second day the patient, a woman nearly fifty years old, had a small semisolid movement, the first spontaneous one for some years. Two years later she was still well, though suffering occasionally from flatulency. The author has done the operation in all seven times, all recovering, and claims for it the following advantages: (1) It meets the requirements of the case in the simplest way by enabling the bowel contents to evade that portion of the gut in which they are especially liable to be detained. (2) It is almost devoid of risk. With reasonable care there is a minimum of danger in making a lateral anastomosis between two contiguous portions of bowel when there is no distention, and (3) it does not deprive the patient of any organ, whether this is of service at the time or not. The part of the bowel cut out by the procedure is not entirely deprived of its functions, but it is helped in that an alternative route has been provided for the bowel contents. If the ileum was divided at the end, the continuity of peristalsis would be broken and the condition of stagnation in the first half of the large intestine would be perpetuated rather than relieved.

A Combination of Substances Which Excites Ameboid Movement in Leucocytes by Which Living Can Be Differentiated from Dead Cells.—H. C. Ross has devised a stimulating agar solution, as follows: 3 c.c. of a 2 per cent. solution of agar in water, filtered, neutralized, and sterilized, 1 c.c. Unna's polychrome methyl blue (Grübler), which has been diluted previously with 2 volumes of water, 2 c.c. of a solution containing 4.5 per cent. of sodium citrate, 1.5 per cent. sodium chloride, and 0.225 per cent. sulphate of atropine. Before the atropine is added to the last solution, the latter must be most accurately neutralized to litmus

paper with citric acid. It has been found that the cytoplasm of leucocytes is a jelly which liquefies at death and that the diffusion of stain into it is hastened by heat and alkalies and delayed by neutral salts. Consequently unless there is heat or alkalies are present in certain proportions, the stimulant will not be rapidly absorbed by the cells, while the ameboid movement will either be greatly delayed or will not occur at all. A 5 per cent. solution of bicarbonate of soda is a convenient alkali to use and it must be added to the agar according to the temperature of the room in which the examination takes place. Investigation into the nature of the exciting factor shows that the stain has the most important part. Exaggerated ameboid movements, even at low temperatures, will occur without the alkaloid provided the agar is neutral, in which case the onset of the movement is delayed and not constant. With alkaline sugar the alkaloid is necessary where all the cells show stimulation as described.

British Medical Journal, January 16, 1909.

Body Weight in Relation to Pulmonary Tuberculosis.—F. P. Weber and W. R. Kirkness present the following statistics: In 500 male patients twenty-five years old and upward, all with bacilli, the average height was 5 feet 7 inches. Average weight on admission was 127 pounds 13 ounces. Fifty-three, or 10.6 per cent., weighed more than 147 lbs.; 3, or 0.6 per cent., weighed exactly that, and 444, or 88.8 per cent., weighed less. Average of former ordinary weights was 145 pounds 9 ounces. Two hundred and four of them, 40.8 per cent., used to weigh more than 147 pounds; 16, or 3.2 per cent., weighed exactly that, and 280, or 56 per cent., less. In a series of 100 females twenty-five years old and upward, all with bacilli, the average height was 5 feet 3¾ inches. Average weight on admission was 107 pounds 3 ounces. Eighteen of them weighed more than 119 pounds, 1 exactly that, and 81 under that. Average of former weight was 120 pounds 12 ounces. Fifty-four formerly weighed more than that, 1 just that, and 45 less than that. A third series was also examined of 100 males thirty years old and upward, who presented the physical signs of old pulmonary tuberculosis, but no fever or bacilli. Average height on admission was 5 feet 6¾ inches and average weight 133 pounds 5 ounces. Twenty weighed over 147 pounds, 5 exactly that, and 77 less than that. Average of former ordinary weights was 146 pounds 11 ounces. Forty-eight of them exceeded 147 pounds, 1 was just that, and 51 less. It seems, therefore, that the average weight of this last series on admission and the average of these former ordinary weights were both below the standard, but not so much so as in the first series in which the patients showed signs of active pulmonary tuberculosis, and had had bacilli. This may be taken perhaps to signify a more robust habit of body accompanying their resistance to tuberculosis, a resistance also shown by the relative quiescence of their lung lesions. A tabulated summary of the foregoing figures closes the original paper.

Asthma; Its Cause and Treatment.—According to W. Lloyd there are three causative factors in asthma: (1) The presence of hypersensitive areas in the nasal mucosa or a special sensitiveness of the gastric mucosa. (2) A special irritant of the pulmonary nervous system which constitutes the asthmatic idiosyncrasy with which the patient was born, and (3) the presence of an irritant, e.g. odors, dust, smoke, dietetic errors, etc. Treatment follows according to this classification. In a given paroxysm inquire as to the last meal and remove any obvious exciting cause. If the patient is in a bad atmosphere, remove him. Get him out of bed, bolster him up in an armchair before a cushioned table on which he may rest his elbows and throw himself forward. Ipecac powder will occasionally cut short an attack and permit of a good night. Some patients can get the same relief from pipe tobacco, but all such remedies must be used early. Plain strong hot coffee is one of our surest remedies. Alcohol, cocaine, and chloroform are all serviceable, but the danger of habit formation must not be forgotten. Stramonium smoking and nitre paper fumes are often efficient. The author's experience with the iodide of potash has been disappointing. The food should be nutritious and easily digestible. Asthmatics should dine early, so as to retire on empty stomachs. Intranasal abnormalities must be rectified. For ordinary intranasal irrigation the normal saline are better than the usual antiseptics employed for this purpose.

Causation of Ingrowing Toenail.—G. A. Stephens suggests that a likely cause is the position of the foot during sleep. What usually happens on retiring is that a person first lies on his side, places his feet side by side, but in a short time the upper one slips down onto the bed so as to lie wholly or partially on the bed alongside of the other. If it slides but a short way, then it lies with its weight resting on the toes and it is this constant pressure on the side of the big toe during the sleeping hours that gives rise to the pathological condition. Two simple diagrams explain the author's point. Most persons at some period, he says, have experienced what is popularly known as the "fidgets" when getting into bed in a disturbed and irritable condition. They are restless and do not know what to do with their feet, and if the positions of their feet were noticed it would be seen that the upper foot was twisted about the lower one, with the big toe dug into the bed. The wearing of a toe cap is suggested as a simple means of preventing abnormal pressure on the nail.

The Effective Treatment of Acute and Sub-Acute Rheumatism.—D. B. Lees commends the use of sodium salicylate, but says that its employment has been restricted by fear of cardiac depression and the bad taste of the remedy. It should be used more freely and continued for a longer time. The cardiac changes result from the disease, however, and not from the remedy. The author always finds dilatation of the left ventricle. As long as the evening temperature rises above normal, the disease is still present, and the remedy should be continued. The author says that the addition of bicarbonate of sodium in an amount always double that of the salicylate is a very effectual means of diminishing the unpleasant effects of the latter. The initial dose of the sodium salicylate may be 15 grains for an adult, for a child from 7 to 12 years 10 grains, and below this age 5 grains, the daily totals being 150—100 and 50 grains respectively. With these larger doses the pain rapidly abates and the joint swellings subside. The fever falls and there is little tendency to relapse. The improvement in the heart wall muscle is often most striking. In bad cardiac cases and those associated with pericardial inflammation the author commends the application of ice to the precordium. The lower extremities must be kept warm and any considerable dilatation of the right auricle must be relieved by leeches before the ice is applied. The indications for leeches are an extension of the cardiac dullness in the fourth right intercostal space to two finger breadths, rapid respiration, restlessness, and some cyanosis in the lips and face.

Diabetes Conjugalis.—At a recent meeting of the Berlin Medical Society, Senator discussed the question whether diabetes might be communicated from husband to wife and *vice versa*. He said that some writers, believing that the disease can be so communicated, have proposed the name of "diabetes conjugalis" for this condition. Dr Schmitz of Neuenahr had found 26 married couples among 2320 diabetic patients, being 1.1 per cent. of the total number. The computation ought, however, to be made not by comparing the diabetic couples with the total diabetics, but by comparing the diabetic couples with the diabetic patients who were either married or lived connubially. The proportion of diabetic couples then becomes higher. Senator has observed 516 married couples of whom either the husband or the wife, or both, were diabetic. The latter event happened in 18 instances (*i.e.* 3.5 per cent.), and taking only those couples who had been married from six months to one year the proportion rose to 4.1 per cent. Some of the cases were hereditary, but even 4.1 per cent. was not a proportion sufficiently high to make a communication likely. Some rather striking instances of communication have, however, been recorded, such as that of a washerwoman who had washed the linen of diabetic patients and that of a surgeon who had performed an amputation on a diabetic patient. Some pathologists have produced diabetes in animals by the inoculation of diabetic urine. Experiments of this kind which Senator had made were unsuccessful, but he nevertheless was of opinion that a communication of the disease might happen in certain favorable circumstances. In the discussion Dr. Neumann said that among 108 diabetic patients whom he had observed there was only one married couple presenting this condition. Albre said that he had found diabetes in two married couples, but in one of them the disease was hereditary and in the other it was caused by disease of the pancreas. Ewald stated that in 120 cases he had not seen a single instance of diabetes conjugalis.—*The Lancet*

Book Reviews.

Compendium der Verbandlehre. Von Dr. Eduard Sonnenburg, Geheimer Medizinalrat, ord. Professor honor. an der Universität, und Dr. Richard Mühsam, Oberarzt an der chirurgischen Abteilung des städt. Krankenhauses Moabit in Berlin. Zweite Auflage. Mit 87 Abbildungen im text. Berlin: Verlag von August Hirschwald, 1908.

This is a booklet of ninety pages, and gives the technique of preparing and putting on the ordinary bandages used in surgery. It is well illustrated, and should prove useful to the student; the practising surgeon or physician will hardly need the instructions of the book in improvising a bandage to suit each individual case.

Der Menschliche Körper in Sage, Brauch und Sprichwort. Von Professor Karl Knortz, North Tarrytown, N. Y. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1909.

The author has collected a number of popular sayings, proverbs, and old ditties that refer in one way or another to some part of the human body. We find here the nursery rhyme about the two blackbirds sitting on a hill, an inevitable quotation or two from Shakespeare, and a number of citations from various writers on anthropology. The book may be picked up in a leisure moment, but one would hardly consider it as a serious contribution to scientific literature or attempt the task of reading it from cover to cover.

Action de la Contraction Utérine sur l'oeuf Humain. Phénomènes passifs de la Grossesse et du Travail. Par le Dr. Paul Bouquet, Médecin de la Maternité de Brest, Directeur du Corps Départemental d'Accouchement. Paris: G. Steinheil, Éditeur, 1908.

Dr. Bouquet has taken upon himself the task of tracing the effects of uterine contractions upon the ovum contained in its cavity, from the first day of its attachment to the mucosa to the final stage of labor, when the full term fetus is expelled by uterine action. The book contains a vast amount of information in this special phase of the theory of obstetrics, and is illustrated by a number of pictures showing the condition of the uterus and of the fetus in various stages of pregnancy and labor. The work should be of interest to anyone who is anxious to obtain a complete picture of the dynamics of labor; a number of pages, too, will prove of use to the practical obstetrician in suggesting the means of dealing with such abnormal phenomena as abortion, delayed labor, uterine inertia, etc.

A Synopsis of Surgery. By Ernest W. Hey Groves, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.), Assistant Surgeon to the Bristol General Hospital; Surgeon to the Cossham Hospital; Senior Demonstrator of Anatomy at the University College, Bristol. New York: William Wood & Company, 1908.

The ordinary manuals of surgery require many months for their perusal, and the larger and more complete works on the subject are almost encyclopedic. One result of this state of affairs is that the student and general practitioner are unable to revise and review their studies in surgery as they should, and as they often would, if it were at all possible. The present volume makes such review both possible and pleasurable. It is not intended to replace the larger works; and, indeed, it would have no value to one who had not carefully studied some standard work; but for review purposes it is admirably adapted, as it gives a synopsis or epitome of the salient facts in surgical practice. In point of size it is about half way between the compend and the textbook. The subject matter is well selected, and by a judicious arrangement of headings, type, and indented margin, ready reference is easy, and the scope of a subject can be seen at a glance. The work is fairly complete as far as it goes, but in another edition sections might well be added on shock and on anesthesia.

A Textbook of Physiology. For Students and Practitioners. By George V. N. Dearborn, A.M. (Harvard), Ph.D., M.D. (Columbia), Professor of Physiology in Tufts College, Medical and Dental Schools, Boston. With 300 engravings and 8 colored plates. Philadelphia and New York: Lea & Febiger, 1908.

This is a new textbook of physiology, written primarily, the author says in his preface, for medical and dental practitioners and students, and it is not only new, but novel. If Dr. Dearborn is as original in his classroom teaching as he is in this work it must be a delight to sit under his instruction. The author is a psychologist as well as a physiologist, and he is insistent in his teaching upon the mutual relation of the mental and somatic processes. He also, as he again notes in the preface, emphasizes "the mechanism of sense-organs, nerves, and muscles as the basis of the individual's efficiency." The most striking feature in the book is the liberal use which the author makes of original diagrams illustrating physiological processes, such as cell-metabolism, digestion, the functions of the lymph-capillaries, thermotaxis, muscular action, urinary secretion, absorption and excretion, etc. For advanced students there are other more complete and detailed treatises, but for the beginner we know of no work more satisfactory than this. Teachers of physiology also will find it full of hints and suggestions whereby they may make their lectures and demonstrations more interesting and instructive, and they will also find useful the Appendix, wherein are found "directions for performing certain fundamental physiological experiments, with brief theoretical notes on the same; a list of topics suitable for essays and conference-discussion; and conversion-tables of various sorts." In fact, any student or teacher of physiology will derive pleasure and profit from this thoroughly original work.

The Bacteriology of the Eye. By Dr. Theodor Axenfeld, Professor of Ophthalmology in the University of Freiburg. Translated by Angus Macnab, B.A., B.Sc., M.B., Ch.B., F.R.C.S.; Chief Clinical Assistant, Royal London Ophthalmic Hospital. With 87 illustrations, some of which are colored, and 3 colored plates. New York: William Wood & Company, 1908.

Macnab's excellent translation of Axenfeld's work makes accessible to English-reading physicians a volume of great merit. The bacteriology of the eye has continued to grow, in importance during the past thirty years until it has reached a stage rendering it imperative that ophthalmologists should be acquainted with its more practical phases, at least. The volume before us presents the subject elaborately and up to date.

Chapter I contains a description of the technique of bacteriological examinations. Chapter II describes the bacterial flora of the normal conjunctiva. Following these are chapters devoted to the consideration of the bacteriology of the various parts of the eye in disease. Chapter IX is occupied with a description of leprosy, tuberculosis, and syphilis as they affect the eye. Chapter X is devoted to the consideration of endogenous infection.

The volume is one of about four hundred pages. It is well printed and appropriately illustrated. The literature of the various subjects treated of has been exhaustively consulted; the bibliography alone is of great value to the student and practitioner of ophthalmology. Those ophthalmologists who read English only are to be congratulated that a volume of such excellence is placed within their reach. Certainly no practitioner of diseases of the eye who desires to be abreast of the times can afford to be without Axenfeld's work.

Diagnosis by the Urine. Or the Practical Examination of the Urine with Special Reference to Diagnosis. By Allard Memminger, M.D., Professor of Chemistry and Hygiene and Clinical Professor of Urinary Diagnosis in the Medical College of the State of South Carolina, etc. Third Edition, Enlarged and Revised. With 27 illustrations. Philadelphia: P. Blakiston's Son & Co., 1908.

This is one of the best known of the smaller works on Uranalysis. It contains chapters on: Physical characteristics of the urine in health; deviations in the physical characteristics of urine in disease; deviations in the normal chemical composition of urine in disease; morbid matters and coloring matters in the urine in disease; urinary sediments; differential diagnosis of chronic Bright's disease; and a *résumé* of the diagnosis of parenchymatous nephritis, interstitial nephritis, pyelitis, and cystitis. The last two chapters are particularly valuable, and the book as a whole can be recommended as a safe guide to students and practitioners.

Obstetric and Gynecologic Nursing. By Edward P. Davis, A.M., M.D.; Professor of Obstetrics in the Jefferson Medical College, Philadelphia; Obstetrician to the Jefferson Hospital; Obstetrician and Gynecologist to the Philadelphia Hospital; Consultant to the Preston Retreat, etc. Third Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1908.

The third edition of this book has been revised and enlarged. It is one of the most useful works on obstetric and gynecologic nursing, and is sure to be appreciated by trained nurses engaged in that class of work. Further, it is a book that the physician can, with safety, recommend to his nurses.

Society Reports.

NEW YORK ACADEMY OF MEDICINE

Stated Meeting, Held December 17, 1908.

DR. JOHN A. WYETH IN THE CHAIR.

This meeting was held under the auspices of the Section on Genito-Urinary Diseases, and was devoted to a symposium on the surgery of ureteral calculi.

The Surgical Anatomy and Pathology of Ureteral Calculus and Its Operative Indications.—Dr. BENJAMIN MERRILL RICKETTS of Cincinnati read this paper, illustrating it with a number of lantern slides. He said that there seemed little more to accomplish in ureteral science other than more perfect means of diagnosis, for the operative technique had been developed to the highest degree. Ureteral anatomy might be classified into normal, pathological, and anomalous, each having distinct macroscopical and microscopical characteristics. The first of these, normal anatomy, was more frequently based upon embryonic development in structure and relation. This class was probably less frequent than the second and third combined. It was to the first that attention was primarily directed in the study of the subject and it was ever uppermost in the mind of the student and therefore better understood. It was taken for granted that all who were especially interested in this subject were thoroughly conversant with its normality. After relating the history of the anatomy of the ureters Dr. Ricketts said that the variations in form of the normal ureter consisted of dilatations, constrictions, isthmuses, reservoirs, spindles, ampullæ, and spirals, each of which might vary in number and dimensions. Ureteral isthmuses were three in number and constant: 1. Proximal ureteral isthmuses were the constrictions located adjacent to the distal renal pole (sometimes called the neck of the ureter). 2. Middle ureteral isthmuses were at the point where the ureter crossed the iliac vessels. 3. Distal ureteral isthmuses were located in the wall of the bladder at the distal end of the ureter (Robinson). Ureteral dilatations were also three: 1. Proximal (calyces and pelvis). 2. Middle (lumbar spindle). 3. Distal (pelvic spindle). They were reservoirs and not due to the obstruction offered to the flow of urine through the ureteral isthmuses or constrictions. Spirality was a common property of the ureter and arose from the Wolffian body. Normally the number of spirals was one and one-half, although as many as five had been observed in one ureter. Anomalous anatomy deviated from the normal structure and relationship in consequence of defective embryonic development such as malformations or malpositions, which might extend to a fatal degree at any time during fetal, infantile, or adult life, or they might be of no consequence in advanced life. Each kidney might have one or more ureters entering the bladder or there might be but one ureter connecting both kidneys with the bladder. Both kidneys might be without any ureter, or numerous ureters might be given off from one or more kidneys each to open independently into the bladder, or one or more openings of one or more ureters might empty into the alimentary canal, the vagina, the uterus, peritoneal cavity, or through the abdominal wall, or there might be an entire absence of ureteral exit. The points of entrance into the bladder might be anywhere above the internal sphincter of the urethra behind or in front of the peritoneum. They might vary as to distance from one another at their points of entrance and might be with or without function to prevent the backward flow of urine, blood, pus, or serum. Their dimensions might be equally varied. They might have a direct or circuitous course to the bladder; they might be straight, spiral, curved, or angular and the circumference might be greater or less than normal. The blood and nerve supply might vary from the normal to any degree, the entire absence of one or both having been observed. The consideration of anomalies had become most important. Under the heading "pathological anatomy" he considered abnormal conditions other than causes due to irregular fetal development. Prolapse might be congenital or acquired, partial or complete, in either sex and at any age. Occlusion represented obstruction due to any cause at any point in any degree, periodic or permanent. Bands, ulcers, cicatrices were all prominent factors in its causation. Calculi formed primarily in the ureter were rare, when they occurred they were composed of phosphatic salts deposited above a stricture or upon an ulcer or foreign body in the ureter. Cysts were infrequently found in the ureter and might be single or multiple, might contain blood, serum, pus, or urine, might be primary or secondary. Rupture was an incident whether due to trauma or disease and there did not seem to be any point of predilection; concretions were the most frequent cause. They were circular or linear in character, seldom involving the entire circumference of the ureter. Fistulæ were due to accident, surgical trauma, or disease. They might be congenital, single, or multiple and might terminate in the alimentary, biliary, or urinary tract, peritoneal cavity, Fallopian tube, uterus, vagina, or upon the external surface of the body. Their most frequent cause was surgical operation for the removal of uterine neoplasms per vaginam. Tuberculosis of the ureter was common as a secondary deposit resulting from tuberculosis of the kidney. Primary tuberculosis was indeed rare. Benign neoplasms were not common but of sufficient frequency to be given due consideration. Ureteritis might be distinguished by several forms or stages. Fournier said that the ureters were chiefly involved in pyelitis. Malignant neoplasms included both sarcoma and carcinoma, either of which might be primary or secondary; carcinoma was the more frequent, and was usually secondary.

Personal Observations Upon Ureteral Calculi.—Dr. ALEXIS V. MOSCHCOWITZ read this paper in which he said that ureteral calculus was a disease that had been added to the domain of surgery only since the discovery of the *x*-ray. Although the number of cases of ureteral calculus had thus been vastly augmented during recent years, they were by no means common incidents and he had been fortunate in seeing an unusual number. One point in the anatomy of this organ was of importance in considering this phase of the subject, namely, that the ureter was narrower at three anatomical points: 1, At or about the junction of the ureter and the pelvis of the kidney; 2, at the vesical end, and 3, at the point where the ureter crossed the common iliac artery. These points of constriction were usually the sites of predilection for the impaction of calculi. In sixteen out of eighteen cases he had found calculus impacted at a point between the vesical end of the ureter and the point where it crossed the common iliac artery, perhaps a trifle nearer to the former. This point of constriction seemed to be due to a dense sharp fascial band which passed horizontally inward from the lateral pelvic wall to the median line. He had found it necessary always to divide this band of fascia in order to mobilize the lowermost segment of the ureter. He said that, in his opinion, the presence of microscopic blood in the urine was a very important symptom of either renal or ureteral quiescent calculus. If the calculus was migrating there were all the classical symptoms of renal colic with the hematuria greatly augmented. The symptoms of quiescent and migratory calculus usually alternated, the periods of remission having a tendency to become shorter and shorter. A calculus in the ureter might give rise to symptoms referable to the bladder, but only when the calculus was situated near the vesical end of the ureter. As an aid in locating the site of the calculus symptoms were very misleading, the tenderness usually extended to the entire region of the ureter. Cystoscopic inspection of the bladder

was also of comparative limited value in diagnosis. The cystoscopic passing of the ureteral catheter afforded better knowledge than the previous two methods of physical examination. Occasionally a ureteral catheter would pass readily even if a calculus was present. The most important and pathognomonic method of examination was the *x*-ray. The *x*-ray examination was an absolute necessity because: 1. It indicated the presence or absence of a calculus. 2. It showed the situation of the calculus. 3. It showed the number of calculi; this was important because it occasionally happened that there were two or more calculi in the ureter. 4. It showed the presence or absence of an associated renal calculus. If doubt existed as to whether a given shadow proceeded from the ureter or not, additional evidence could be obtained by passing a styletted ureteral catheter to the point of obstruction and again subjecting the patient to the *x*-ray. If the shadow was derived from something extraneous to the ureter the shadow of the catheter would be found to lie at one side or the other of it. No calculus should be allowed to remain indefinitely in the ureter. The matter to decide was at what period in the course of the disease surgical interference became necessary. Personally he said that he did not advise operation as soon as the diagnosis was made, but observation of the case in order to allow natural forces full scope in the propulsion of the concrement. He related a number of cases to demonstrate that this was the better course. It was surprising to see what nature could do in the propulsion and expulsion of ureteral concrements. The one drug indicated in attacks of renal colic was morphine. He thought he had seen favorable results from hot applications. Calculous anuria, whether reflex or caused by a unilateral impacted calculus, was an indication for immediate operation. So-called reflex anuria due to a calculus in one kidney was an exceedingly rare phenomenon. He had formerly advocated and practised as an emergency measure in these cases the operation of bilateral nephrostomy, but with the present facilities for the taking of an *x*-ray picture in every large hospital he now favored the immediate operation of ureterolithotomy, single or bilateral. He had operated in and observed four cases of anuria and he related one case due to calculous ureteral obstruction. The method of procedure for the removal of ureteral calculus depended primarily upon the exact point where the calculus was located. The various precedures possible suggested themselves almost infinitely. He outlined the usual methods in the briefest manner, citing one case in which he had dislodged the calculus by manipulations with the ureteral catheter. He believed that the possibility of peritoneal infection by extravasated urine almost forced the adoption of the extraperitoneal method, though this route was a trifle more difficult than the intraperitoneal method. In regard to drainage he said that he had abandoned the cigarette drain for a rubber tube drain through which a strip of gauze had been pulled. This was eminently successful until recently in a case of bilateral ureteral calculus the tubes caused a large slough in the walls of both external iliac arteries, with secondary hemorrhage necessitating simultaneous ligation. Since this accident he had had recourse to the cigarette drain. He gave a history of the cases in which he had operated and said that in regard to prognosis he did not believe that he would meet with much opposition when he stated that obstruction of the ureter by calculi for any length of time would sooner or later be followed by the infection of either the pelvis or parenchyma of the kidney. On the other hand the removal of such calculi was followed by almost ideal results. The mortality in experienced hands was practically nil; the operation was comparatively easy; the period of convalescence was short, not more than two weeks as a rule; the patient was immediately relieved of all distressing symptoms, and full return of health was probable if the function of the kidney had not been seriously interfered with by the disease; the danger of subsequent hernia was very slight and did not merit serious consideration.

The Operative Technique of Calculi Impacted in the Lower End of the Ureter.—Dr. C. L. Gibson described the method he had pursued (with illustrations), and reported two cases. The incision he used was a modified Stimson-Pfannensteil, the patient having been placed in the Trendelenburg position. By means of this incision the ureter was more exposed, the calculus more readily removed, and the ureter could be more thoroughly stitched. The incision should be made with great delicacy in order to keep out of the peritoneal cavity. The incision was a little more extensive than the one ordinarily used.

Cystoscopic Aid in the Diagnosis and Treatment of Ureteral Calculus.—Dr. A. T. Osgood said that there were cases in which it was unnecessary to resort to the introduction of intravesical instruments: in those cases in which the history, physical signs, urine examination, and positive radiographs pointed in a classical way to ureteral calculus of such size and shape that experience taught might pass by physiological methods into the bladder and be expelled from that viscus, the patients should not be subjected to the discomfort and dangers of instrumental manipulation. There were two positive means for determining the position of a calculus, the radiograph and ureteral examination by the cystoscope with the ureteral bougie or catheter. The *x*-ray would fail in the case of pure acid or pure urate calculi. The cystoscope should be used (1) to establish a diagnosis of ureteral calculus and to determine its situation; (2) in all cases in which operative relief was in question, because no diagnosis was complete and the preoperative examination of every case was faulty if the condition of the other kidney was not known when one ureter or kidney was to be dealt with surgically; (3) it should be used for therapeutic purposes. The cystoscope might show the calculus fixed in the ureter mouth projecting into the bladder and so make possible its removal. A calculus in the intramural portion of the ureter presented the appearance of a rounded elevation within the bladder, which might be the seat of hyperemia or edema of the overlying mucous membrane. Congestion, edema, submucous extravasation, or prolapse of the ureteral mucous membrane in the bladder was readily visible through the cystoscope; the picture was not pathognomonic of an obstructing body within the ureter, but strongly suggested such a possibility. Complete occlusion of a ureter by a stone occurred at times and then with the cystoscope no fluid was seen ejected from this ureter even after hypodermic injection of indigo-carmine. The ureteral catheter was used for diagnosis in three ways: (1) As a probe or bougie, (2) as an evacuating tube, and (3) as the sheath for a stylette. In the great majority of cases of ureteral calculus, the stone presented no appreciable obstruction to the passage of a catheter past it. In some cases the catheter impinged directly upon the calculus, but a little manipulation permitted its passage beside and beyond it. The phonendophore or auscultatory bougie for the ureter was one of the most valuable of instruments for the diagnosis of ureteral calculi. This instrument was not, however, infallible. The wax-tipped catheter method devised by Dr. Howard Kelly was one of the best means for obtaining evidence of calculus when employed through an open tube (like a urethroscope), but it was not adaptable to cystoscopes because of the danger of scratching the wax by contact with parts of the instrument. Having passed into a ureter containing a calculus or beyond this partial obstruction, the catheter might withdraw the secretion of the kidney and in this fluid might be found the morphological elements denoting hemorrhage or infection, or both. The *x*-ray was a most valuable guide in the diagnosis of ureteral calculi, especially in conjunction with a demon-

stration of the course of the ureter by means of the shadow of a stylette which lay in the ureter. Dr. Osgood closed his paper with a few lantern slides.

X-Ray Aid in the Diagnosis of Ureteral Calculi.—Dr. L. Jaches said that before the advent of the Roentgen rays a diagnosis of ureteral calculus could not be made with any degree of positiveness. The Roentgen rays informed the surgeon of the number of stones present, whether unilateral or bilateral, whether in one place or in more, whether in the ureter alone or also in the kidney of the same or opposite side. They gave the surgeon an idea of the shape and size of these stones. The percentage of error was to-day very small. Pure uric acid calculi might escape detection, but fortunately they were rare, the majority being made up of the combination of the various ingredients. Experience in the interpretation of radiographs would enable one to rule out most of the non-calculous shadows. The cleaner the intestinal tract, the less chance for doubt, and the less occasion for unnecessary exposure of the patient. The *x*-rays were but one more means that made the diagnosis of ureteral calculus possible, but it should be born in mind that the radiographer was as much interested in the clinical aspects of the case as the surgeon who consulted him. Only when both worked hand in hand were the best results obtainable. Dr. Jaches closed his paper with a few lantern slides.

Dr. Howard Lilienthal called attention to a point of importance, the similarity of the symptoms of appendicitis and those of ureteral stone, and said that in spite of all the diagnostic aids a great many appendices were removed when the symptoms complained of were not caused by conditions in the appendix but by the presence of ureteral stone. It was now his custom to have the urine examined carefully in every case of relapsing appendicitis to learn if blood or other cells were present. If blood cells were found, an *x*-ray was invariably taken. It was absolutely impossible without the use of the *x*-ray to make a diagnosis between appendicitis and impacted ureteral stone.

Dr. George Woolsey spoke of experience he had had with ureteral calculi and of the failure of the *x*-ray in aiding in diagnosing such cases.

Stated Meeting, Held January 7, 1909

The President, Dr. John A. Wyeth, in the Chair.

A Synopsis of Two Years' Work of the Academy.—Dr. John A. Wyeth, who had been reelected President, made a report of the scientific work of the Academy for the last two years. He also made a most gratifying statement as to the condition of the Academy, both financially and in regard to membership. The waiting list of the Academy had grown to such an extent that it became necessary to amend the Constitution, raising the limit of membership from 1,000 to 1,200. The number of Fellows on the roll December 29, 1908, was 1,199.

At the close of his address the President said: "I deem it my duty to refer to an incident which must be deplored by every one who holds that the Academy should represent the highest ideals in medicine, that it should not permit its privileges to be prostituted to commercialism, or misleading and untruthful reports of its transactions to be scattered far and wide in the public press. In commenting upon this incident, an editorial writer in the *New York Medical Journal*, in deprecating the laxity shown by medical societies in allowing undesirable papers to be presented at their meetings, criticised the New York Academy of Medicine when it gave an individual the privilege of exploiting a matter connected with the treatment of tabes dorsalis in such a way as to bring him the tremendous advantage of newspaper laudation. So palpable was the blunder, the writer said, that the New York Neurological Society very promptly signified its disapproval. With a knowledge of the facts, it would be difficult to justify this criticism, and the facts could easily have been obtained from the Council of the Academy. The paper in question was subjected to the same careful scrutiny which is given all the material offered to the Academy. It is held that every Fellow is entitled to the privilege of submitting his views upon any topic in medical science, provided that, after examination, they shall be deemed of sufficient importance to justify their presentation from the platform or through the discussion.

"In this particular instance the subject was 'Locomotor Ataxia,' concerning which it is possible that we have not yet reached the Ultima Thule of knowledge. On May 16th, 1907, a member of the Academy presented a short paper entitled 'Locomotor Ataxia: A New Theory as to Its Cause.' The theory advanced received respectful attention and excited, so far as I am able to inform myself, no comment or criticism. A year and five months later, the same Fellow requested the privilege of reporting to the Academy the results obtained by him in the treatment of a series of cases. Before permitting the paper to be listed, by consultation with a member of the Academy and another physician not a member, both gentlemen of high standing and experience in Neurology, I satisfied myself that the paper was of sufficient importance to justify its presentation. On October 1, 1908, under the title of 'Locomotor Ataxia: A Report of Thirty Cases,' it was read and discussed by several members prominent in neurology and general medicine. On the day following and thereafter, the newspapers of this country and abroad printed despatches from the Associated and the United Press, two organizations engaged in the widespread distribution of news, which were sensational, distorted, exaggerated, and in a large measure untruthful accounts of the proceedings of the Academy, to which was added the crowning falsehood that the claims advanced by the reader were endorsed by Dr. John A. Wyeth, President of the New York Academy of Medicine. Of the source of this misinformation to the public press, I have not the slightest idea. I am not willing to believe that any member of the Academy would consent to, let alone take part in, a transaction so undignified and unprofessional."

The Pollution of Our Tidal Harbors.—Dr. George A. Soper, President of the Metropolitan Sewerage Commission, said that the discharge of sewage into tidal harbors frequently produced extensive public nuisances and had sometimes led to disease. There were many cities in Europe and some in America which had already constructed works for the sanitary protection of the tidal waters upon which they were situated. Many more harbors needed protection. Harbor waters had a large capacity for harmlessly and inoffensively disposing of sewage, provided there was a considerable range of tide and the resulting tidal currents were favorable to the mechanical transportation of the sewage to sea or its intermixture with a large proportion of the water. Although the capacity of harbors for sewage was great, this capacity was often overtaxed. It was well within the range of engineering possibility to purify sewage, but the cost of collecting and purifying large volumes of sewage was great. It was a hopeless undertaking to attempt to save the manurial ingredients of sewage with the object of securing a profit. The aim in purifying sewage should be to dispose of this offensive and dangerous material at the least cost and with the least inconvenience and danger to health. The dangerous possibilities of sewage depended upon the microbes of disease which it contained. The reduction of sewage to a harmless mineral form was essentially a process of combustion, whether that process took place after or before putrefaction had set in. Little was known concerning

the fate of bacteria which were discharged into tidal waters with sewage, but such evidence as existed led to the belief that they were, for the most part, rapidly destroyed. The greatest danger existed near sewage outfalls and while the sewage was fresh. In view of the large number of excessively polluted rivers and harbors which existed, it was surprising that so little sickness was known to be produced from them. It was probable, however, that more sickness was so produced than the statistics indicated. One of the chief objections to a polluted harbor lay in the offenses to the sense of sight and smell which polluted waters presented. The offensive visible conditions might be largely prevented by comparatively simple methods of sewage purification. Offenses to the sense of smell must be avoided by purifying the sewage artificially or utilizing the transporting and assimilative power of the harbor waters. The greatest danger to health from polluted harbors lay through the medium of shellfish. Bathing in polluted waters was also dangerous. Steps were being taken to improve the sanitary conditions under which shellfish were produced; this danger was gradually being eliminated, but much remained to be done. The arousing of public interest to a point of having a system of sanitary protection formulated and carried out had generally depended, Dr. Soper said, upon the action of large commercial bodies.

AMERICAN ROENTGEN RAY SOCIETY.

Ninth Annual Meeting, Held in New York, December 28, 29, and 30, 1908.

Dr. Eugene W. Caldwell of New York, President.

Officers Elected.—The following officers were elected to serve for the ensuing year: *President,* Dr. George W. Johnston, Pittsburg; *Vice-Presidents,* Drs. Wm. Allen Pusey, Chicago; Sidney Lange, Cincinnati, Ohio; A. W. Crane, Kalamazoo, Mich.; W. S. Newcomet, Philadelphia, and H. W. Van Allen, Springfield, Mass; *Secretary,* Dr. Percy Brown, Boston, Mass.; *Treasurer,* Dr. Chas. F. Bowen, Columbus, Ohio; *Executive Committee,* Drs. F. H. Baetjer, Baltimore; Henry K. Pancoast, Philadelphia, and Alfred T. Osgood, New York. Detroit was selected as the place for holding the next meeting.

Value of Roentgenographic Examinations. — Dr. Geo. H. Stover, Denver, Colo., said that the first and greatest value of the roentgenographic examination lay in the fact that it gave information regarding conditions existing in the sick or injured individual, which, in some instances, could not be obtained in any other way, and that it amplified or confirmed evidence obtained by physical examination. Failure to make use of this means of diagnosis in known or suspected cases of fracture, dislocation, diseases of bones, and in the search for and localization of foreign bodies constituted negligence. It was not a dangerous agent in the hands of the expert. The roentgenologist was an expert, and he should not furnish the patient or his physician with a picture or print. The plate should be studied carefully, if possible with the patient's physician, and an opinion given. The possession of a plate or print by the patient might prove unfortunate for the physician and for the patient, who was not in a position to read correctly what the plate showed. Neither ought skiagrams be exhibited to a jury. The members of the jury were not capable of reading a skiagram, and they might give more weight to it as evidence than it deserved.

Dr. A. L. Gray, Richmond, Va., agreed with the author that prints should never be made either for the patient or his physician. The written opinion of the radiographer ought to be sufficient, and often such a course saved the physician much annoyance and trouble, as when he had failed to recognize an obscure case of fracture.

Dr. M. H. Kassabian, Philadelphia, believed that the skiagram was a most valuable court record because it was tangible evidence.

Roentgen Diagnosis of Osteitis Fibrosa.—Dr. S. Cummings, Toronto, Can., said that this disease, which was first described by von Recklinghausen, was essentially a disease of the bone marrow, which might be localized in a single bone or which might invade the entire bony skeleton. The normal bone marrow was replaced by a fibrous or lymphoid material, and the bone was replaced by osteoid tissue with the formation of cavities or cysts. The continuity of the bone was not interrupted unless a fracture had occurred. Prior to the introduction of the Roentgen ray as a diagnostic agent, the disease was rarely recognized, and now it was believed that many cases of so-called fragilitis ossium were really cases of osteitis fibrosa. Furthermore, it was probable that many cases of sarcoma in which the surgeon simply scraped out the bone, and a recurrence did not result, were also cases of osteitis fibrosa.

Radiographic Examination of the Gastrointestinal Tract in Gastroenteroptosis.—Dr. Henry K. Pancoast, Philadelphia, said that in order that this work prove valuable, it was essential that the radiographer should be thoroughly familiar with the normal anatomical relations of the stomach and other abdominal viscera, their normal skiagraphic appearances, and the range of variation within normal limits. Nearly all of the abnormal conditions of the stomach which could be studied to advantage by means of the Roentgen ray were in some way related to gastroptosis. The skiagraph frequently indicated the anatomical defects most in need of correction, or those whose correction was most likely to be followed by favorable results, and in suggesting the most appropriate means to employ. The position of the liver, colon, and gastrohepatic ligament must also be determined. It was impossible to radiograph adhesions, but their presence and location might be indirectly suggested in many instances, particularly when they involved the colon. The indications for operation were especially marked dilatation, retention of food, a mechanical kink, and a relaxed gastrohepatic ligament.

Roentgenographic Study of Motion in Viscera.—Dr. Chas. Lester Leonard, Philadelphia, said that, owing to the rapid exposures which could now be made, it was possible to study in detail the result of motion in the viscera, and dilatations and hypertrophies of the left auricle and right ventricle could thus be detected which escaped all other means of diagnosis. The same was true of small aneurysms and dilatations of the aorta, differentiating them from mediastinal tumors. The normal cycle of motion of the viscera, and their abnormal variations could be studied. A better knowledge of the movements of the stomach would aid in differentiating between sthenic and asthenic mobility, and thus determine more accurately the causes of gastric motor insufficiency. The movements of the viscera were not so rapid that they necessitated very short exposures.

Roentgen Rays in the Diagnosis of Gastric Carcinoma.—Dr. George E. Pfahler, Philadelphia, advised resort to both roentgenoscopy and roentgenography in the diagnosis of gastric carcinoma. A thorough clinical study of the case should first be made. The author had examined twenty-nine cases in which evidence of carcinoma was clearly demonstrable, and in most of which the diagnosis was confirmed by operation, autopsy, or the subsequent course of the case. While in most of the cases the disease was well advanced and the clinical evidence of carcinoma was fairly strong, in the majority of the cases the tumor was not definitely or at all palpable. In all of the cases the ray located definitely the tumor and indicated its extent. The evidences of carcinoma of the

stomach might usually be classed under changes in the course of the food through the stomach, changes in outline, position, peristaltic movements, or mobility of the organ. Hour-glass contraction of the stomach was usually evidence of advanced disease; localized or general diminution of the stomach shadow was another sign; indentations of the stomach wall and interruption of the peristaltic wave at a certain point on the greater or lesser curvature also afforded strong evidence. Rapid or deferred evacuation of the stomach contents was another sign of value.

Roentgen Ray in Gastric Ulcer.—Dr. A. W. Crane, Kalamazoo, Mich., stated that the points to be noted in making a Roentgen diagnosis of gastric ulcer were the size, form, and position of the stomach and the location of the "pain marker." The latter was a lead letter P, which was fastened to the skin with adhesive plaster over the seat of the pain, thus marking definitely on the plate the exact location of the pain, whether in the stomach, the duodenum, the pancreas, or some other organ. The globular and contracted forms of stomach were distinctive of ulcer or scar tissue from an ulcer at or near the pylorus, causing partial or complete stenosis. However, a deformed gastric outline might be caused by pressure, a local contraction of the stomach wall, adhesions, or tumor; therefore, the roentgenologist must be thoroughly familiar with the normal and the pathological variations, not only of ulcer of the stomach, but of all other diseases of that viscus.

Treatment of Sinuses with Bismuth, Roentgen Ray, and Electricity.—Dr. Arthur Holding, Albany, had for many years employed a method in the exploration and treatment of old sinuses that had yielded very satisfactory results. He first injected into the sinus an aseptic suspension of subnitrate of bismuth, one part, in vaseline, two parts, using a glass syringe of large capacity. Then a radiograph was made which showed the exact size and ramifications of the tract. Next a copper wire electrode was fashioned so that it could be inserted to the bottom of the sinus. This electrode was fastened to the positive pole of a galvanic current and the sinus was treated as often as was necessary in order to remove scar tissue, stimulate granulations, and render the tract thoroughly aseptic. When the discharge was controlled, the sinus was injected with a mixture of equal parts of bismuth and iodoform to two parts of vaseline and soft paraffin. The sinus closed promptly after this injection.

Dr. Chas. Lester Leonard, Philadelphia, said that the injection of the sinus with iodoform was sufficient for radiographic purposes, inasmuch as the iodoform was metallic and gave sufficient obstruction to the ray to show the tract of the sinus.

Dr. Geo. C. Johnston, Pittsburg, said that in the Children's Hospital in Pittsburg the bismuth injection of sinuses had worked wonders, curing many old and obstinate cases. The therapeutic effect of bismuth seemed to be greater than that of iodoform.

Dr. H. W. Van Allen, Springfield, Mass., failed to see the necessity for the use of the copper wire, the injection of the tract with bismuth being sufficient to effect a cure.

Dr. H. W. Dachtler, Toledo, Ohio, and Dr. S. Cummings, Toronto, reported cases of poisoning from the use of bismuth subnitrate in these cases. The latter thought it better to use the carbonate than the subnitrate.

Pathology and Surgical Treatment of Chronic Roentgen Ray Dermatitis.—Dr. Charles Allen Porter, Boston, claimed that there was always a time when the chronic Roentgen ray lesions could be successfully eradicated by minor operations, but that neglect had led to the necessity for major operations, in spite of which metastases and death occasionally occurred. No agent was so potent in the production of multiple carcinomata in man as the Roentgen ray. The most important changes were the rarefaction beneath the epidermis with total loss of the papillæ and a teleangiectatic condition of the blood-vessels, disappearance of the glands, obliteration of the arteries, and great increase in the connective tissue. The epidermis was thin and atrophic, with foci of epithelial proliferation, in some instances giving rise to papillary downgrowths, with keratoses, and in others there was an invasive type of new growth. Apparently the repeated exposures produced chronic changes in which the normal reparative power of the tissues was lost. There was no constant change in the nerve trunks; in a few instances degenerated trunks had been found in which the nerve fibers were replaced by connective tissue. The nerves were compressed by the dense cicatricial tissue about them, and this might explain the extreme pain so characteristic in many of these cases. Of forty-four cases recorded in the literature, eleven of which occurred in the author's practice, six were of the ulcerative type, four were beginning epitheliomas, and thirty-four were undoubted carcinomas; there were eight deaths. There was always a latent period, usually extending over years, and either keratoses or ulceration always preceded the cancer. The only treatment which would prevent trouble was early removal by caustics or the knife of all suspicious lesions. When occurring on the back of the hand, these lesions might be excised and the wound sutured, or they might be destroyed by liquid air or by carbon dioxide snow. When the keratoses or ulcerations occurred on the dorsal aspect of the fingers, and especially where the skin was dense, the author advocated excision and skin grafting. If the primary grafts did not take, owing to inadequate blood supply, the surface might be grafted again later when granulation tissue had formed. Healing by cicatrization sometimes occurred, but owing to the thinness of the epidermis and the liability to subsequent injuries, skin grafting was preferable. The thicker the grafts, the better the ultimate result, but moderately thin grafts took better than thick ones. Hemorrhage should be controlled before the application of the grafts, and pressure must be maintained for twenty-four hours.

Dr. William Allen Pusey, Chicago, urged a distinction between the acute and the chronic lesions. The former should be treated like any other burn; in the latter, operation was most effective in producing speedy cure. The chronic lesions resembled senile keratoses and were the result of intense exposures extending over a short period of time. The condition, he said, was analogous to that seen in xeroderma pigmentosum, where the skin was extremely sensitive to actinic rays. First there was the atrophy of the skin, then the keratoses followed, and finally epithelioma. The lesions should be looked after early when the surrounding tissues were fairly healthy. Where the lesions were distinctly epithelomatous, the only satisfactory treatment was excision, and skin grafting if necessary. He had treated one or two such epitheliomas with the ray and had found them as susceptible to such treatment as ordinary epitheliomas, but did not recommend that as a method of treatment; nor did he recommend the use of carbon dioxide snow, except when the epithelioma was no larger than a wheat grain. However, liquid air or carbon dioxide snow were very convenient for destroying senile keratoses. They should be destroyed as rapidly as they developed because the beginning lesions might be keratoses or precancerous.

Dr. Charles Lester Leonard, Philadelphia, thought that the great difficulty was the determination when to operate, when nature would no longer do her share in producing a cure, when the individual was no longer capable of recovering his physiological balance and when surgical intervention was necessary. He had yet to find in the list of those who died as the result of chronic Roentgen dermatitis one who had not been subjected to repeated operations.

Roentgen Ray in the Diagnosis of Urinary Calculi.—Dr. Charles Eastmond, Brooklyn, studied eighty cases and found that urinary calculi were present in only twenty-four per cent. of the patients who presented classical symptoms, and in only fourteen per cent. were they present in the suspected region, while in forty-one per cent. of the cases with vague and uncharacteristic symptoms calculi were demonstrated; therefore, he was convinced that the clinical history alone was not sufficient for diagnosis, and that not only should the urine be examined carefully, but a careful radiographic examination should be made in every case of suspected urinary calculus.

Dr. Charles Lester Leonard, Philadelphia, said that no surgeon would operate in a suspected case of renal or ureteral calculus without calling the Roentgen ray to his aid. He was the first to claim the possibility of making a negative diagnosis in these cases. He had only two per cent. of error in the negative diagnosis and three per cent. in the positive. In 32 cases of ureteral calculus in which he made the diagnosis the patients passed the stone under expectant treatment; in only five or six cases was it necessary to remove the stone by operation because of the onset of obstructive symptoms.

Dr. F. H. Baetjer, Baltimore, cited one case in which the radiograph showed three shadows, apparently ureteral stones, which at the operation proved to be one stone and two cicatrices. He also saw one case in which the stone was found on the side opposite to where the symptoms located the stone. For ureteral catheterization he used a catheter made of canvas which was shellaced. In one case the radiogram showed a stone the size of the end of the little finger just above the entrance of the ureter into the bladder. At the operation no stone was found, but later, at a subsequent operation for some pelvic trouble, a small calcified myoma was found in the exact spot where the radiograph showed a stone. He has examined between seven and eight hundred persons for kidney stone. Of this number sixty per cent. were sent to him with a definite diagnosis of stone; the remaining forty per cent. were sent with the idea of ruling out the possibility of stone. Among the sixty per cent. stone was found in only forty per cent., and yet all the cases in this class gave a typical clinical history.

Dr. A. L. Gray, Richmond, advised making a plate to include the structures as high up as the eleventh rib. He stated that with accurate technique it ought to be possible to show a stone, if present, even when made of phosphatic deposits.

Dr. George E. Pfahler, Philadelphia, pointed out that a source of error was change in position of the stone, as when the operation was deferred for some time. In one case he found a stone in the kidney, and when the patient was operated on two months later no stone was found. It was found subsequently in the ureter. Another source of error was in mistaking a mole on the skin for stone.

Dr. Lewis Gregory Cole, New York, pointed out that a wax-tipped catheter might pass a stone or any other obstruction without being scratched. He cited several cases in point. He also had four cases where the stone was on the side opposite to that indicated by the symptoms. He, too, had had moles make a confusing shadow.

Dr. Eugene W. Caldwell, New York, cited several instances in which stone was present, and yet the radiograph failed to show it.

Dr. Vernon J. Willey, Ann Arbor, Mich., thought that often plates of different density would show a calculus, so that more than one plate should be made in every case if no stone was shown and yet the symptoms indicated stone.

Present Status of Roentgen Therapy.—Dr. George C. Johnston, Pittsburg, said that the physiological action of the Roentgen ray was as follows: It possessed analgesic and antipruritic properties; it stimulated metabolism; overdosage resulted in overstimulation and tissue death, the more highly specialized structures and the less resistant diseased tissues being the first to suffer; it inhibited secretory and glandular activity; it seemed to possess a germicidal effect, due to tissue proliferation and increased leucocytosis. Success or failure in radiotherapy depended on the ability of the operator to produce a proper quality of radiation, to administer it in such qualities as to constitute a correct dose, and an acquaintance with the disease process; the operator must be thoroughly familiar with his apparatus. Experience in radiography was the best training for radiotherapeutic work. The results of treatment in acne, especially the pustular form, were usually good. Large doses should be given so as to produce a first degree dermatitis. In acute eczema, the itching was checked promptly and excellent results were often obtained in cases that had resisted energetic treatment by other means. In the various diseases of the skin that were characterized by glandular hyperactivity, the inhibitory action of the ray was extremely beneficial. In lupus vulgaris, the result of Roentgen therapy was most striking, but the treatment must be persisted in for a sufficiently long period of time. Cases of lupus that did not yield to this treatment were usually cases of syphilis, and would yield to specific treatment. In sycosis, favus, and tænia tonsurans a quick and painless depilation might be effected with the ray, after which the ordinary measures employed would prove successful. In hypertrichosis its use was not satisfactory, because in order to produce permanent depilation more raying must be done than was consistent with safety. In psoriasis, limited in extent and essentially chronic, the *x*-ray was the treatment of choice. The same was true of small rodent ulcers. Epitheliomas on or about the eyelids could be better treated by the *x*-ray than by any other method. They must be attacked vigorously and a marked reaction produced early. No local application of any kind was permissible. Crusts and scabs must be removed before each treatment. In exophthalmic goiter, especially when associated with hyperthyroidism, excellent results had been obtained. The nervous unrest disappeared promptly, the exophthalmus was lessened, the tachycardia declined, and the dyspnea disappeared. He had seen no relapses in these cases. The results obtained in the treatment of tuberculous glands compared favorably with those obtained by surgical treatment. In leukemia and Hodgkins' disease only temporary improvement was obtained. In the treatment of carcinomas, Roentgen therapy should be combined with surgery, raying both before and after operation. The treatment of sarcoma resolved itself into surgical measures, the use of Coley's toxins, and the Roentgen ray.

Dr. William Allen Pusey, Chicago, had had an experience corresponding with Dr. Johnston's. He said that if he had cervical gland tuberculosis he would be treated with the Roentgen ray rather than by operation. In sarcoma, he had had many very remarkable temporary results. In one case of large sarcoma of the chest, the tumor literally melted away and did not recur for about two years. Where nothing else could be done in these cases of sarcoma, much comfort could be given the patient by radiotherapy, although no encouragement as to permanent results could be given. He had not found any kind of an epithelioma that would not yield to this treatment.

Large Tumor of Mediastinum Treated Successfully by the Roentgen Ray.—Dr. W. S. Lawrence, Memphis, Tenn., said that the tumor in this case, a black, nonpulsating mass about six inches in diameter, occupied the entire upper central part of the thorax, the chest wall bulging. The patient was rapidly losing strength, suffered considerable pain, and had a very distressing cough. Several prominent surgeons diagnosed the case as one of dermoid cyst and sarcoma of the pleura re-

spectively. The first evidence of the trouble was noticed in the summer of 1906, consisting of bulging of the chest wall. Late in October, 1907, Roentgen ray exposures were begun. About twenty-eight treatments were given extending over a period of two months and the improvement was prompt and continuous. The mass disappeared almost entirely and the patient was now comfortable and able to attend to a large mercantile business.

Value of the Roentgen Ray in Mediastinal Tumors.—Dr. Russell H. Boggs, Pittsburg, had found the ray exceedingly useful in the differential diagnosis of tumors of the mediastinum, especially as between aneurysm and solid tumors. He reported two cases in which the radiograph disagreed with the clinical diagnosis and was proved to be correct. In a third case the Roentgen ray diagnosis of enlarged thymus was confirmed by operation.

Examination of Lungs by the Roentgen Rays.—Dr. Henry Hulst, Grand Rapids, Mich., showed that a radiographic diagnosis of lung tuberculosis could be made before the physical signs were sufficiently well developed to make this possible. He was of the opinion that tuberculosis began usually in the bronchial lymph nodes at the root of the lungs rather than in the apices, as was generally believed.

The Roentgenologist and His Specialty.—Dr. Percy Brown, Boston, pointed out that whereas in the early history of radiographic work the photographer, the chemist, and the dermatologist did this work, such great progress had been made in this field that it was necessary for the roentgenologist to be all three, besides being an able diagnostician, a first-class electrician, and, above all, thoroughly capable of reading a plate intelligently. In other words, the roentgenologist was as much a specialist as the surgeon, the gynecologist, or the internist, embodying in his specialty a knowledge of all other specialties and of many other professions and vocations.

Pathological Society of Philadelphia.

At a stated meeting held December 10 Dr. H. B. Allyn exhibited a specimen of "Aneurysm of the Abdominal Aorta." Dr. D. J. Karsner exhibited specimens of "Hyalo capsulitis of Liver and Spleen." Drs. Jos. Sailer, C. B. Farr, and J. C. Gittings presented a number of specimens of cardiac abnormalities, including vegetative endocarditis, multiple valvular disease, aneurysm of the heart, and splenic infarction. Drs. Krumbhaar, John Funke, and Allen J. Smith exhibited specimens of "Hypernephroma." Drs. George B. Foster and Charles H. Gerhard presented a communication entitled "The Simultaneous Occurrence of Hypernephroma and Carcinoma. A Report of Two Cases." In the first case the patient presented the clinical phenomena of carcinoma of the stomach, the neoplasm of the kidney discovered after death not being suspected during life. Dr. Randle C. Rosenberger presented a communication entitled "Bacteriologic Studies of the Blood in Tuberculosis." He was able to show from examinations in fifty cases that tubercle bacilli are present in the circulating blood in all cases of tuberculosis, even at an early stage of the disease. The technic is simple, 5 c. c. of blood being withdrawn and sedimented for twenty-four hours in sodium-citrate solution, the sediment spread on slides, dried over heat, laked and stained. These observations are a sequel to earlier ones demonstrating the presence of tubercle bacilli in the stools of patients suffering from tuberculosis. Dr. F. Creighton Wellman by invitation presented a communication on "Insects in Their Relation to the Tropical Diseases of Man." He dwelt upon the value to the medical man of a thorough grounding in the natural sciences, especially biology, zoology, and botany By this means a knowledge of the life habits of disease-conveying insects could be obtained and thus the most potent weapon in protection and defense be afforded. He showed how the possession of such knowledge was the means of great economic advantage, as well as in the direct saving of life, in connection with the settlement and development of new countries, and of the practical service rendered in an experience in West Africa. He pointed out the relative tolerance or immunity of the black to certain infectious diseases as compared to the white people, the former being the resistant hosts of a number of parasites and the latter acting as susceptible subjects.

At a stated meeting held January 14, Dr. Sidney J. Repplier exhibited a specimen showing "The Simultaneous Occurrence of Carcinoma and Sarcoma of the Breast." Dr. Wm. T. Cummins exhibited a specimen of "Colloid Carcinoma from a Boy Fourteen Years of Age." During life a tumor was discovered in the suprapubic region, and this on operation was found to originate from the peritoneum. The case terminated fatally, but an autopsy could not be secured, and the site of the primary growth could not be determined. Dr. Wm. Pepper exhibited "Microscopical Specimens Showing Phagocytosis in Malaria." Dr. Jay F. Schamberg exhibited "Microscopical Specimens of the Skin and Spleen from a Case of Indigenous Leprosy." Drs. A. J. Smith and H. T. Karsner exhibited "Microscopical Specimens of the Cutaneous Nodules from a Case of Leprosy." Dr. T. J. Gilchrist, professor of dermatology in the Johns Hopkins University, presented by invitation a communication entitled the "Histopathology of Experimental Urticaria Factitia," illustrated by lantern projection pictures. He showed how in from five to fifteen minutes after suitable mechanical irritation of the skin there occurred beneath the epidermis of the resulting wheal an escape especially of polynuclear and also of mononuclear leucocytes from the blood-vessels, with fragmentation and fibrin formation, and the presence of mast-cells and occlusion of the lumen of the sweat-ducts. These manifestations of the inflammatory process persist for about an hour, and then disappear. They are supposed to be due to the action of a toxic irritant set free in some as yet unrecognized manner. Dr. Harlan Shoemaker read a paper entitled "Observations on Prophylactic Inoculations Against Typhoid Fever."

Nutmeg Poisoning.—Cushing notes that cases of nutmeg poisoning in America, as reported by Wallace, occurred exclusively from the use of the crude nutmeg or mace; in many instances it had been used as an abortifacient, although it does not appear to have this action. As far back as 1576, Lobelius relates a case in which a woman was rendered delirious by nutmeg. The symptoms were drowsiness, stupor, diplopia; delirium frequently was present, and sometimes the first symptom was burning pain in the stomach, precordial anxiety, or giddiness. One case of death in a boy occurred after eating two nutmegs. The symptoms resembled those caused by cannabis indica. Professor Cushny showed how the powerful poison was contained in the oil of nutmeg, and it was the fraction which came over at 150° C., 14 mm. Hg; from this several bodies had been isolated—for example, myristicin. From experimental work, he came to the conclusion that the symptoms were to be attributed to action on the central nervous system, which was depressed, but exhibited some indications of stimulation in the form of restlessness, slight convulsive movements, and tremor. The oil also had a marked local irritant action, whether given by the mouth or hypodermically. The stomach wall was found red and injected; the urine often contained albumin.—*British Medical Journal.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending January 30, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	462	173
Diphtheria	369	43
Measles	505	18
Scarlet Fever	360	26
Smallpox	—	—
Varicella	234	—
Typhoid Fever	32	7
Whooping Cough	68	5
Cerebrospinal Meningitis	5	4
Malarial Fever	—	—
Totals	2035	276

New Elements in the Study of Cardiac Function in the Puerperal State.—C. Merletti made careful examination of the condition of the heart and blood pressure in women in the pregnant and puerperal state to determine whether there was any real ground for a belief that there was a change in the organic or functional heart condition due to pregnancy. He concludes that there is shown by cardiography, sphygmomanometry and sphygmography to be no organic change in the line of hypertrophy as has been supposed. There is some irregularity of the heart action which is due to reflex action on the cardiac mechanism. There is not any general rise in blood pressure. The functional power is normal, but immediately after labor there is some weakness of heart action which may cause thrombosis or asystole.—*Annali di Ostetricia e Gynecologia.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the weeks ending January 22 and 29, 1909:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, Los Angeles	Dec. 26–Jan. 2	2	.
San Francisco	Dec. 26–Jan. 2	3	.
Illinois, La Fayette	Jan. 4–11	7	.
Kansa, Topeka	Dec. 26–Jan. 2	5	.
Kentucky, Covington	Jan. 2–9	1	.
Maine, Van Buren	Jan. 2–9	4	.
Massachusetts, Taunton	Jan. 2–9	1	.
Minnesota, St. Paul	Nov. 1–30	38	.
Missouri, St. Joseph	Dec. 12–19	1	.
St. Louis	Jan. 2–9	1	.
Springfield	Dec. 1–31	1	.
North Carolina, in five counties	Nov. 1–30	23	.
Ohio, Cincinnati	Jan. 1–8	13	.
Tiffin	Jan. 2–9	1	.
Tennessee, Knoxville	Jan. 2–9	2	.
Texas, San Augustine County	Jan. 9	.	Present
Washington, Spokane	Dec. 26–Jan. 2	1	1
Wisconsin, La Crosse	Jan. 2–9	6	.
Milwaukee	Dec. 26–Jan. 9	15	.
SMALLPOX—FOREIGN.			
Arabia, Aden	Dec. 7–21	.	17
Brazil, Rio de Janeiro	Nov. 28–Dec. 13	298	169
Santos	Nov. 22–Dec. 6	.	4
Canada, Halifax	Dec. 26–Jan. 2	3	.
Montreal	Dec. 26–Jan. 2	1	.
Winnipeg	Dec. 26–Jan. 2	2	.
Chile, Talcahuano, vicinity of	Nov. 20	.	Present
China, Shanghai	Nov. 21–28	.	Present
Ceylon, Colombo	Nov. 7–22	37	9
Egypt, Alexandria	Nov. 27–Dec 2	.	1
Cairo	Dec. 9–16	9	6
Breat Britain, Bristol	Dec. 12–19	1	.
Guatemala, Guatemala City	To Dec 21	600	200
India, Bombay	Dec. 8–15	.	5
Calcutta	Nov. 25–Dec. 5	.	14
Rangoon	Nov. 28–Dec. 5	.	1
Indo-China, Saigon	Nov. 21–28	1	.
Italy, general	Dec. 20–27	38	10
Genoa	Dec. 8–15	1	.
Naples	Dec. 20–27	24	10
Java, Batavia	Nov. 1–Dec. 5	7	1
Mexico, Mexico City	Nov. 7–Dec. 5	.	22
Persia, Tabriz	Oct. 9–Dec. 9	.	Present
Peru, Lima	Dec. 10	4	.
Porto Rico, Mayaguez	Dec. 19–26	1	.
Portugal, Lisbon	Dec. 12–Jan. 2	7	.
Russia, Moscow	Dec. 5–19	38	16
Riga	Dec. 12–19	1	.
St. Petersburg	Dec. 5–12	7	2
Servia, Belgrade	Dec. 5–12	.	2
Turkey, Constantinople	Dec. 13–20	.	6
YELLOW FEVER.			
Brazil, Para	Dec. 12–26	5	5
Dutch Guiana, Paramaribo	Dec. 1–31	18	4
Ecuador, Guayaquil	Nov. 28–Dec. 12	.	4
Mexico, Mexcanu, vicinity of	Dec. 26–Jan. 2	1	1
Mexico, Merida	Dec. 26–Jan. 2	1	.
Sodzil, plantation	Dec. 26–Jan. 2	1	.
Veracruz	Dec. 26–Jan. 2	2	1
CHOLERA—INSULAR.			
Philippine Islands, Manila	Nov. 28–Dec. 5	7	5
Provinces	Nov. 28–Dec. 5	360	227
CHOLERA—FOREIGN.			
India, Bombay	Dec. 8–15	.	16
Calcutta	Nov. 28–Dec. 5	.	9
Madras	Dec. 5–11	.	5
Rangoon	Mar. 28–Dec. 5	1	.
Persia, Tabriz	Dec. 9	.	Present
Russia, general	Nov. 28–Dec. 19	778	352
Siam, Bangkok	Nov. 1–30	.	Present
PLAGUE.			
Brazil, Rio de Janeiro	Nov. 28–Dec. 13	13	6
Ecuador, Guayaquil	Nov. 28–Dec. 12	.	3
Milagro	Dec. 16–20	6	2
Egypt, general	Dec. 18–30	31	4
India, general	Nov. 28–Dec. 5	2,196	1,626
Bombay	Dec. 8–15	.	8
Calcutta	Nov. 28–Dec. 5	.	6
Rangoon	Nov. 28–Dec. 5	.	3
Indo-China, Saigon	Nov. 21–28	1	1
Peru, general	Nov. 20–Dec. 3	55	25
Lima	Nov. 20–Dec. 3	7	.
Turkey, Bagdad	Nov. 20–Dec. 12	6	1
Siam, Bangkok	Nov. 1–30	.	Present
SMALLPOX—UNITED STATES.			
Alabama, Tuscaloosa	Dec. 1–31	20	.
Mobile	Jan. 21	1	.
Arkansas, Texarkana	Nov. 22–Jan. 11	10	.
California, Los Angeles	Jan. 2–9	2	.
San Francisco	Jan. 2–9	2	.
Illinois, Browning	Oct. 25–Jan. 20	75	.
Centralia	July 1–Jan. 20	50	.
Chicago	Jan. 2–9	1	.
Danville	Jan. 10–17	1	.
Ladd	Nov. 1–30	4	.
Taylorville	Jan. 18	40	.
Indiana, Evansville	Jan. 9–16	2	.
La Fayette	Jan 11–18	12	.
Kansas, Atchison	Jan. 9–16	1	.
Kansas City	Jan. 2–16	2	.
Topeka	Dec. 1–10	10	.
Kentucky, Covington	Jan. 9–16	2	.
Lawrenceburg	Oct. 1–18	200	1
Lexington	Jan. 2–16	9	.
Louisiana, Arcadia Parish	Dec. 20–Jan. 11	30	.
New Orleans	Jan. 2–16	4	.
Maine, Van Buren	Jan. 9–16	7	—
Michigan, Detroit	Jan. 9–16	1	.
Missouri, St. Louis	Jan 9–16	1	.
Montana, Butte	Dec. 15–Jan. 12	12	.
Nebraska, South Omaha	Jan. 9–16	1	.
North Carolina, Wilmington	Jan. 22	1	Imported
Tennessee, Green County	To Jan. 22	103	.
Knoxville	Jan. 9–16	1	.
Memphis	Jan. 18	1	Imported
Nashville	Jan. 9–16	4	.
Polk County	To Jan. 22	30	.
Texas, Cotulla	Jan. 25	.	Present
Laredo	Jan. 25	.	Present
San Antonio	Jan. 2–16	21	.
Vermont, East Dover	Jan. 21	10	.
Newfane	Jan. 21	8	.
West Dunnerston	Jan. 21	1	.
Virginia, Lynchburg	Jan. 9–16	1	Imported
Wisconsin, LaCrosse	Jan. 9–16	.	.
SMALLPOX—FOREIGN.			
Brazil, Bahia	Nov. 14–Dec. 5	61	4
Canada, Halifax	Nov. 2–9	2	.
Winnipeg	Jan. 4–11	2	.
Egypt, Alexandria	Dec. 2–9	.	1
Cairo	Dec. 16–23	5	8
India, Bombay	Dec. 15–22	.	3
Java, Batavia	Dec. 5–12	4	1
Mexico, Guadalajara	Jan. 1–7	.	1
Monterey	Jan. 3–10	.	1
Salina Cruz	Jan. 1–15	.	5
Veracruz	Dec. 12–26	2	2
Yucatan	Dec. 1–31	1	.
Camp Mengel	.	.	.
New Foundland, St. Johns	Jan. 9–16	3	.
Peru, Lima	Dec. 19	3	.
Porto Rico, Mayaguez	Dec. 26–Jan. 2	1	.
Portugal, Lisbon	Jan. 5–12	3	.
Russia, St. Petersburg	Dec 12–19	8	2
Spain, Valencia	Dec 19–26	1	.
Turkey, Constantinople	Dec. 20–27	.	6
YELLOW FEVER.			
Barbados, Bridgetown and vicinity	Dec. 29–Jan. 10	4	3
Brazil, Bahia	Nov. 21–Dec. 5	3	2
Ecuador, Guayaquil	Dec. 12–19	.	1
Mexico, Mexcanu	Jan 2–9	1	.
Merida	Jan. 2–9	.	.
Trinidad, Port of Spain	Jan. 20	.	1
CHOLERA.			
India, Bombay	Dec. 15–22	.	23
Madras	Dec. 12–18	.	3
Rangoon	Dec. 5–12	.	1
Russia, general	Nov. 15–Jan 2	297	1,208
St. Petersburg	Dec. 23–31	114	43
Straits Settlements, Singapore	Nov. 29–Dec. 5	.	29
PLAGUE.			
Brazil, Bahia	Nov. 14–Dec. 5	12	6
China, Hongkong	Nov. 7–14	1	1
Ecuador, Guayaquil	Dec. 12–19	.	1
Milagro	Dec. 12–19	.	Present
India, general	Dec. 5–12	2,044	1,588
Bombay	Dec. 15–22	.	4
Peru, general	Dec. 4–17	60	20
Lima	Dec. 4–17	9	3
Straits Settlements, Singapore	Nov. 28–Dec. 5	.	1

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Original Articles.

DIET AS A MEANS OF INCREASING VITAL RESISTANCE IN TUBERCULOSIS, WITH SPECIAL REFERENCE TO THE PROTEIN RATION.*

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CHRONIC tuberculous infection is no longer regarded as a local disorder. Its presence is a certain indication of a weakening of the bodily defenses, a lowering of vital resistance, and a deterioration of the tissues which has rendered possible the growth and dissemination in the body of a parasitic organism which the healthy human body is perfectly able to arrest and to destroy.

It is evident, then, that of the several questions concerned in the battle against this greatest of all the foes of human life, the question paramount to all others is, How may bodily resistance be increased to that point which shall enable the tissues to defend themselves successfully against all comers in the shape of tubercle bacilli, whether bovine or human, or modifications of one or the other? The question of questions, in other words, is how to establish immunity and how to do this not only for a single individual, but for the community as a whole.

It is important to note just here that there are two kinds of immunity, the artificial immunity which is established by introducing into the body gradually increasing doses of the tubercle bacillus, or of the poisons produced by it, and the natural immunity which is the result of healthy blood, resistant tissues, a general state of organic vigor. The artificial immunity against tuberculosis has proved unsuccessful because of its short duration. Its employment is necessarily accompanied by considerable risk, so that it seems hopeless to look in this direction for a remedy for a race disease.

Trudeau's classic experiment points us in the right direction. After inoculating a number of rabbits with tuberculosis, he confined a number of them indoors and turned the others outdoors. The latter all recovered, while the former all died. This experiment shows that a rabbit living upon its natural food and under a natural environment is proof against tuberculosis. There is abundant reason to believe that this is equally true of man. In other words, tuberculosis is not one of the necessary evils of human life, but is a natural consequence of erroneous habits and departure from natural conditions. The marvelous success of the outdoor life in restoring to health thousands of tuberculous individuals demonstrates clearly how much may be accomplished by a return to natural conditions in one particular. Man is naturally an outdoor animal. A mole lives a healthy life in a burrow. A man must live in the fresh air and the sunshine.

But the purpose of this paper is to call attention to another primary condition of healthful life—proper and natural alimentation. Our bodies are made of what we eat. To be thoroughly healthy, possessing high resistance and natural immunity, the body must be supplied with proper material, with foods naturally adapted to the body needs. Upon the question of diet there is still very great diversity of opinion among those persons who specialize in the treatment of tuberculous affections. There is, indeed, such a wide diversity in the dietetic management of this class of cases by different physicians and in different institutions, as has been pointed out in the able and timely paper of Professor Irving Fisher, that it seems evident that some of the more important of these unsettled questions should receive early consideration, especially as the problem of nutrition is admittedly a fundamental one, and a factor which exercises a controlling influence in the battle of the tuberculous patient against his malady.

Twenty years ago it was impossible to compile data bearing on this question having sufficient scientific value to command consideration; but the more exact studies of nutrition which have been conducted in recent years have developed a great number of important and cogent facts which, when brought together, seem to justify important and clearly defined conclusions.

Prof. Fisher's tables show so great a divergence in the ration employed by different authorities that it cannot be a matter of indifference to the patient which ration is selected for him. For example, between the ration employed by Werner at the Roten-Kreuz Sanatorium (5,500 calories), and that of the Brompton Hospital, East Kensington, London (2,400 calories), there is a difference of 3,100 calories. Thus a patient on the Werner ration would be required to eat more than double the food consumed by a patient on the Brompton ration. It cannot be that both these patients have an equally good chance for recovery. Either one is half starved, or the other is enormously overfed. The difference in the protein ration is still greater than that of the total ration, being 410 calories at Brompton, and 1,200, or practically three times as much, at the Roten-Kreuz Sanatorium. If the Brompton patient receives as much protein as he is able to appropriate, certainly Werner's patients must be compelled to do an enormous amount of unnecessary renal work in the elimination of surplus nitrogenous wastes, to say nothing of other unnecessary burdens borne by vital organs whose perfect functioning is essential to vigorous life and high resistance.

*Presented before Section V of the International Congress on Tuberculosis, Washington, D. C., October 2, 1908.

Without professing to have wholly solved the problems under consideration, my purpose in this paper is to bring together a few facts which must have a direct bearing on the subject. The time allotted me will not permit of a complete survey of the question of diet in tuberculosis, hence I shall restrict myself to facts and considerations relating especially to the protein ration in this disease.

In the study of diet with reference to the dietetic management of pulmonary tuberculosis, or in relation to any equally grave disease, consideration must be given, first, to the effects of the particular diet suggested upon general nutrition, and, second, to any special relation which may exist between the diet suggested and the characteristic pathological conditions or tendencies of the disease.

RELATION OF THE PROTEIN RATION TO GENERAL NUTRITION AND VITAL RESISTANCE.

Within the last ten years there has been a manifest trend of opinion among physiologists toward the recognition of a lower standard for the protein ration in ordinary conditions of health. The observations of Chittenden, Mendel, Folin, Gautier, Hirschfeld, Klemperer, Bourdet, Lapicque, and numerous others have shown conclusively that the nitrogen balance may be maintained under ordinary conditions of life, and even that an actual gain in strength and physical vigor may take place, under a ration furnishing not more than one-half or even one-third of the amount of protein required by the older standards. For example, Chittenden, in an experiment upon twenty-six men—sixteen soldiers, six athletes, and four college professors—extending over a period of nine months, was able to show a distinct gain in health, strength, and general vigor on a dietary which furnished .625 grams, or 2.56 calories of protein, per kilogram of body weight. In this experiment he was himself one of the subjects, and reduced his protein to about 31 grams, and has since continued the same ration for several years, with evident advantage.

Hirschfeld, who weighed 73 kilograms, 16 kilograms more than Chittenden, maintained himself in nitrogenous equilibrium with 43.3 grams of albumin per diem, .60 grams, or 2.46 calories per kilogram of body weight—even less than the Chittenden standard. Klemperer reduced the nitrogen intake to .47 grams of albumin (1.90 calories) per kilogram of body weight. Bourdet maintained that .75 grams of albumin (3.07 calories) per kilogram of body weight is quite sufficient. Folin maintained body weight and muscular strength for ten days on a diet in which the nitrogen was reduced to one gram per diem.

The writer is able to add from his own observations and experience a number of facts which he has thought it worth while to place on record. Early in life, circumstances led me to adopt a low protein dietary which has now been followed for more than forty-two years. During this period flesh meats have been excluded from my dietary, and for about half of the time eggs and milk have also been excluded almost entirely, so that my dietary has practically consisted of such quantities of protein as are naturally found in bread, fruits, potatoes and other vegetables, with the occasional use of nuts.

I have enjoyed some special advantages for the study of dietetics through the fact that for thirty-two years I have had charge of a medical institution in which a low-protein dietary is made an essential part of the régime for both patients and employees. In this institution there are employed 30 physicians, over 250 nurses and medical students, and between 500 and 600 other persons. During the 32 years the number of different persons employed has been between 10,000 and 12,000.

Some ten years ago (1898) a dietary study was made for the purpose of determining the proportions of protein, fats, and carbohydrates, consumed daily by our workers. The experiment included some 265 persons, 125 men and 140 women.

The figures obtained for protein were considerably below many of the old standards, though above the standard recently established by Chittenden and others. More recently the amount of protein consumed has been considerably reduced. This has been the result of the study of Chittenden's work and the introduction of a larger amount of fat into the dietary, which was evidently needed.

TABLE I

SHOWING THE RESULTS OF A DIETARY STUDY OF 125 MEN AND 140 WOMEN DURING 14 DAYS

	Men (Average)		Women (Average)	
	Grams	Calories	Grams	Calories
Protein	84.82	348	76.54	314
Fats	36.78	360	30.05	279
Carbohydrates	453.49	1,859	447.44	1,834
Total	577.09	2,567	554.03	2,427
	Kilos		*Kilos*	
Average weight at beginning	61.2		54.1	
Average weight at end	61.5		54.1	
Average gain	0.3		0.0	
Average gain in strength of ten selected persons	225		68.6	

The work required of physicians and nurses in the institution is very exacting. The hours are long and the work itself is hard, especially during the summer months. Notwithstanding, it is very exceptional that physicians and nurses do not improve in health after becoming connected with the institution, and there is a noticeable exemption from such common maladies as appendicitis and other intestinal disorders, skin diseases, pneumonia, and infectious maladies. Twenty years ago cases of tuberculosis occasionally developed among the employees, but since the introduction of a larger proportion of fat into the dietery this tendency has disappeared. There is generally a noticeable improvement in the appearance of persons who make a change to a low protein dietary on becoming connected with the institution. The skin becomes clearer; acne, when present, disappears, and there is usually a gain in flesh and in endurance.

A low protein diet does not deteriorate the blood.—A study of the blood and blood pressure in 100 of our nurses and assistants, made at my request by Dr. J. T. Case, gave the following average results:

TABLE II

	40 Men	60 Women
Hemoglobin (dare)	97.0%	96.3%
Red Corpuscles, per c.mm.	4,790,000	4,290,000
White corpuscles, per c.mm.	7,353	7,023
Color index	101	102
Blood-pressure (Stanton instrument; narrow armlet)	132.5 mm.	119.8 mm.
Pulse (standing)	76	76

The above figures certainly show no tendency of a low protein ration to deteriorate the blood, and entirely agree with the observations on endurance made by Prof. Irving Fisher, of Yale University,

the results of which will be given later in this paper.

The Urine in Low Protein Subjects.—Within a year a careful study has been made of the urine in 46 subjects, 24 men and 22 women, for the purpose of determining normal standards of persons living upon a low-protein ration. The subjects employed in this study were placed upon a ration which furnished .80 grams of protein, 1.10 grams of fat, and 4.80 grams of carbohydrates for each kilogram of body weight. Flesh foods of all sorts were excluded. The quantities obtained by Folin with an ordinary mixed or high-protein diet are given in the table for the purpose of comparison. It should be stated that both the men and the women were healthy persons between the ages of 20 and 30 years, all engaged in active duties as nurses and office or laboratory assistants. The table gives the average of all the subjects.

TABLE III*

		Ordinary or High Protein Diet (Folin)	Low Protein Diet Without Meat
Quantity	c.c.	1,430	1,000
Specific gravity		1.015	1.018
Freezing point		—	4.287
Urinary depuration			
Acidity in terms of H_3PO_4	gms.	2.01	.940
Total nitrogen	"	16.140	6.440
Urea	"	29.80	11.650
Uric acid	"	0.370	0.323
Ammonia, in terms of NH_3	"	.850	.247
Creatinin	"	1.550	.815
Chloride	"	10.050	5.455
Phosphates, terms of P_2O_5	"	3.870	1.455
Total sulphates, terms of SO_3	"	3.110	1.071
Ethereal sulphates, in terms of SO_3	"	.220	.116
Total sulphur, in terms of SO_3	"	3.310	1.399
Neutral sulphur, in terms of SO_3	"	.170	.192
Indican (Fehling's solution = 100)		77.00	5.60

*The technical chemical and other detail work involved in the preparation of this table, was chiefly done at the author's request and under his supervision, by Drs. E. H. Risley, Paul Roth, and Jean W. Morse. The author also takes pleasure in acknowledging his indebtedness for various courtesies extended by Professors L. B. Mendel, R. H. Chittenden, Otto Folin, and C. A. Herter, in admitting his assistants to their laboratories for special instruction and the verification of technical methods; and to Professors Francis G. Benedict, N. Zuntz, and Irving Fisher for valuable suggestions and information.

These facts afford the most indubitable evidence of the diminished work required of the liver and kidneys in dealing with waste and toxic products under a low-protein dietary. Such an advantage ought to become apparent, especially in tests of endurance. Prof. Irving Fisher, of Yale, was quick to recognize this fact when he first visited Battle Creek about four years ago, and he some time later devised and applied a series of tests for the purpose of determining the effect of high and low-protein dietaries upon muscular endurance. In this experiment a number of our young men who had been for months or years accustomed to a low-protein dietary were submitted to a series of severe tests, which were afterward applied to a considerable number of Yale University athletes who were accustomed to the ordinary high-protein dietary. The results of this endurance test were published by Prof. Fisher in the *Yale Medical Journal* of March, 1907, from which I make the following brief extracts summing up the results:

"In the absence of any exact mechanical method of measuring endurance, three simple endurance tests were employed—first, holding the arms horizontally as long as possible; second, deep knee bending; third, leg raising with the subject lying on the back. All of these tests were made before witnesses. . . . The first comparison (for arm holding) shows a great superiority on the side of the flesh-abstainers. Even the maximum record of the flesh-eaters was barely more than half the average of the flesh-abstainers. Only 2 of the 15 flesh-eaters succeeded in holding their arms out over a quarter of an hour; whereas 22 of the 32 abstainers surpassed that limit. None of the flesh-eaters reached half an hour, but 15 of the 32 abstainers exceeded that limit. Of these, 9 exceeded two hours, and 1 exceeded three hours. . . . In respect to deep knee bending, if we take the number 325 for reference, we find that, of the 9 flesh-eaters only 3 surpassed this figure, while of the 21 abstainers, 17 surpassed it. Only 1 of the 9 flesh-eaters reached 1,000, as against 6 of the 21 abstainers. None of the former surpassed 2,000, as against 2 of the latter. . . . In respect to leg-raising, the records show little difference. . . . The results indicate that the users of low-protein and the non-flesh dietaries have far greater endurance than those who are accustomed to the ordinary American diet."

TABLE IV.

SHOWING RESULTS OF TESTS CONDUCTED BY PROF. IRVING FISHER TO DETERMINE THE INFLUENCE OF HIGH-PROTEIN AND LOW PROTEIN DIETARIES UPON ENDURANCE.

Arm-Holding Test

Low-Protein Subjects, 32; High-Protein Subjects, 15

		Per Cent
Low-protein subjects, average minutes	49	
High-protein " " "	10	20
Low-protein " maximum "	200	
High-protein " " "	22	11
No. of low-protein subjects who exceeded 15 minutes	22	69
" " high-protein " " " 15 "	2	13
" " low-protein " " " 30 "	15	47
" " high-protein " " " 30 "	0	0
" " low-protein " " " 60 "	9	28
" " " " " 180 "	1	
Total minutes' work done by 15 low-protein subjects	1,336	
" " " " 15 high-protein athletes	150	11.2

Deep Knee-Bending Test

Low-Protein Subjects, 21; High-Protein Subjects, 9

		Per Cent.
Low-protein subjects, average number times	833	
High-protein " " "	383	46
Low-protein " who surpassed 325	17	81
High-protein " " " 325	3	33.3
Low-protein " " reached 1,000	6	28.6
High-protein " " " 1,000	1	11
Low-protein " " " 2,000	2	9.5
High-protein " " " 2,000	0	0
Low-protein best subjects (9) number times	12,335	
High-protein athletes (9) number times	3,447	28

The figures given in the tabulated results of Prof. Fisher's tests (Table IV.) and the analysis of the results by Prof. Fisher, above quoted, demonstrate that persons subsisting upon a low-protein dietary are in no degree inferior in endurance to those subsisting upon a mixed or high-protein dietary, but are on the contrary much superior.

Fifteen of the low-protein subjects did nine times as many minutes in the arm-holding test as did an equal number of the high-protein athletes, although only three or four of their number had had any athletic training, the other subjects being men of sedentary habits, while the high-protein men were all experienced athletes in training for athletic contests. In other words, the untrained meat abstainers showed nine times as much endurance as the trained flesh-eating athletes.

In the deep-knee-bending test the untrained flesh-abstainers showed nearly four times as much endurance as the trained flesh-eaters or high-protein subjects.

This fact was made still clearer by the performance at a later period of one of our nurses, who made the deep-knee bend 5,002 times, or 3,773 times more than the best performance of the high-protein athletes and 1,555 (nearly fifty per cent.) more than the entire nine flesh-eating athletes, or thirteen times as many as the average of the high-protein athletes. This subject was a young man of twenty-two years who had lived upon a low-protein and fleshless dietary for about two years.

Experiments in the French army clearly demonstrate, according to Major P. Joly, that the reduction of the protein ration to the extent of 120 grams, substituting therefor 120 grams of carbohydrates (cane sugar), resulted in a marked improvement in the health of the men who were subjected to severe muscular exertion. The effect of this lowering of the protein ration was a decrease in the number of heartbeats and respiratory movements, a marked increase in endurance, and a decrease of the sick rate. Men were found to be able to endure the heat and fatigue of marching and maneuvers much better on the low-protein ration than on the higher ration.

The average number of guests at the Sanitarium during the last thirty-two years has been between 3,000 and 4,000 yearly, making about 100,000 persons in all who have been subjected to a low-protein dietary. The present number is about 7,000 annually. For the last three years the Chittenden standard of .80 grams of protein per kilogram of body weight has been followed. No injurious results have been observed, but instead a very decided improvement in the proportion of recoveries and in the rate of improvement.

The cooking and serving of foods and the bills of fare are so arranged that the number of calories of protein, fats, and carbohydrates taken at each meal and for the day may be easily determined, and the advantages of a low-protein dietary are so manifest that both physicians and patients readily adopt and adhere to the new standard. The following results have been particularly noticeable:

1. Clearing of the skin; the disappearance of skin eruptions, sallowness, etc., and rapid improvement in color and texture of the skin.

2. Improvement in the blood count and in hemoglobin, as shown in Table V.

TABLE V.

SHOWING THE EFFECTS OF A LOW-PROTEIN DIETARY UPON THE BLOOD IN CHRONIC INVALIDS.

	Before Treatment	After Treatment	Gain, Per Cent.
Average blood count in 1,000 consecutive cases.	3,885,200	4,359,340	12.2
Hemoglobin.	73 3%	88 4%	15.1
Blood count in 30 cases of anemia	1,989,600	3,140,000	58.2
Hemoglobin in 30 cases of anemia	47%	67%	20.0

The numerous observations made in the last twenty years have shown the correctness of the practice recently inaugurated by Prof. Krauss, of Berlin, who recommends a low-protein dietary in pernicious anemia, suppressing entirely the use of flesh meats in such cases.

3. Another important effect observed has been a noticeable fall in blood pressure in cases in which it was, on arrival, much above normal. This has been noted particularly in the first two or three weeks after arrival. While a low-protein ration has been found quite sufficient to maintain the blood pressure at the normal standard, it has shown itself to be a most efficient agent in lowering the blood pressure when abnormally high. In over 33,000 blood pressure determinations carefully made, it has been almost uniformly observed that a decided fall in blood pressure occurs within a few weeks after the adoption of the low-protein dietary in cases in which the blood pressure is at the beginning abnormally high. The instrument used in taking the blood pressure is the Stanton modification of the Riva-Rocci apparatus. The observations were all made between 12 M. and 1 P. M. The average pressure in 138 cases in which the blood pressure was above normal was 181; later, or at the time of discharge, the average pressure was 158, a fall of 23 millimeters of mercury, which I believe may be justly attributed, in chief part, at least, to the low-protein dietary, through suppression of pressure-raising toxins produced in the alimentary canal, and the better elimination of tissue wastes. No pressure-lowering drugs were administered.

The facts above stated would certainly seem to indicate that a low-protein dietary exercises a decided influence in improving general bodily conditions. The improvement in the conditions of the blood and the blood-vessels, in the appearance of the skin, in muscular and nervous endurance, in greatly lessened development of toxins in the body, as shown by the urine, are facts which all point toward a decided improvement in vital resistance.

Numerous other facts well known to physiologists show the advantage of a low-protein dietary as regards endurance and vital resistance. For example, East India surgeons have frequently remarked the extraordinary ability of the rice-eating natives of India to undergo very severe surgical procedures, recovering under conditions which would almost certainly prove fatal to a European accustomed to a high-protein dietary. Captain Sanderson, the famous elephant hunter of India, in his charming volume, "Fourteen Years in the Jungle," makes the observation that antelope were often encountered carrying about great festering sores, the results of terrible wounds inflicted by lions and tigers, yet apparently in excellent condition; while a small bullet wound in a leg was almost certain, sooner or later, to prove fatal to a tiger or lion through blood-poisoning.

The hunters of the Rocky Mountains and of the Scottish Highlands feed their dogs upon a very low-protein, non-flesh diet. When asked by the writer what he gave his dogs to eat, a Scotch hunter remarked, "The same as I eat myself, sir—brose, bannocks, and potatoes."

Paget believed that the higher death rate from surgical operations in cities, as compared with rural districts, was due to the high-protein dietary of the urban population. Lauder Brunton attributed the greater frequency of death from chloroform anesthesia in England, as compared with India, to the high-protein dietary of the English people. The runners of East India, the miners of Mexico, the swift-footed Tarahumaris of the Sierra Madre Mountains, who sometimes run 175 miles in 24 hours over steep mountain paths, also subsist upon a very low-protein diet, and accomplish feats of endurance which have never been equaled by persons subsisting on a high-protein dietary.

Modern researches confirm the conception of Liebig that protein is essentially a tissue-building substance, and not primarily intended for body fuel. A dog fed upon lean meat free from fat requires a ration having a much higher caloric value than when fed upon a diet consisting largely of fats and carbohydrates, thus showing that as a source of energy protein is much inferior to fats and carbohydrates. The relation of the two classes of food principles appears to be essentially the same as that of metal repairs and coal to the locomotive. The value of protein other than as a source of material for the repair of living tissue seems to be rather incidental and greatly inferior to that of carbohydrates and fat.

Professor N. Zuntz, of Berlin, recently informed the writer that experiments made by himself and his associates have shown that protein requires a much greater expenditure of energy in its digestion and utilization than does any other food principle. For example, the energy required for the digestion of fats is only 2½ per cent. of the total energy represented. In the case of starch the energy expended in digestion is 10 per cent. of the total; while protein requires an expenditure of 16 per cent. of the energy represented. That is, protein requires an expenditure of 1.6 times as much energy in its utilization as does starch, and 6.4 times as much as does fat in proportion to the amount of energy supplied.

It cannot be doubted, of course, that reduction of the protein below the actual needs of the body causes a depreciation of vital resistance, through disturbance of the nutritive balance. The same is true with reference to any other food principle; but the question under discussion is not the effect of an actual deficiency of protein, but the effect of an excess.

There are still other facts bearing upon the question which the writer believes to be even of greater importance. Vital resistance depends more directly upon the blood than upon any other factor concerned in the body defense. That wisest of law givers and most sagacious of sanitarians, Moses, declared, "The life is in the blood," and John Hunter's experiments showed the scientific accuracy of the ancient Hebrew's dictum.

Roger, Charrin, Bouchard, Schiff, Cohnheim, Minkowski, Roux, Nocard, Fraenkel, Helmann, and others have shown us how immediately and positively vital resistance fluctuates with changing conditions of the vital fluid. Says Charrin "The alkalinity of the body fluids is synonymous with organic protection." The blood of an animal subjected to a high protein dietary is overcharged with protein wastes because of the excess of protein ingested. The result is deficient oxidation of protein wastes, and a marked diminution in the alkalinity of the blood. With this diminished alkalinity is associated, as a necessary consequence, diminished vital resistance. This condition of the blood is indicated by an excessive quantity of urea and uric acid and a high degree of acidity of the urine. In a healthy man upon whom I experimented some years ago the urea and uric acid were quadrupled within a week on a heavy meat diet. The burden thrown upon the liver and kidneys by this excess of protein must have been increased in the same proportion.

The difference in the character of the products of protein metabolism and those of the metabolism of fats and carbohydrates is a matter that seems worthy of consideration. The CO_2 resulting from the combustion of fats and carbohydrates is quickly eliminated through the lungs. On the other hand, the products of protein metabolism, nitrogen compounds highly toxic in character, require for their elaboration and elimination a very considerable amount of work, in which not only the liver and kidneys are concerned, but the adrenals, thyroids, and various other organs.

The elimination of CO_2 through the lungs and skin apparently has no injurious effect upon these organs; whereas the circulation through the liver and kidneys of an excess of the poisons which find their natural exit through the urine, and which are prepared for elimination by the liver, unquestionably give rise to irritation which sooner or later results in grave disease.

A Low-Protein Dietary Does Not Lower the Tuberculo-Opsonic Index.—Sir Michael Foster's observation that the tuberculo-opsonic index was reduced under a very low-protein dietary proves nothing in favor of an excessively high-protein ration. At my request, our bacteriologist, Dr. A. W. Nelson, has determined the opsonic index in twenty-six of our nurses and others connected with the institution who have for some years (two years to forty-two years) lived upon a low-protein dietary, having eaten no flesh food during that time. The tuberculo-opsonic index was found to range from .87 to 1.95. Only three out of the twenty-six persons tested were found with an index below normal. These were .87, .92 and .98, respectively. The average was 1.26. In a case of phthisis pulmonalis now under observation, the opsonic index rose on a low-protein dietary (Chittenden standard) from .47 to 1.47 in four weeks. These figures certainly do not indicate any depreciation of resistance to tuberculous infection as the result of a low protein dietary.

Relation of Intestinal Autointoxication to Tuberculosis.—Another question which it seems pertinent to raise is whether too exclusive attention has not been given in the study of the protein ration to the question of tissue metabolism. The careful study of the bacterial flora of the intestine which has been made within recent years by Escherich, Tissier, Metchnikoff, Herter, Levin, Roger, Adami, Cohendy, Gilbert, Dominici, Strassberger, and others has shown the immense influence exerted upon the functions and tissues of the body by bacterial toxins formed within the alimentary canal. Absorbed into the portal blood these poisons are circulated through the liver, where they are in part oxidized and rendered innocuous, and find their way out through the lungs, skin, and especially the kidneys. These investigators and others have shown that there is a close relation between the protein ration and intestinal putrefactions.

Pasteur supposed that bacteria were a necessary aid to intestinal digestion and essential to both animal and plant life. His pupil, Roux, showed that beans may grow in a sterile soil. Nuttal and Thierfelder kept guinea-pigs alive in a sterile medium. Levin examined 480 animals at Spitzbergen,—bears, seals, reindeer, and other animals,—53 species, and established the fact that in the Arctic region the intestines of mammals are usually sterile.

It seems to be finally settled that bacteria are not necessary for the maintenance of animal life, and certainly that putrefactive bacteria are not only unnecessary, but harmful. Nevertheless, these bacteria are present in the intestine in enormous quantities. Gilbert calculates the number of bacteria daily discharged from the body at 12 trillions. Strassberger makes the number 120 trillions. Roger enumerates 240 species of bacteria which have been found in the human intestine. Many of these produce substances which are in the highest degree toxic. On a high-protein diet, the poison-forming bacteria rapidly increase, giving rise to intestinal autointoxication. German medical authorities have been rather slow to recognize this condition, but Senator, Backmann, Mester, Brieger, Hoppe-Seyler, Krauss, Ewald, Jaffé, Albu, Hirschler, Munch, Rovighi, Grawitz, and others have recognized the validity of the teaching of Bouchard, and have expressed views in harmony therewith.

The writer has for some years pursued studies in relation to this question, and recently by the aid of the improved methods of Herter, Folin, and other recent investigators, has made several observations which seem to have a practical bearing. Five healthy young men were fed upon various diets, as indicated in the tables presented herewith, and a careful study was made of the stools and the urine. In making these studies the stools were examined both chemically and bacteriologically. By plate cultures and Gram staining, the number of aërobes and anaërobes per gram of dried feces was determined, and by means of the useful method of L. Rettger, the same determination was made respecting the number of putrefactive organisms. By distillation of a portion of the feces and testing by Herter's method, the amount of indol produced was determined in each specimen. This determination was made quantitatively by means of a calorimetric scale carefully worked out by my colleague, Dr. Risley. The urine was examined, and a careful determination of the amount of indican present was made by Folin's method.

The amount of the daily ration was from 1,800 to 2,400 calories. The principal carbohydrates were bread and potatoes. Fat in proportion of about 30 per cent. of the total ration was taken in the form of butter. The protein ration was varied from 125 to 450 calories. The amount of protein per kilogram of body weight was varied from .50 grams to 1.80 grams. The lower quantity was in connection with a fruit and cereal diet. Each special dietary was closely followed for five to eight days, and was employed with two or more persons, and in several instances repeated a number of times. The figures given in the accompanying table are the averages obtained from all the observations made, the number of which is indicated in each case.

TABLE VI.

Showing the Amount of Intestinal Putrefaction as Indicated by the Amount of Indol Found in the Feces and of Indican in the Urine with the Several Diets Indicated.

	Daily Rat'n in Calories	Gms. of Protein per Kilo of Body Weight	No. of Observations	Avg. Amt Indol in Feces, No. Mgms.	Avg. Indican in Urine (Folin Scale)
Group I—Moderately high protein diet, 1.00 grams or more per kilo. of body weight	2,187	1.00–1.80	39	1.2270	6.00
Group II—Low-protein diet (vegetable)	2,064	.49–0.90	74	.3611	0.00
Group III—Low-protein diet below Chittenden standard (vegetable)	2,040	.49–0.80	51	.1227	0.00
Group IV—Fruit and cereal diet	2,075	.49–0.70	38	.0567	0.00
Group V—High-protein diet —meat and vegetables	2,200	1.57 1.80	10	1.3508	9.5

It is most clearly shown by the above tables, giving the results of 212 observations, that the amount of intestinal putrefaction is directly proportional to the amount of protein in the dietary. With a moderately high protein ration of 1.06 to 1.80 grams per kilo of body weight, the indol of the feces was ten times as much as on a low-protein diet (Chittenden standard). On a meat and vegetable diet, affording 1.57 to 1.80 grams of protein per kilo of body weight, the indol was increased eleven fold. The amount of indican found in the urine with the high-protein dietaries bears further witness to the increase in putrefaction with increase of protein in the food. With a fruit and cereal diet the indol was reduced to less than one twenty-fifth of the amount found with a mixed high-protein diet.

The results expressed in the table are much more strongly shown in the protocols. For example, while taking a high-protein meat ration, the subjects of experiment not only showed an increase of indol to ten or even twenty times the amount previously present when on a low-protein diet, and a corresponding quantity of indican in the urine; but they experienced very decided discomforts and inconveniences arising from the increased toxicity of the intestinal contents. The usual symptoms were headache, drowsiness, loss of appetite, loss of energy, and general malaise. In every case the subjects of these experiments were very glad to return to their accustomed low-protein dietary.

Results identical with the above have been obtained by others who have studied this question, among whom should be especially mentioned Combe, Mester, Backmann, Salkowski, and Jaffé. The two latter have shown that the intestinal putrefactions increase in proportion to the amount of albumin ingested. Müller and Ortweiller showed that on a meat diet products of bacterial putrefaction in the intestine increase and that aromatic substances, especially indol and phenol, appear in considerable quantities in the urine.

Backmann showed the same to be true of white of eggs, but much less so than with meat, as indicated by the following table:

	Conjugate Sulphates
1 Ordinary diet	0.167 grams
2 " " plus 200 grams of eggs	0.184 "
3 " " " 120 " " meat	0.234 "

Mester compared fresh meats and "prime" meat with the following result:

	Conjugate Sulphates
1 Ordinary food	0.058 "
2 " diet plus meat	0.113 "
3 " " prime meat	0.328 "
4 " " " meat in advanced decay (high)	0.694 "

A second series of observations was carried on collaterally with the above. To various mixtures of foods of equal weight (25 grams) was added a definite quantity (10 grams) of feces which had been previously examined for indol and bacteria. The whole was then placed in an incubator at body temperature for three days. The quantity of indol produced was determined by distillation and testing by Herter's method.

TABLE VII.

Showing the Amount of Indol Produced in Equal Quantities of Various Foodstuffs (25 Grams) Mixed with 10 Grams of Human Feces and Incubated for Three Days.

Meats	Indol, Mgms.	Milk Products	Indol, Mgms.
Dried beef	2.71	Unboiled milk	.620
Smoked herring	4.30	Boiled milk	.520
Dried codfish	4.90	Yogurt cheese	.126
Salmon	5.91	Cheese	2.910
Sardines	7.35	Average	1.045
Beef (fresh)	12.42		
Pork (fresh)	13.72	*Vegetable Foods*	
Mutton (lean)	17.02	Cereals (average of 20)	.055
Average	8.54	Raw vegetables	.147
		Cooked vegetables	.078
		Cooked fruits	.222
		Bananas	.404
		Average	.181

The table shows that the vegetable foods on an average produced only about two per cent. as much indol as the average produced by flesh foods, while the best vegetable foods, the cereals, produced only .3 per cent. as much indol as the most toxic flesh food, mutton. Milk products, including ordinary cheese—a very questionable food—produced 12 per cent. as much indol as average meats, but omitting ordinary cheese produced only seven per cent. as much, while yogurt cheese, made with

the *Bacillus bulgaricus*, made least indol of any substance examined.

These results are entirely in harmony with the results obtained in the feeding experiments, and taken with them show very clearly that foodstuffs which undergo putrefaction outside the body when brought in contact with colon bacteria produce when ingested a very marked increase of the intestinal putrefactions.

The above facts seem to furnish abundant reason for holding that a high-protein diet tends very decidedly to weaken general vital resistance through the enormous extra burdens which it imposes upon the liver and other poison-destroying glands, and upon the kidneys, the most important of poison-excreting glands. May we not, then, justly raise the question whether in the high-protein feeding of patients suffering from pulmonary tuberculosis, considerable risk may not be run of doing the patient harm by lessening his ability to resist the further encroachments of his malady or to repair the damages already done?

SPECIAL PATHOLOGICAL CONDITIONS PRESENT IN PHTHISIS PULMONALIS WHICH CONTRAINDICATE A HIGH-PROTEIN DIETARY.

The marked tendency of the tuberculous patient to loss of flesh and to the development of anemia has naturally directed special attention to the importance of encouraging the fat-building and blood-making processes of the body. But there are other indications which are equally deserving of attention and which should be permitted to influence the dietetic management of these cases. The materials ingested must be metabolized and eliminated as well as digested and absorbed. Incidentally, while undergoing digestion, they may also undergo fermentations and putrefactions which may so change their nature as to render them not only useless as nutrients, but toxic and in the highest degree damaging. Hence the welfare of the liver and other toxin-destroying glands and of the kidneys, poison-eliminating glands, must be considered as well as the need of the organism for an increase of adipose tissue. A simple increase in the thickness of the panniculus adiposus cannot be of any very great advantage to a man whose body has been invaded by a vast army of tubercle bacilli. Before the infection took place there had been a depreciation in vital resistance, a deterioration of tissue and function which made the invasion possible and with each advance of the disease, this weakening of the ability of the organism to battle against its foes is lessened. Recovery can be secured only by improving the integrity of tissue and function to such a degree that the ability of the organism to combat its assailants will be raised higher than before the invasion occurred.

The average subject of tuberculous infection presents a number of special pathological conditions which must be considered in preparing a therapeutic regimen. Among these may be especially enumerated the following:

1. *Diminished "alkalinity" of the blood* (Lawrason Brown).—This signifies diminished vital resistance, diminished efficiency of the blood as a germicide, diminished power to develop immunity, diminished power to repair damaged tissues, diminished power to oxidize wastes. Anything which tends still further to diminish the alkalinity of the blood must be to that degree a hindrance, rather than a help, in the battle of the organism against the tubercle bacillus. One of the notable and constant effects of a high-protein dietary is to diminish the alkalinity of the blood.

2. *Diminished hepatic efficiency.*—In consumption the liver is nearly always seriously crippled. Ullom declares that passive congestion of the liver is found in nearly every case of pulmonary tuberculosis. This is the natural result of diminished respiratory activity, since the venous circulation of the liver is largely influenced by the movement of the chest in respiration. To the evidences of chronic passive congestion of the liver are added, according to Ullom, many other evidences of a lowered vital state in this organ, among which are amyloid and fatty degeneration, tuberculous infection, and fibrosis or cirrhosis. Ullom expresses the opinion that fibrosis of the liver is not due to the tubercle bacillus, but to "other etiological factors." Boix and others have shown what these factors may be. According to Boix the toxins formed as a result of putrefactive processes in the intestine are the chief cause of hepatic fibrosis. He was able to produce cirrhosis of the liver in rabbits by mixing with their food cultures of colon bacilli and also by feeding them extracts of feces.

That a high protein ration, that is, a dietary consisting largely of flesh foods, favors hepatic congestion, is a fact long known to physicians. A diet which encourages intestinal putrefaction and an abundant anaërobic flora in the intestine, must in the highest degree encourage hepatic congestion and various functional and organic changes in the liver, and thereby break down this important defensive barrier and prepare the way for its invasion by the tubercle bacilli. It need not, then, be a matter of surprise that Ullom found in thirty-seven autopsies in cases of pulmonary tuberculosis, a tuberculous condition of the liver in 81 per cent. of the cases. Fatty degeneration of the liver was found in 24 per cent. of the cases, and in only two cases (5.4 per cent.) was the liver found approximately normal; that is, the liver was found diseased in 94.6 per cent. of the cases. Arnold reported tuberculosis of the liver as an almost constant finding in pulmonary tuberculosis. Simmons reported tuberculosis of the liver in 78 per cent.

The passive congestion of the liver which naturally results from the overwork of the right heart and the diminished mobility of the chest, together with the special exposure of the liver to infection through the portal circulation and the extra work required of it in metabolizing the excessive nitrogenized waste which accompanies the febrile stage of pulmonary tuberculosis, certainly suggest the importance of guarding the integrity of this vitally important organ in every possible way, and contraindicate a high-protein dietary which imposes exaggerated and unnecessary hepatic work.

3. *Degeneration of the Thyroid Gland.*—Entirely in harmony with the consideration presented above is the interesting fact to which Roger, Garnier, De Quervain, Sarbuch, and others have recently called attention, viz., the occurrence of general sclerosis of the thyroid gland without tuberculous lesions of the gland itself in cases of tuberculosis affecting other parts of the body.

In a case of tuberculosis of the lungs reported by Carnot and Delion, death occurred from tetany, and post-mortem examination showed caseous degeneration of the parathyroids. This condition of the thyroid and parathyroid is attributed to "the effect of the action of the diffusible toxins produced

by the tubercle bacilli." It is well known that other toxins, especially those produced by putrefactive changes in the intestine, are capable of producing diseased conditions of the thyroid, the natural result of the overwork of the glands resulting from excessive saturation of the blood with these toxic substances.

The enormous burden added to the labor of the defensive organs of the body by a high-protein diet, and the great injury which must result when these organs are weakened, is illustrated by what happens when certain toxin-destroying glands are removed from the body or rendered functionally inactive. It is well known, for example, that the removal of the thyroid gland (Breisacher, 1890) of a dog is quickly followed by the death of the animal if it is fed upon a meat diet while life is prolonged indefinitely and the animal enjoys good health when fed upon a diet of bread and milk. When such a dog is fed upon meat which has been well boiled, it suffers less and lives much longer than when fed upon raw meat evidently because of the removal of poisonous meat extractives in the boiling. Blum holds that the function of the thyroid gland is to neutralize poisons derived from the putrefaction of albumin in the intestine. Kishi holds that the thyroid destroys a poisonous substance, a nucleoprotein which is formed in the intestine after the ingestion of meat.

These facts are alone sufficient to condemn a high protein flesh diet in a disease in which the thyroid gland is already overworked, and in which it is likely to be seriously crippled. Is it not possible, indeed, that the effect of such a diet in a case of pulmonary tuberculosis with degenerated thyroids may be almost as deadly as in dogs deprived of their thyroids?

In the ingenious Eck fistula experiment an anastomosis is made between the portal vein and the vena cava, a ligature being applied to the portal vein close to the liver, thus cutting out the liver from the portal circuit. A dog thus prepared and fed upon meat dies in three days; when fed upon a diet of bread and milk, the animal lives in excellent health for an indefinite length of time. The urotoxic coefficient of such a dog was found to be increased to nearly three times the normal after the tying of the portal vein, from which the conclusion may be drawn that with a high-protein meat diet the poison-destroying work of the liver and of the body is three times as great as on a low-protein or non-flesh dietary. (Urotoxic coefficient before ligature, .344; after ligature, .902—Pawlow.)

4. *Disease of the Adrenals.*—Authorities agree in regard to the great frequency with which the adrenals are involved in connection with tuberculous affections of the lungs. The relation of these glands to oxidation, to general vital resistance, and to the toxin-destroying functions of the body gives great significance to this fact. Behring showed that blood serum (sheep's) possessed sterilizing properties far superior to those even of the stronger solutions of carbolic acid and corrosive sublimate, which were formerly employed in surgical operations. This property of the blood being, very probably, largely due to the adrenals, as well as the ability of the blood and tissues to oxidize or destroy toxins, it needs no argument to indicate the importance of promoting intestinal asepsis in all possible ways in pulmonary tuberculosis, and especially by avoiding a dietary which must flood the blood and the tissues with toxic products to an extraordinary degree.

5. *Concurrent Disease of the Kidneys.*—Drs. Flick and Walsh state that "nephritis occurs very frequently in tuberculosis." Among the causes they mention the effects of "the toxin excreted through the kidneys from lesions elsewhere." Grancher and Martin produced nephritis in dogs by attempts to establish immunity with increasing doses of tubercle bacilli. "The longer the animal lived and the higher the resistance it attained, the greater were the chances of nephritis." Drs. Flick and Walsh regard nephritis as "one of the complications in tuberculosis most to be dreaded;" and especially "because it is a complication which comes through the very process which leads to recovery, namely, immunization." These eminent observers assert that "many patients with tuberculosis die by way of nephritis as the real cause of death" and indicate as the symptoms pointing toward nephritis, " a pasty skin, unusual fatigue upon slight exertion, shortness of breath, high specific gravity of urine, hyalin and granular casts, albumin, etc."

The Third Annual Report of the Phipps Institute, 1905, contains an exceedingly interesting report by Joseph Walsh of the autopsy findings, from which it appears that 84 per cent. of the cases showed chronic changes in the kidneys. Tuberculosis of the kidneys was observed in 58 per cent., or about two-thirds of the cases in which the kidneys were affected. In the other one-third, the cases were due exclusively to the excessive amount of toxins which the kidneys were compelled to eliminate. The fact that the majority of patients in whom diseases of the kidneys occur are not subjects of tuberculosis affords sufficient evidence that other toxins besides those produced by the tubercle bacillus may be important factors in the production of this condition. That renal disease, both acute and chronic, may result from the absorption of toxins originating from putrefaction in the alimentary canal is no longer doubted. The renal lesions present in various intestinal infections are sufficient evidence of this.

In the face of such facts it would seem to be quite unnecessary to urge the necessity of exercising every possible care to avoid excessively taxing the kidneys, not only by suppressing irritating condiments, the need of which is recognized, but by avoiding any unnecessary increase of nitrogenized wastes, of which the kidney is the chief outlet. A ration furnishing 410 calories, or 100 grams, of protein will demand of the kidneys less than one-third as much work as a dietary supplying 1,200 calories or 300 grams of protein.

In the face of these facts it seems proper to raise the question whether the feeding of large quantities of protein in tuberculosis may not aggravate one of the most grave and incurable of the lesions incident to this malady. Indeed, it is even proper to inquire whether a high-protein dietary may not be very largely responsible for the great number of cases of renal disease observed as a complication of pulmonary tuberculosis. Certainly it cannot be denied, in the face of such evidence as this, that the kidneys must be considered when arranging the bill of fare of the patient suffering from phthisis pulmonalis.

Every modern author on the dietetic treatment of renal disease insists that the amount of work required of the kidneys must be diminished as much as possible, and that hence the proportion of protein should be reduced, and the extractive matters of meats should be especially avoided, and even that the amount of sodium chloride should be reduced

to the minimum. Hutchison urges that flesh foods should be allowed only in very small quantity in renal disease, and advises that the proteins should be "derived largely from vegetable sources." Freidenwald and Ruhrah entirely prohibit strong meat broths and beef teas, and reduce the protein to 30 or 40 grams. They also limit the chloride of sodium and state that "meat should be used cautiously." In chronic interstitial nephritis they advise that the protein ration should be reduced as low as 60 grams.

Hirschfeld emphasized the inability of the diseased kidney to eliminate nitrogen. The diseased kidney is like an obstructed filter. With a diet of 70 grams of albumin a healthy kidney eliminates 10.1 grams of nitrogen, the diseased kidney 9.3 grams. When the albumin ration is increased to 130 grams, the healthy kidney eliminates 14.5 grams, and the diseased kidney only 11.7 grams. When the ration of 130 grams is continued for a few days, the disproportion increases, the diseased kidney eliminating only 12.7 grams, while the healthy kidney eliminates 18.6 grams. Thus the diseased kidney under a ration furnishing 533 calories of protein—considerably less than the amount often given consumptives—is able to eliminate only two-thirds of the nitrogen intake.

It is evident, then, that the consumptive patient who is fed on a high protein diet is thereby not only rendered more liable to fatal hepatic and renal complications, but through the accumulation of the retained products of protein metabolism, all his functions are hindered, and all his tissues are exposed to a damaging influence.

Gautier emphasizes the necessity of reducing, in renal disease, "the toxins and other offensive products to the minimum by diminishing the consumption of the food principle from which they originate (protein). He permits meat in small quantities, 20 grams of protein, and recommends especially bread and cereals, cereal soups, purées of vegetables, potatoes, rice, and all fruits, giving as the reason that "these foods do not produce, or only in very small quantity, urinary toxins." W. Gilman Thompson says, "Whatever views may be entertained in regard to the causation of albuminuria, it is agreed by all that cooked meats, eggs, and highly seasoned foods in general are injurious in all cases." Senator, of Berlin, in cases of serious renal disease, prefers to prescribe only vegetables, salads, fruits, or an exclusive milk diet of two liters per diem. It seems a just conclusion from the facts presented in this paper that the recommendations made in relation to diet in renal disease are equally applicable to the average cases of pulmonary tuberculosis.

If a high protein ration in general is open to suspicion in tuberculosis, a flesh diet is particularly questionable for several reasons:

1. Flesh proteins more readily undergo putrefactive decomposition than do vegetable proteins.

2. Flesh foods as eaten always contain, ready formed, a considerable amount of toxins which have resulted from putrefactive processes which take place in the flesh after killing, while being "ripened" in preparation for the market.

3. Flesh foods always contain multitudes of putrefactive bacteria in active growth, and hence introduce into the intestine an agent in the highest degree calculated to encourage intestinal autointoxication and to aggravate some of the gravest features of the disease. In the early stages of the disease in which hyperhydrochloria frequently exists, the putrefactive bacteria contained in the infected meat may be destroyed by the free hydrochloric acid present; but later on in the disease, when free hydrochloric acid disappears from the gastric secretion, this germicidal action is lost and the billions of putrefactive bacteria which may be swallowed at a single meal pass on into the intestine where they may be able to develop without hindrance, aggravating the toxemia which is produced by the disease itself, thus rendering futile efforts which might otherwise succeed in arresting the disease, and so hastening the patient's demise.

The following table gives the results of careful bacteriological studies made in our clinical research laboratory by Dr. A. W. Nelson:

TABLE VIII

	Specimen	Putrefactive Bacteria Per Gram of Meat	
		When Purchased	After 20 Hours at Room Temp.
No. 1	Large sausage	420,000,000	490,000,000
" 2	Small sausage	663,000,000	640,400,000
" 3	Round steak	560,000,000	840,000,000
" 4	Roast beef	560,000,000	750,000,000
" 5	Smoked ham	43,120,000	[illegible]
" 6	Hamburger steak	129,000,000	[illegible]
" 7	Pork	126,840,000	[illegible]
" 8	Porterhouse steak	30,000,000	[illegible]
" 9	Sirloin steak	578,000,000	[illegible]
" 10	Tenderloin (well done)	25,200,000	[illegible]
" 11	" (rare)	168,000,000	[illegible]

It would seem idle to pay so great attention to the reduction of the bacteria in milk while consuming daily in such enormous quantities bacteria of a much more noxious character. The bacteria of milk are for the most part aërobes which form harmless acids, while the putrid bacteria which abound in meat are toxin formers and capable of establishing themselves in the intestines and continuing to thrive there at the expense of undigested proteins. It is apparent, then, that a double injury must result from the ingestion of large quantities of flesh foods. There is not only introduced a surplus of protein which cannot be utilized, and which is allowed to undergo putrefaction, but along with the protein are introduced putrefactive organisms already in a state of active growth.

While the writer is not a specialist in the treatment of pulmonary tuberculosis, he has during the last thirty-two years had constantly cases of this sort under his care, and has had considerable opportunity to observe the clinical effects of both a low-protein and a high-protein dietary. Without burdening this paper with reports or with elaborate statistics, it may be stated that a very considerable number of patients have been seen to make good recoveries from well pronounced tuberculous disease of the lungs on a dietary which furnished not more than 300 calories of protein in the form of eggs, milk, and vegetable protein, and often less. On the other hand, there has frequently been a rise of temperature and an aggravation of other symptoms when a digression was made to a diet of flesh foods such as beefsteak, etc. Several times patients have come under our care who had been subjected to forced feeding with disastrous results. The enthusiastic advocacy of forced feeding by Débove, Broca, and Dujardin-Beaumetz, and the slavish way in which for a time the example of these clinicians was followed, has led in not a few instances to most disastrous results. The chief evils of these large dietaries doubtless result from the excess of protein and fats. The excess of protein encourages intestinal decomposition as do also the fats, while fats

inhibit the gastric secretion of hydrochloric acid and thus interfere with both the digestion and the disinfection of the excess of proteins, and so still further promote intestinal autointoxication. Lawrason Brown, in Osler's "Modern Medicine," especially warns against an excess of proteins.

Bardswell and Chapman found that "patients make much less satisfactory progress on the very large diets than on diets of considerably smaller nutritive value." The same investigators observed that "any considerable increase in the protein in the diet produced a disproportionate excretion of nitrogen, an increase in the amount of imperfectly oxidized proteins in the urine, a decrease in the percentage of nitrogen absorbed, and an increase in the amount of aromatic sulphates excreted, indicating increased intestinal putrefaction." These authors conclude that the most satisfactory diet for the consumptive "is one which represents only a moderate increase of a diet suitable for him in ordinary health." They recommend a diet consisting of "120 grams of protein, 180 grams of fat, 300 grams of carbohydrates." A smaller amount of protein will still further diminish the intestinal putrefactions, and the writer believes will secure even better results. Advantage will be found in employing vegetable proteins instead of animal proteins, because of their more ready digestibility when presented in the proper form, their absolute freedom from bacteria, and the less readiness with which they undergo putrefaction. Wheat glutens and the vegetable proteins of peas, beans, lentils, and nuts, are readily available, and when properly served are easily digested and readily absorbed.

Dr. Lawrason Brown notes in his admirable article on the treatment of tuberculosis in Osler's "Modern Medicine" that the method of forced alimentation rarely yields permanent success, and also warns against the use of foods which are likely "to give rise to toxic action of the liver and kidneys." If meats are not to be included in the class of foods which "encourage toxic effects upon the liver and kidneys" and hence must be avoided, unusual care must be taken in their preparation. The meat should be cooked as quickly as possible after the animal is killed, and should be eaten within a day or two unless kept at freezing temperature. In no other way can the putrefactive processes which begin almost immediately after death be prevented. The ordinary cooking temperature does not destroy the spore-bearing bacteria. The temperature of the interior of a portion of meat seldom reaches the boiling point during cooking. A meat diet invariably increases intestinal autointoxication.

As regards plant proteins and flesh proteins, my observation has been that consumptives, when taking a non-flesh dietary, frequently experience an elevation of temperature and an aggravation of symptoms on changing to a mixed diet.

At the time of this writing I have under my care a patient who was recently discharged from an excellent sanatorium where he was apparently cured of pulmonary tuberculosis, but is suffering very seriously from intestinal autointoxication as the result of a high-protein flesh diet. He is rapidly improving under a low-protein dietary.

Mr. Horace Fletcher and others have shown the essential importance of thorough mastication, not only as a means of securing good digestion and assimilation of food, but as a means of regulating the proportion of food principles. The effect of thorough chewing or Fletcherizing of the food is, in general, to reduce the amount of protein ingested. This seems to be the natural result of giving the gustatory nerves a chance to act in conjunction with the psychic centers which are associated with the digestive process. The nerves of taste seem to be an admirably accurate regulator of nutrition in health, and not infrequently in diseased conditions the suggestions of this ever alert monitor cannot be with safety altogether ignored. If the appetite craves protein, then protein is doubtless needed to satisfy the body needs.

The main facts presented in this paper may be briefly summarized as follows:

1. A low protein dietary, .80 to 1.00 gram of albumin per kilogram of body weight per diem, is entirely consistent with health, vigor, and a high degree of efficiency and endurance in health.

2. While a patient suffering from pulmonary tuberculosis doubtless requires a small increase in the intake of nitrogen, an excessive increase involves grave dangers to the patient, both (*a*) by decreasing his general vital resistance, and (*b*) by imposing unnecessary and dangerous burdens upon the liver, kidneys, thyroid, and other organs which are already overburdened and often seriously crippled in this disease.

3. There is no evidence that a larger proportion of consumptives recover under a high protein diet than under a protein ration sufficiently above the Chittenden standard to replace the nitrogen loss due to febrile conditions in certain states of the disease.

4. The majority of consumptives die from disease of the liver and kidneys. The toxins peculiar to this malady and to the process of immunization against tuberculous disease, while tending to cure the latter, tend at the same time to produce disease of the kidneys, and to such a degree that patients not infrequently die of renal disease after having apparently recovered from tuberculous disease.

5. In consumption the organism is required to deal with various highly virulent poisons which overstimulate and ultimately cripple or destroy the thyroid, adrenals, liver, and other antitoxic organs. A high protein diet produces similar effects in healthy animals and persons, and destroys life in animals whose poison-destroying functions are seriously impaired.

6. A high protein diet is recognized as an important factor in the causation of renal disease and is universally condemned in grave affections of the liver and kidneys. Vegetable proteins are much less objectionable than flesh proteins for the reason that they are entirely free from toxins and very much less readily undergo putrefactive changes in the intestine.

It readily appears to the writer that the logical and inevitable conclusion from these facts is that a high protein dietary is not only unnecessary but injurious, and even dangerous, in the treatment of phthisis pulmonalis, and that vegetable proteins may be with advantage largely substituted for flesh proteins in the dietetic management of this malady.

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CHOLECYSTECTOMY VS. CHOLECYSTOTOMY.*

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An article by me, titled "Cholecystectomy: With a report of twenty-seven cases," was published in the *New York Medical Journal*, February 24, 1906, from which the following is taken: "That one can exist without a functionating gall-bladder is a well known fact, proved many times by the autopsy and operating-table findings. In many gall-bladders the cystic duct is occluded by stone, exudate, kink, etc., so that the storehouse function of this viscus has not been carried on for months or years. Given this as a fact when one has a case of cholecystitis, or disease of the gall-bladder in which time as a curative agent cannot be relied upon, or when the condition is a menace to life, our judgment should demand the removal of this organ. Cholecystectomy has been, and is yet considered by many, an operation of choice only when marked gangrene, or malignancy of the bladder is present."

The following indications and contraindications for cholecystectomy were included in the same article: "Indications: Perforations by trauma; ulceration other than due to abscess or gangrene (see case of typhoidal perforation); obliteration, or stricture of the cystic duct; chronic cholecystitis with thickened walls; atrophy; gangrene; acute suppuration; enlargement by dilatation; these latter are usually due to either calculus obstructions, strictures or angulations of the gall-bladder, etc.; marked adhesions; hourglass contractions; chronic or recurring cholecystitis, or cholelithiasis and malignancy."

*Read before the Academy of Medicine, November 5, 1908.

"Contraindications: Apparently healthy bladder in cholelithiasis and pericholecystitis; perforations into other viscera, when difficulty of closure of the anastomosis is great; perforations in the suppurative variety when adhesions are extensive, and where life would be jeopardized by such radical interference; malignancy when extensive, and those cases where hurried operation is indicated to save life."

While adhering to these views in the main I am not so radical now, and consider the cases more closely before performing cholecystectomy. The reasons for this change are, one, a distinctly surgical one of convenience, that occasionally one must do a secondary operation upon the common duct, either for an overlooked stone or for a stone that has been concealed or formed in the liver which comes down, necessitating either a choledochotomy or leaving the patient a chronic invalid in case the stone does not pass. When such secondary operation is called for one has lost, in the absence of the bladder, the anatomical landmark to the duct, and we are compelled to do the most tedious and delicate adhesion dissection work conceivable. Upon two occasions this lot fell to me in cases that I personally had operated upon, in both of which it is but fair to say that cholecystectomy was done for gangrene, one in a girl of seventeen in whom I practiced hepatic lavage, when numerous small stones and much sandy material was ejected from the hepatic ducts with each washing, and in which instances the prospect of secondary work was predicted. The other was a male patient with a badly infected gall-bladder, enormously enlarged, thickened, and filled with stones, in whom we palpated the common duct with unusual diligence. Both myself and my associate felt that none were present in the duct, but some eight or ten months later colic was again in evidence, and about eighteen months later a secondary operation, choledochotomy, was done, removing a stone three-quarters of an inch long by fully one-quarter inch wide. The inconvenience and hazard of this operation can only be appreciated by a like experience at the hands of any operator.

Another reason is that occasionally, when necessary to do a secondary operation upon other of the abdominal viscera or a secondary operation upon the duct, it has been observed that a pseudo gall-bladder is formed by a dilatation or diverticulum formation of the duct, disproving to a degree that we can all do without our gall-bladders or allied storehouses, for the excess of bile formed during intervals of digestion.

Fortunately so far I cannot reproach myself for secondary work upon any case of cholecystectomy upon a slightly thickened, etc., gall-bladder of the variety that I am now prone to do a cholecystotomy upon. Cholecystotomy also has its secondary operative aspects, and these are, the possibilities of reinfection without stone, or the reformation of stone. I can also say here that, fortunately, so far I have had to do no secondary work upon cases of cholecystotomy done by me, although such cases may have gone to other operators, as one has recently come to me after an operation by another surgeon.

The question of cholesystectomy and cholecystotomy very naturally arises chiefly in the cases of acute cholecystitis, and in a certain percentage only of chronic gall-bladder cases, where upon opening the abdomen the gall-bladder is found atrophied or contracted, thickened with or without calcareous

degeneration, and when the cystic duct, by whatever means, has been occluded, resulting in a hydrops of the gall-bladder, while in cases of malignancy the question is, cholecystectomy, etc., or closure of the abdomen without interference.

In the acute cases that I see the first consideration is for the patient's recovery from the operation. Should his condition be one that demands a rapid operation, and the bladder is gangrenous, I feel that a few minutes more of operative procedure will justify a cholecystectomy, as the danger of infection, sloughing, and hemorrhage is removed with a smaller risk than is taken by leaving the diseased viscus for the above possibilities, added to those of a second operation when the patient is apparently healthy.

Should the condition be grave, and only a thickened gall-bladder with infection be present, the removal of the bladder contents only is done; this latter step, of course, including necessary cystic and common-duct work if called for.

Where no great consideration of time and shock as a factor arises I do a cholecystectomy if the bladder wall is friable, very thick, the bladder markedly elongated and thick, spot patches of gangrene or grayish white slough seen quite frequently in numbers of my cases, partial, *i. e.* a large area of gangrene, or complete gangrenous destruction. Also if upon opening the gall-bladder isolated areas of the entire field of mucous membrane be gangrenous. In these cases if cholecystectomy is not done a fair hypothesis of subsequent adhesive exclusion of the gall-bladder can be advanced. I do not feel, with one of our mid-western operators, that cholecystectomy is not advisable in these cases, he stating at one of his clinical lectures that his custom was to keep the gall-bladder open for weeks, using an endoscope frequently, to see the healthy granulations springing up in the bladder, and that safe closure could take place as soon as such healthy granulations had covered over all former necrotic areas."

Evidence of calcareous degeneration in an acute cholecystitis also calls for a cholecystectomy. This condition was encountered twice in my series.

Acute cholecystitis in cases of old contracted gall-bladders demand cholecystectomy, as they are simply old smoldering foci for repeated attacks, and a cholecystotomy in these cases is of no more than a temporary benefit. Cases where the gall-bladder is acutely inflamed, and the bladder distended, the walls not over thick nor infiltrated, with no mucous membrane destruction by gangrene or ulceration, I am now prone to drain.

Ulceration perforations of the gall-bladder, such as occasionally occur in typhoid, etc., and gunshot, and other wounds with great laceration, should have the radical operation done instead of attempts at closure, as in these cases the danger of leakage, tearing out of sutures, etc., is greater than in the now discarded cholecystendese, or ideal cholecystotomy.

Malignancy. Finesse of judgment as to to our procedure in these cases can be obtained only by experience. Shall we do a cholecystectomy, or close the abdomen, leaving the patient his sure and inevitable death by this disease?

Four cases of malignancy were seen by me. One opened and closed, died within six weeks. One with a partial removal, accidental, died in four days. One with a cholecystotomy, also accidental, while attempting to orient myself, died in three days. The other, a cholecystectomy for gangrene with a profound malignant invasion of the common duct, drainage of the hepatic being done, died in three days, death being due to uraemia. No anastomosis was possible here, as we had a carcinosis extending into the hepatic duct just above its junction with the cystic. The drainage into the hepatic was made with a view of relieving the patient of a cholemia and intense jaundice, in hopes that some subsequent device or treatment could be used for the biliary leakage.

As a result of these four cases, although a small number for a conclusive argument, I shall be inclined to close the abdomen in every case, except in those of the slightest invasion, and even then in those cases only where the growth removal would be accompanied with the sense of completeness justifying a prognosis of relatively little danger of return.

Cases operated upon. In twenty-six cholecystotomies out of a hundred and four operative cases of all kinds considered in this paper one case is recorded of death due to a malignancy.

There were fifty-three cholecystectomies, with three deaths; one a malignancy; one a case of four previous operations by other surgeons, the fifth being done by myself, including drainage for multiple abscess of the liver; and the third due to gastro-mesenteric ileus.

Excluding the malignancies in both operative procedures and the case of multiple abscess, in all of which a mortality was inevitable, we have a record of twenty-five cholecystotomies with no deaths, and fifty-one cholecystectomies with one death, or less than two per cent. These fifty-one cases included associated appendectomies, subphrenic abscesses, two pregancies and one post-partum in the second week, making a decidedly complicated set of operations.

There was one case of cholecystotomy with choledochotomy, with recovery. There were twenty cholecystectomies with choledochotomies with five deaths, one a malignancy, leaving nineteen cases with four deaths. One of these died of inanition after the eighth day. This patient was suffering from exhaustion and inanition, due to a large number of stones in her gall-bladder and common duct. Her post-operative condition was perfect except for the fact of a progressive exhaustion.

A third death in this series was a male patient, fifty-three, with marked obstructive jaundice; comatose at the time of the operation; death from anuria. The fourth death in this series was also due to anuria, the patient passing but twelve drachms of urine in twenty-six hours.

Choledochotomy was done in four cases; no deaths. This series of cases therefore, by excluding three malignancies and one of multiple hepatic abscess, consists of one hundred cases operated upon, with seven deaths, none of which occurred in twenty-five cholecystotomies, and only one in fifty-one cholecystectomies. The difference here is of really no value as a factor for consideration of the choice of cholecystotomy, as it must be remembered that the majority of the cholecystectomies were serious cases; acute, gangrenous, and complicated with other conditions, two pregnancies and one post-partum (?) in the second week, two with hysterectomies (both recovered); etc., etc., while the cholecystotomies were done in practically each instance in a relatively clean case.

A summary of the cases of cholecystotomy and cholecystectomy with those in which additional duct work was done will show that out of the hundred

considered, excluding the malignancies and the one of multiple abscess of the liver, cholecystotomy was done twenty-five times, cholecystotomy with choledochotomy once, making twenty-six cases without a death. Cholecystectomy was done fifty-one times with one death, and cholecystectomy with choledochotomy nineteen times with four deaths, a total of seventy cases with five deaths.

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THE DIAGNOSTIC USE OF TUBERCULIN WITH SPECIAL REFERENCE TO THE CUTANEOUS AND PERCUTANEOUS TESTS.*

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That tuberculin is a safe and valuable aid to diagnosis is not appreciated by the profession at large. There exists in the minds of many a natural aversion to the use of a substance made from tubercle bacilli. Some, remembering the disastrous results which followed its early therapeutic use, before the correct dosage has been determined, consider it a distinctly dangerous substance, capable of lighting up an old inactive lesion, or of increasing an already active one. Others fear that possibly tuberculosis might be given to one free from the disease.

That large doses of tuberculin, given indiscriminately, will do harm no one denies. Of course, if one give a patient with Addison's disease an initial dose of 7 mg., as has recently been reported, the patient will die; and so he would were he to receive a grain or two of strychnine. But that a small amount in proper cases is harmful, is refuted by Trudeau, Osler, Cornet, Koch, and a host of others who have had a wide experience with it; Koch alone reporting 3,000 tests with "no disadvantageous results."

The fear that tuberculin might cause tuberculosis is due to a misunderstanding as to what the tuberculin used for diagnosis consists. This particular variety, known as old tuberculin (T. O.), is the glycerin extract made from cultures of human bacilli which have been evaporated by heat to 1/10 their original volume. These dead bacilli are then removed by filtration and the filtrate is the part used. Wolf-Eisner is of the opinion that the action of tuberculin is due to the presence of the bodies of bacilli, either whole or in fragments, which pass through the filter. Lysin substances present in the tuberculous individual liberate the toxins from the fragments of the baccili, causing a tuberculin reaction. Hamburger[1] has demonstrated that large amounts have no untoward effect on individuals free from tuberculosis. He injected forty-three children who were negative to the skin test, with amounts of old tuberculin varying from 10 mg. to 100 mg., and in no case was the slightest general reaction obtained. One girl of six years received as much as 500 mg.

The methods of administration are the subcutaneous, cutaneous, percutaneous, and conjunctival. Until recently the first has been the one most used. In using the subcutaneous test I proceed as follows: After the temperature has been taken for a week and found to be below 100° (mouth), an initial dose of less than 1 mg.—usually .25 to .5 mg.—is given about [illegible]. In very nervous it is well to give an injection of saline solution the day previous to the test. On the morning following the tuberculin injection the temperature is taken at 6 o'clock and every two hours thereafter for the next forty hours, unless a reaction develops before.

A typical reaction coming on in a little from twelve to twenty-four hours, consists of headache, malaise, pains in the limbs, and sometimes nausea and vomiting. A rise of temperature of 2 degrees or more almost always accompanies the general reaction, and a certain amount of local reaction, consisting of redness, swelling, and tenderness, is regularly present at the site of injection. A local reaction in the lung, consisting of an increase of râles, or their appearance where previously absent, occurs in some cases and proves the case to be

Cutaneous Test of von Pirquet, showing three degrees of early reactions. "a" is a moderate reaction, "b" "strong reaction" and "c" "very strong." All were children in their early teens. a and c were not clinically tuberculous; b had an enlarged cervical gland considered tuberculous.

tuberculosis. This local reaction in the lung not only is harmless, but sometimes appears to be beneficial.

No reaction resulting from the first dose, 1, 3, 5, 7, and 10 mg. may be given at intervals of three or four days, though the clinical import of a reaction from 7 to 10 mg. is much less than that obtained from a smaller dose. When the reaction from the first dose is indefinite, the repetition of the dose will frequently give a positive result. The disadvantages of this method are (1) it is not applicable to fever cases; (2) a week or more is sometimes required to complete the test; (3) the patient feels miserable for a day or two; (4) it requires the frequent taking of the temperature.

The contraindications, as given by Brown, are a temperature of 100°, extensive physical signs, great dyspnea, hemoptysis within a month; general glandular involvement, meningitis, kidney and heart disease and epilepsy.

*Read at the semi-annual meeting of the Hartford County Medical Society, held in Hartford October 27, 1908.

The Conjunctival Test.—This was devised independently by Wolff-Eisner and Calmette. It consists in the sensitiveness of the conjunctival mucous membrane of tuberculous individuals to the instillation of tuberculin into the eye. A 1 per cent solution of old tuberculin freshly made with physiological salt solution has been found to be as satisfactory as the more difficultly made preparation used by Calmette. In about 87 per cent of the cases of clinical tuberculosis, and in 15 per cent of non-suspects, injection of conjunctiva occurs within twenty-four hours. It is usually more marked on the palpebral than on the ocular conjunctiva, though both may be deeply injected when the reaction is severe. In the latter type of reactions a seropurulent discharge is present and itching and photophobia are complained of. Occasionally a mild general reaction is met with. Calmette[2] reports 6,303 tests with three cases of keratitis resulting, also 20 of conjunctivitis, and a prolonged reaction lasting beyond three weeks in 72 cases, but "no grave disturbance or permanent ocular lesions." Wolff-Eisner[3] is highly satisfied after using it in 2,500 cases. In 1,087 tests Baldwin[4] reports keratitis occurring once in a scrofulous patient and a reaction lasting over 5 days in 10 cases.

In 28 tests I have had one sharp reaction lasting over 10 days as the result of using the second solution in the other eye at the end of 24 hours rather than at the expiration of 48 hours. No harm resulted in this case, but a mild recurrence of the reaction was noted a year later following the subcutaneous injection of .0000005 of bouillon filtré (Denys' tuberculin). A number of cases have been reported, however, where serious lesions resulting in impairment of vision have occurred. Some of these cases were due to its employment where it was clearly contraindicated, and in certain others mistakes have been made in the dilutions. Thus one German firm is reported having marketed a 10 per cent. solution labeled 1 per cent.[5]

There are, nevertheless, a sufficient number of cases on record where its apparent careful use resulted disastrously, to make one use the test with considerable hesitation. Then, too, Baldwin concludes that it is of "little value where the symptoms of tuberculosis lead only to a suspicion." I have given up the test for the above reasons and because the cutaneous test, as now used, seems to be of about as much value. The conjunctival test should never be used in scrofulous patients or where a conjunctivitis or iritis exists, or has existed.

Cutaneous Test.—This was devised by von Pirquet and in contradistinction to the conjunctival test is absolutely harmless. On the other hand, healed lesions react to it much oftener than to the latter. Yet the percentage of reactions is not much higher than is obtained from large doses used subcutaneously. Franz found that 60 per cent. of apparently healthy army recruits reacted to the subcutaneous test. Madison found that 40 per cent. of 400 women insane patients reacted to 10 mg. or less. Von Pirquet at first employed a 25 per cent. solution of old tuberculin, but more recently he has been using it undiluted. The test as given by v. Pirquet is as follows: The flexor surface of the forearm is cleaned with ether and two drops of tuberculin are placed thereon, about three inches apart. The skin is drawn tight by grasping the arm from underneath with the left hand. A scarification is then made midway between the drops, and next in the center of each drop. The excess of tuberculin is removed with absorbent cotton. Nothing is placed on the control. Pirquet estimates that about 1/100 mg. is absorbed. The scarification is best done with a small, rather dull chisel-shaped instrument, which, when rapidly revolved between the thumb and finger, makes a cup-shaped abrasion about 1 mm. in diameter. While a needle may be used as in ordinary vaccination, the special scarifier is to be preferred as the resulting papule is circular in outline, and accordingly easier to measure. The most satisfactory results are obtained when the instrument is revolving rapidly at the moment it comes in contact with the skin. The resulting abrasion is slight and should not be deep enough to draw blood. Usually at the end of twenty-four hours, if the reaction is positive, a red papule appears at the point of vaccination. A mild reaction looks considerably like a mosquito bite with a small central depression. In a few of my cases the papule was surrounded by a hyperemic area several millimeters in diameter. In these cases the papule was elevated, glassy, and hard, presenting a crater-like appearance. In two cases a few very small vesicles were present in the hyperemic area. This is shown on the middle arm in the accompanying illustration, which is the arm of a boy with a large cervical gland. A slight constitutional reaction was present in this case. Reactions occurring by the end of twenty-four hours v. Pirquet calls "early reactions," and considers that the infection has taken place in later years. Those appearing after this he designates as the "late reactions." He has noted that in most of the clinically tuberculous with good "reactivity," the papule reaches considerable size by the end of twenty-four hours, being from 12 to 15 mm. in diameter. The maximum size is generally reached on the second day. In "larval" tuberculosis the diameter is apt to be somewhat less. In healed tuberculosis the papule may not appear until the third or fourth day, or not at all unless the patient is revaccinated a week later. When time is an object, this delay of a week can be avoided by Hamburger's method, which consists in the subcutaneous injection of 1 mg., when the skin test is negative at the end of twenty-four hours. No reaction taking place at the site of injection by the day following, tuberculosis can be excluded. A local reaction, when slight, is best detected by pinching up the skin between the thumb and finger and comparing it with the adjacent skin. It is said that a constitutional reaction never follows the subcutaneous use of 1 mg. in cases in which the cutaneous test has been found to be negative.

Advanced cases react slightly or not at all. The reaction in this class of cases may be very faint, early in appearance, and quickly subsiding. The finger can sometimes detect a reaction that is not visible. These evanescent reactions are a grave prognostic sign, while conversely the late-appearing and persistent ones are regarded by Wolff-Eisner as an indication of a healed lesion. The degree of the reaction is a measure of the patient's resistance, and a strong early persisting reaction indicates "the possibility of victory." It has nothing to do with the amount of lung involved and a slight, quickly disappearing reaction, even though the amount of lung involved is small, is regarded by Wolf-Eisner as a bad omen. He has seen several such cases in which the disease steadily progressed. The strongest reactions were in non-suspects.

My experience with the cutaneous test comprises its use in 300 cases, divided as follows:

TABLE 1.—COMPARISON OF THE RESULTS OF THE CUTANEOUS AND PERCUTANEOUS METHODS.

	Cutaneous (Pirquet)		Percutaneous (Moro)	
	No.	Percent positive	No.	Percent positive
1. Clinical Tuberculosis, all forms	47	87	34	71
Pulmonary, Stage I	6	100	13	77
" Stage II	12	100	5	60
" Stage III	9	44	8	25
Tuberculous, glands	3	100	5	80
" bones	6	100	5	80
" peritoneum	1	100	1	100
2. Tuberculosis suspected	22	72	28	61
3. a Tuberculosis not suspected, and no history of infection in the past	220	29	38	11
b Tuberculosis not suspected, but past history suggests previous infection	13	100	14	43
a and b together	233	34	52	25
4. Native Filipinos	8	75		

TABLE 2.—CLINICALLY NEW TUBERCULOSIS CASES CLASSIFIED ACCORDING TO AGE.

Number	Age	Percent. positive
10	0 to 2	0
41	3 to 5	17
143	3 to 10	33
44	11 to 15	25
*41	16 upward	20

*These 41 include classes *a* and *b* above. Excluding *b* the percentage is 40. Wolf-Eisner obtained positive reactions in 50 per cent. of non-suspects.

Von Pirquet found that children of two years and under do not react unless clinically tuberculous, but that after two years the percentage rapidly increases until at ten it reaches 70 per cent. This agrees with Comby's autopsy statistics for the corresponding ages, which gives a percentage of 65 at the tenth year. Pirquet thinks that a lower percentage probably prevails elsewhere, as the hygienic conditions of the poor in Vienna are very bad. Had it been possible for me to have revaccinated all my negative cases my percentage of positive reaction would probably have been slightly higher.

A large part of the material for this investigation was very kindly furnished me by Drs. Lampson, Simpson, and Wilson, from the Orphans' Home, the Newington Home for Incurable Children, and from the Deaf and Dumb Asylum. A few kindergarten children were tested through the courtesy of Miss Giddings. The remainder were private and dispensary patients.

Eight full-blooded Filipinos, Igorote tribe, who had been on exhibition in England and America for eight months were tested and six reacted. This was a surprise, as they seemed to be in perfect health, and their life in the open air seemed ideal. Investigation showed, however, that they are inveterate smokers of cigar butts picked from the ground, or handed them by visitors. Then, too, they sleep in huts which are kept tightly shut to keep out evil spirits, and though they wear only a breech cloth while on exhibition, at other times they dress comfortably. Two showed some retraction at the apices.

About 100 individuals were tested with 5, 10, and 100 per cent. tuberculin with the view of ascertaining the minimum per cent. to which active and healed lesions would respectively react. In general, old lesions do not react to 10 per cent., and most with active trouble react to 2 per cent. or 5 per cent. This is not absolute, however. Pirquet states that it is not necessary to use different strengths, as much information can be obtained from measuring the diameter of the papule. This was done in about two-thirds of my cases and the procedure seems of value. Of the clinically non-tuberculous who reacted, the papule rarely reached 15 mm. at the end of twenty-four hours, but in 10 per cent. (mostly children), it attained that size by the second day. Of the children who reacted, a number had unhealthy tonsils or adenoids, some looked frail and many looked perfectly well. In fact, one of the most marked reactions occurred in an adult seemingly in the best of health, who had had a very slight cough for two weeks. This demonstrates that a positive reaction without symptoms does not constitute clinical tuberculosis, and that in adults a negative reaction is of more significance than a positive one.

An opinion as to the probable import of a reaction should never be given until a careful history has been obtained and a thorough physical examination made.

If there is nothing in the past history pointing to a previous tuberculous infection of any sort, and the patient has symptoms suggestive of tuberculosis, a strong "early" reaction makes the diagnosis of tuberculosis extremely probable. While a history of previous tuberculous disease increases the probability of the present trouble being tuberculous, it also lessens the significance of a positive reaction *per se*. This is conclusively shown by the 100 per cent. of positive reactions in thirteen such cases. One cannot, however, exclude tuberculosis simply because the papule is small. On scaly skins it is apt to be considerably less than 15 mm. When one is in doubt as to the meaning of a mild reaction the subcutaneous test should be used.

In bone disease and cervical adenitis tuberculin should be used much more than it is. The local reaction in the bone or gland, as the case may be, following the subcutaneous test settles all doubt.

Percutaneous Test.—Several modifications of the Pirquet test have been suggested. Lignières rubs in several drops of tuberculin over an area of skin previously shaved and cleaned. Moro uses an ointment of equal parts old tuberculin and anhydrous lanolin. A piece about the size of a pea is rubbed in over an area of 4 square inches. If the reaction is positive, small papule appear within from twenty-four to forty-eight hours over the area anointed and adjacent thereunto. The reaction has even been observed over the corresponding side of the body, which leads Moro to believe that it is a vasomotor phenomenon. The papules vary in number from two or three to fifty or more and may be pale and indistinct or bright red with some vesiculation. They as a rule dry up within two weeks. Itching is present when the reaction is strong. Moro considers it as valuable in children as the Pirquet test and more valuable in adults, as fewer non-suspects react.

I have observed it in 107 cases, controlling it in 61 with the cutaneous test. The results can be seen in Table No. 1.

Moro's contention that non-suspects react less often to his test than to the cutaneous is borne out by my experience, the percentage with the former being about that obtained with the conjunctival test. One infant suspected of having general tuberculosis gave no cutaneous reaction to two tests, but each time had a rise of temperature of over 102—as the child has steadily improved the condition was probably marasmus rather than tuberculosis. It would seem that the dosage by this method must vary widely, depending upon the power of absorption through the skin, the amount of ointment used, and the thoroughness with which it is rubbed in. Pulmonary tuberculosis does not react as readily

as other forms and for that reason, possibly, Moro has recently advocated using 5 c.c. of tuberculin to 4 gm. of lanolin. The 13 first-stage cases given this test were mostly "pretuberculous" and a few might perhaps have been classed with "suspected cases." Only 60 per cent. of the second-stage cases reacted, while with the cutaneous test all was positive. The Moro test does not appear to be reliable in adults with pulmonary tuberculosis, but in children, especially in bone and gland disease, it seems about equal to the v. Pirquet test. Its disadvantages are that it takes longer to administer, and does not appear to afford as much help in differentiating between an active and inactive process as the cutaneous test when the diameter of the reactionary papule is considered. Some cases which at first give a negative response to the test will react if it be repeated.

Detre's Differential Test.—The author uses a drop each of human and bovine filtrate and old tuberculin. Both human and bovine infections react to the T. O., and when it is a mixed infection both the human and bovine filtrate react. When but one type of bacillus is present Detre asserts that a reaction will occur only at the point innoculated with that variety of virus. Should further investigation substantiate these claims, it would have an immense prophylactic as well as therapeutic value. But inasmuch as Detre does not standardize his filtrates, and has given no reports of autopsies substantiating his claims, the test must be conceded to be still *sub judice*.

The cutaneous test is simple, safe, painless, and quickly performed. The undiluted tuberculin keeps indefinitely and is conveniently dropped from a dropping bottle. The ointment will keep for months if in a cool place. We now have a means of detecting tuberculosis in children of two years and under which practically never fails. My experience demonstrates its practicability and value in institutions, kindergartens, schools, and dispensaries as well as in private practice. One hundred children can be given the test in an hour. Children who react should be examined for enlarged tonsils, adenoids, and enlarged cervical glands. Grancher found that 15 per cent. of over 4,000 school children examined in the Paris schools were tuberculous or strongly suspicious. The school nurse should investigate the home conditions of those who react and usually an open case of tuberculosis will be found. Should the child be frail, but not clinically tuberculous, half a day in school with the rest of the time out of doors, with a plentiful supply of fresh air at night, might be all that would be necessary to make a sturdy youth out of one who in the natural course of events would become a tuberculous invalid.

The cutaneous test is the most important addition to tuberculosis work since the discovery of the bacillus. It has vast statistical value, and when used understandingly will prove a material aid in diagnosis and prognosis.

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THE TREATMENT OF ERYSIPELAS BY MEANS OF CARBOLIC ACID AND ALCOHOL.

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There is probably no disease in the realms of surgery or medicine for which a greater number of remedies has at one time or other been proposed and rejected than for erysipelas; and, as in other diseases where a multiplicity of remedies are offered us, their efficiency is usually in inverse proportion to their number. The use of carbolic acid in the treatment of various inflammatory conditions has been exploited from time to time for a number of years, with a considerable amount of success in individual cases.

About eight years ago we began, in our clinic, to treat all cases of erysipelas by the method to be described, and since the first case so treated, we have seldom failed of a satisfactory result and have discarded all other remedies in the treatment of these cases. Up to the present time our statistics show eighty-two cases treated, with five failures, ten delayed recoveries, and sixty-seven complete remission of symptoms in from twelve hours to four days. These cases have included not only the beginning stages of facial and other forms of erysipelas, but those in the advanced stages, where the area involved has varied from the face only to the face, scalp, and with marked general septemic symptoms.

Almost the first result noticed by the patient is a complete cessation of the unendurable itching, burning, and throbbing. Usually within a few hours the nausea, if such is present, subsides, and within twenty-four hours the temperature sinks to normal, the pulse very rapidly falls in the severe cases from 120 degrees or more to nearly normal, the appetite returns, and, except for the diminished swelling, which remains for twenty-four or forty-eight hours longer, the patient is relieved from his distressing symptoms.

Technique of the Method.—This consists of painting with a swab of cotton the entire surface of the involved area, and extending about a half inch into the surrounding apparently healthy skin, with a 95 per cent. carbolic solution. This is left until the purplish color of the inflamed area is replaced by a pretty complete whitening of the skin. It is essential to the success of the procedure that we await this whitening before we proceed to the next step in the operation. On the other hand, if we allow the whitening to proceed to a thorough blanching, we shall produce a burn and a slough of the skin, which will prove painful to our patient and add nothing to the efficiency. Where we have large areas involved, it is advisable that only a portion be painted at a time. The second step consists in going over the whitened area very thoroughly with a second swab saturated with pure alcohol. If this swabbing is done thoroughly, the whitened area becomes once more pink, and the alcohol must be laid on until this is accomplished. After this we proceed with other areas with the carbolic, neutralizing with alcohol, until our operation is complete. It is essential that we should include a half inch of the apparently sound skin, as the bacteria of erysipelas are found beyond the apparently involved area. In some of our first cases treated we neglected this

precaution, and found in twenty-four hours that, while we had completely controlled the initially inflamed area, a ring of newly inflamed tissue extended out in all directions beyond, much as an advancing ringworm extends. Our method includes the painting of the hairy scalp, the eyelids, the mucous membrane of the alæ of the nose, and the nipple of the breast, if necessary. We have failed to note any evil result from its use. There has been no toxic action of the carbolic in any case so far observed, although the urine is sometimes darkened and of characteristic odor. The temperature rapidly falls, and, in severe cases, it is frequently necessary to support the patient with stimulation of strychnine and whiskey.

In looking over our statistics, it has been interesting to observe that, in the majority of cases of failure, our patients have been young children. These have also been the cases in which we have had the greatest number of symptoms of absorption of carbolic, and we suppose it may be due to the more delicate texture and more rapid absorbing power of the skin in these young patients.

An observation made in one of our earlier cases may prove interesting. This was a recurrent, postoperative case of tuberculous osteomyelitis of the tibia in which erysipelas developed. When I saw this case in consultation, the patient, a girl of thirteen, was suffering from an inflammation involving the entire leg and part of the thigh. The parts were tremendously swollen, patient had a temperature of 106°, was delirious, had had nausea and vomiting, and an imperceptible pulse. I suggested that, as the patient was apparently nearly moribund, it would do no harm to try this treatment, and that we might obtain some benefit. Much to my surprise, the following morning I was called on the telephone by the physician in charge, who informed me that the patient had a subnormal temperature, that the pulse was nearly normal, the child was asking for food, also that he had been stimulating since early in the morning with large doses of whiskey and strychnine. The child made an uninterrupted recovery, and, curiously enough, the area of tuberculous osteomyelitis, which involved nearly two-thirds of the tibia, promptly healed, and the patient has remained well to this day.

Another case showing the fearlessness with which this method may be used occurred in a young woman of social position, very beautiful, of the thin-skinned, blonde type. When I first saw the patient, after forty-eight hours, both eyes were closed, the lips were swollen until the nose was blocked, the ears were about twice the normal size, and the erysipelatoid area had included the scalp, the eyelids, the neck, and the breast. To the horror of the family physician, I painted the entire area at one sitting, painting and carefully neutralizing with alcohol in small sections. The time consumed to do this effectually was nearly two hours. The patient had a temperature of neary 103°, extreme prostration, nausea, and slight delirium. The following day the temperature and pulse were normal, appetite had returned, the pain had entirely disappeared, and, except for the disfigurement, the patient felt quite happy. Within two weeks the superficial layers of the skin had peeled, leaving behind no scars, but a smooth, slightly pinker epithelium than normal. Within one month the complexion was perfect, and the patient expressed herself as being so pleased with the result that she would willingly have undergone the erysipelas and treatment for the sake of the complexion resulting.

If the treatment is properly carried out, no scaring results. The superficial layers of the skin come off as in a mild sunburn. The skin beneath is only slightly tender. One application is usually sufficient to control the inflammation. The after treatment consists in the use of moist dressings of almost any sort. Saline or 1:20,000 bichloride solution has been my choice. I wish to warn against the use of weak solutions of carbolic acid used as wet dressing, both in these and in other cases. The maceration of the skin resulting from the moist dressing allows the absorption of carbolic acid, and sloughing of tissue follows. The use of the 95 per cent. carbolic in its action upon the skin inhibits of itself the absorption into deeper areas.

Etiology of the Pulmonary Affection in Typhoid Fever.—P. Stefanelli has examined the blood of fifteen patients suffering from typhoid fever in whom there existed a localization of the disease in the respiratory organs, to ascertain whether the bacilli found there were pneumococci or bacilli of Eberth. The excreta were also examined. In fourteen of these cases the bacillus of Fraenkel was found in the blood at the time of the pulmonary trouble. The serum reaction for the diplococci was positive in all the cases in which it was not possible to demonstrate the diplococcemia. The Widal reaction remained positive throughout the cases. The excreta were full of diplococci. In six cases the bacillus of Eberth was isolated from the sputum, but this germ was not found in the blood except in one case. The author believes that the typhoid bacillus causes congestion of the lungs and prepares the ground for an easy reception of the pneumococcus, which is favored in its action by the position of the patient on his back, by the poor ventilation of the respiratory tract, and the deficient energy of the cardiac systole.—*Rivista Critica di Clinica Medica.*

Side-Lights on Nature's Opsonic Methods. J. B. Cleland calls attention to certain facts observed by him in Australia. He notes that while experimenting with trypanosome camels in an out-of-the-way part of this State one of the dogs used for inoculation purposes was deeply mauled in the side and round the sheath by another dog, or perhaps dingo. The wounds were very deep and burrowing and the dog was much injured. They soon became foul with extensive sloughing and retention of discharge in the deep parts and, in spite of all attention we could bestow, fatal result was feared. At this stage the animal slept outside the tent at night near a nest of sugar ants, which had annoyed us by their nightly predations on our meat and jams. In the morning it was found that these little creatures had crawled all through the depths of the wounds and had removed the evil-smelling sloughs and pocketed discharge, leaving a clean slightly moist surface through which serum with fresh contents of opsonins could percolate freely. These ants seem rarely to bite and the dog allowed them to continue their operations without any attempt to lick them away, with the result that granulation and healing proceeded apace. During the daytime the flies hovering round the wound also much annoyed the dog, but his attention to them was also rendered unnecessary when a long tailed lizard perched on his side and caught them. It seems to be a practice in some parts of Australia to cure fistula in horses by deliberately "blowing" the sores with flies. The opsonic theory here, again, explains the good results. The maggots eat away the indurated walls, leaving a new surface through which serum rich in opsonins can pass, and thus, as the larvæ die or are washed out, cure follows.—*The Lancet.*

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THE OPIUM QUESTION.

IT is a matter of common knowledge that a vigorous campaign, or as vigorous a campaign as the lethargic Chinese temperament will permit, is being carried on in China against the opium habit, and a very interesting annotation in the *Lancet* of January 16, from the China correspondent of that journal, throws much light on the progress that is being made. It appears that this progress is distinctly slow, and that, while prominent officials are punished from time to time for indulging in the practice, vast numbers of the common people still smoke. This, according to the *Lancet* correspondent, is chiefly due to the immense size of the empire, its decentralized condition, and the lack of communications, all of which render it extremely difficult to carry out the decrees of the Central Government effectively. Further, a very large number of people "have vested interests in the growth, manufacture, and sale of opium, and it is a large item of national revenue from which numerous officials 'squeeze' sums of varying amount as it passes through their hands."

The statement of a correspondent from Shan-si included in the letter from which we have quoted is so much to the point that it is worth repeating: "Up to the present the edicts and prohibitions have been largely neutralized and the blame lies chiefly with the magistrates. In one city the traffic has been worse than before; the opium shops were supposed to be closed and so no tax was imposed, and in consequence of this a larger number of shops than ever were opened, the magistrate winking at the fact as the profits were higher."

In many Far Eastern countries corruption is rampant and conservatism hidebound, and it is then a matter not calculated to excite surprise to learn that the opium habit is dying hard in China. As the element of farce enters into most human affairs, even the most grave and important, it is not to be wondered at that it is found even here. The account to which reference has been made says: "A quaint touch of Oriental ingenuity to harass the persistent habitués of the drug has been invented by the superintendent of police at Canton. This official has issued 20,000 wooden licenses, ten inches long by eight inches broad and three-fifths of an inch thick. On the front of these boards are characters giving the smoker's name and address and the quantity allowed him per diem, and on the back are the opium regulations. The licensees are not allowed to cover their boards when going to buy opium but must wear them conspicuously so that all may see them. Next year these wooden licences are to be two feet long by one and a half feet broad and three-fifths of an inch thick. If the government were to go doubling the size of them progressively in each successive year it would become ridiculous ere long. Yet it is said that this is positively the intention of the authorities."

Although the consumption of opium to excess by members of the white races is harmful in a high degree to body and mind, the effect of the drug upon the Far Eastern races is a point concerning which no such dogmatic statement can be made. Of course there are to be found in Asia among the native population thousands of men and women who are slaves to the habit and who are thereby demoralized in mind and ruined in constitution. On the other hand there are immense numbers of people who while accustomed to take opium daily consume the drug in moderate quantities and exhibit no evil effects from the practice. Indeed Mr. Rudyard Kipling some years ago stated that in his belief the moderate consumption of opium did good rather than harm to the native population of India. In fact, the consumption of opium by the Asian people may be compared not inaptly to the consumption of alcohol by Europeans. Both have through generations of practice acquired a certain immunity to the drugs. This, however, does not prove that alcohol and opium are not harmful, but that narcotics of any description exert an especially malign influence upon virgin soil. Thus the consumption of opium by white people is invariably attended with the most disastrous consequences and every available step should be taken to discountenance and put down the habit. It is to be hoped that the deliberations of the forthcoming International Opium Commission at Shanghai may be potent in this direction, and that much useful information on the subject may be tendered, and suggestions with regard to stopping the opium traffic in New York and elsewhere in America be brought forward by the American delegates to this convention.

FLAGELLATION OF LYMPHOCYTES UNDER THE INFLUENCE OF CANCER SERUM.

WE referred last week to a curious phenomenon observed by Ross and Macalister in relation to the blood serum of cancer patients. These investigators announced that there was a something in the blood of sufferers from carcinoma which acted as a peculiar excitant to the leucocytes of healthy persons. In a second paper, in the *British Medical Journal* of January 23, they discuss the nature of this excitation, the process being apparently the same, whether an artificial excitant, such as atropine sulphate, or the blood serum from a cancerous patient is used.

The phenomenon, observed only in the lymphocytes, large and small, is one of flagellation and the extension of minute granules of chromatin.

Most authorities state that the lymphocytes contain no granules or at most only very few. This appears to be true in fixed films where the cells are dead, but when living mononuclears are examined, the writers assert, there will be seen in the cytoplasm a few deeply stained granules around the nucleus. These granules are somewhat smaller than those of the eosinophiles, but larger than those of the polymorphonuclears. The process of flagellation in these cells is described as follows: When the specimen has been examined with methylene-blue and one is looking over the field for large and small lymphocytes having bright discrete granules, suddenly one meets with a cell, which may or may not have been extruding pseudopodia, probably not, and which appears to have a granule dancing about, as though by Brownian movement, just outside the cell wall. This granule is attached to the cell by a thin hair-like filament. The flagellum is seen to be gradually further extruded until it may become longer than the width of the cell. There may be several of these flagella, each with a brightly stained granule at its extremity and sometimes with others at intervals along the length of the filament. They are readily distinguished from pseudopodia and from threads of fibrin. After a while they usually break away and progress, nodule first, through the plasma.

E. H. Ross, on observing one of these flagellated lymphocytes, remarked on its resemblance to the malarial gametocyte, and suggested that the flagella might be spermatozoa. There are, no doubt, certain cytological difficulties in the way of this suggestion, but the authors hold that these difficulties are not insuperable and do not render the suggestion untenable. They draw attention to the possibility of the brightly staining granules in the lymphocytes being chromatin and of the nodule at the end of the flagellum being one of these granules. Chromatin bodies in the cytoplasm have been described by Hermann as derived from the nucleus, and it has been suggested that they form the extruded male element. If this is so, then it is not improbable that these flagella are, as E. H. Ross suggested, spermatozoa; and since they are produced by some excitant in the plasma of cancer patients, Ross and Macalister conclude that they may play an important part in the causation of the disease, or at least in the pathogenesis of the carcinoma. But what cells may be fertilized by these spermatozoa, if such these granules are, the authors are as yet unable to say and wisely refrain from speculating.

Everyone is, however, at liberty to speculate for himself regarding the nature of these flagella and the possible rôle they may play in the pathogenesis of carcinoma, and such speculation opens up great vistas of possible advances in our knowledge of cancer. This observation may, of course, like so many other supposed discoveries—especially, perhaps, in the line of cancer investigation—lead to nothing, but the authors of the paper are careful observers, and there is no doubt that others will take up the matter and confirm or disprove their findings.

DISEASES TRANSMITTED BY ANIMALS TO MEN.

The transmission of disease is one of the most important and interesting questions with which medical science has to concern itself. To say that our views in this direction have undergone a considerable change within the past few years would be to state the case mildly. It would be little exaggeration to say that a revolution of our ideas as to the transmission of disease has taken place. It is now known by everyone that insects convey numerous complaints to man, perhaps almost all the tropical maladies, including malaria, yellow fever, and sleeping sickness. Plague is believed to be transmitted to man chiefly by means of rats or their fleas. Tuberculosis, despite the dogmatic statements of Koch, is in certain circumstances conveyed to the human race, mainly to children, by the agency of cattle. More than this, the opinion has been rapidly gaining ground of late years that domestic animals are responsible to some extent for spreading several infectious diseases. The cat has been under suspicion for many years, and it has been alleged with foundation for the statement that the parrot has passed on disease to some of those who have come into close contact with him.

Cohen has said, in his "System of Physiological Therapeutics," that the lower animals, such as cats, dogs, horses, cattle, and chickens, occasionally suffer from a pseudomembranous affection of the upper respiratory passages simulating diphtheria, and from this infection has been claimed. He, however, states that it is rare that true diphtheria bacilli are found in these animals, although they have been found susceptible to the disease experimentally produced. Osler is of much the same opinion, and so are, perhaps, the majority of veterinary experts. The point really that requires solution is this: Does the cat contract diphtheria, a disease to which cats are subject, from a person suffering from the complaint or does the animal merely act mechanically as a carrying agent?

Recently, Dr. Caroline A. Osborne has endeavored to answer these questions in a small book entitled "The Cat, a Neglected Factor in Sanitary Science." From this we learn that, as mentioned before, Osler and Cohen, together with the larger number of veterinary authorities, hold that the cat does not contract diphtheria from the human subject, nor do they think that it transmits the disease to man, at least they argue that the proofs to this effect are very slight. On the other hand there are many authorities who contend that cats suffer from true diphtheria and also convey it to men. Klein is said to believe that diphtheria is a natural disease of the cat and it has also been asserted upon responsible authority that during widespread epidemics of diphtheria, a similar affection of the throat may be found in cats, pigeons, fowls, etc. Dr. Louis W. Sambon, the distinguished authority on tropical diseases, read a paper before the British Royal Society of Medicine, published in the *Lancet* April 18, 1908, in which he supported, by statistics, the theory that diphtheria is transmissible between man and the lower animals.

Even if diphtheria is not contracted by cats, it seems to have been proven in a sufficiently conclusive manner that they will carry the infection and are therefore a source of considerable danger. Cats are known to suffer from other diseases which are transmissible to man, such as scabies and ringworm, and a cat with mange is a fertile agency of infection to the domestic animals of a neighborhood.

Etiological Therapy of Syphilis.

There is no doubt that the most promising method of treatment in disease is that which depends upon the use of remedies that are directly antagonistic to its excitants, whether these remedies are drugs or sera or vaccines. Specifics among drugs, however, have been discovered in but few instances only, and the search for them consists, of course, in the very empirical method of trying every possible remedy that may be thought to prove effective. Specific treatment by means of sera or other artificial or natural products of the animal organism, on the other hand, is usually undertaken on more logical grounds, the production of such substances being founded on animal experimentation, the circumstances of which are to a certain degree under the control of the experimenter. In the treatment of syphilis mercury has always been regarded as a specific; yet the mere fact that this drug must be used for a long time and its administration must be repeated on several occasions before final cure is obtained shows that the specific action of the drug, although possessed by it more than by any other remedy known to us, is still far from being as powerful as that of quinine in malaria, for example. During recent years, therefore, many experimenters have tried to obtain better results with the use of products from animals which had received injections of syphilitic material or from human beings suffering from the disease. In the *Deutsche medizinische Wochenschrift* for January 7, 1908, Dr. Spitzer reports the success he has had with an original application of such treatment, consisting in the subcutaneous injections of substances prepared from the primary lesions of syphilis. In the first series of patients treated in this manner it was noted that the existing lesions of the disease underwent a very rapid involution; in a later series, in which treatment was begun much earlier, ten patients escaped all the secondary manifestations of a luetic infection, though the period of observation extended over two years. The diagnosis was in several cases corroborated by the demonstration of the *Treponema pallidum* in the primary lesions, while the existence of cure was shown, in addition to the clinical evidence of the failure of secondary manifestations to make their appearance, by the negative results of the Wassermann reaction for syphilis. In one case treated in this manner a second infection, with the appearance of a typical sclerosis and the presence of the organisms of syphilis, occurred two and one-half years after the first infection. As it is generally agreed that syphilitic patients cannot be reinfected during the active stage of the disease, the evidence of cure was greatly strengthened by this occurrence. Spitzer concludes that the infected tissues, when injected according to his technique, exercise a curative action upon the disease. That a more effective manner of using such tissues may be devised is, of course, probable; the present task of other experimenters, however, is to follow the suggestion of Spitzer, in order that the results obtained by him may be sufficiently corroborated to be accepted and used for the development of better therapeutic measures of the same general character.

The Prevention of Blindness.

A movement which is full of promise for happiness to many hundreds and thousands of children yet unborn was started not long since and has already grown to very large proportions. This is the effort being made by ophthalmologists, obstetricians, and sanitarians to bring home in a forcible manner to both physicians and the laity the absolute necessity of guarding the eyes of the newborn against the sight-destroying specific ophthalmia. One of the most recent agencies in this propaganda is the Special Committee on the Prevention of Blindness of the New York Association for the Blind, the establishment of which was rendered possible in the spring of 1908 through the generosity of a lady in this city. The object of this Committee is to ascertain the direct causes of preventable blindness and to take such measures as may lead to the elimination of these causes. The prevention of ophthalmia neonatorum is the principal aim of the Committee, and they seek full cooperation with the medical profession, the State and City Boards of Health, the State and County Societies, and all organizations or persons interested in the subject. This committee has recently issued the second of its pamphlets for popular instruction, appealing strongly to the reader through pictures of sightless children who need not have been blind. This will doubtless be a strong ally of the purely medical organizations already active in the campaign of education regarding preventable blindness.

News of the Week.

The Anesthetic Clause in the Antivivisection Bill.—In a recent reference to the Davis antivivisection bill now before the New York Legislature, we were in error in assuming that anesthetics must be used in all cases. The bill provides that anesthetics need not be used in the following cases: "(*a*) In tests of food, drugs, or serums; (*b*) in so-called inoculation experiments; (*c*) in investigations regarding the communicability of human or animal diseases; (*d*) in experiments involving the relation of the parts of the body to consciousness; (*e*) during the process of recovery from any experiment; provided, however, that any cutting operation must be done while the animal is in a condition of insensibility produced by anesthetics."

Red Cross Stamps.—The committee of the New York County Branch of the Red Cross which had in charge the distribution of the stamps for Christmas packages, each stamp representing a contribution of one cent to the fund for tuberculosis work, has reported that the total receipts from the sale of the stamps in Manhattan and the Bronx were $15,488.01, the net receipts being $11,270.38. Of this amount, $5,000 has already been pledged for the maintenance of the Red Cross Day Camp for Tuberculous Patients on the roof of the Van-

derbilt Clinic, and $1,000 has been given towards defraying the expenses of the recent tuberculosis exhibition at the American Museum of Natural History. The remainder will be used for further day camps. The committee has decided to make the Christmas sale of the Red Cross stamps a permanent feature of the holiday season, and to confine its use as a means of collecting funds to the anti-tuberculosis work.

No Basement Bakeries.—The Chicago Health Department has begun active steps to enforce the ordinance governing bakeshops, and has served notice that bakeries must be removed from basements and from ill-ventilated rooms. Many of the largest hotels and restaurants in the city, more especially in the downtown districts, have their bakeries situated in the basement or even the subbasement, where they do not receive sufficient fresh air or sunlight.

Opium Congress.—The International Congress to discuss the control of traffic in opium opened at Shanghai, China, on February 1, Bishop Brent of the Philippines, senior American delegate to the conference, being elected chairman.

Marriage Among Consumptives.—A bill has recently been introduced into the Pennsylvania State Legislature designed to regulate the issuance of marriage licenses. The bill provides that a marriage license shall not be issued until each of the applicants therefor shall present to the clerk a certificate from an authorized practitioner setting forth that, to the best of his knowledge and belief, the person applying for the license is not afflicted with pulmonary tuberculosis, epilepsy, insanity, imbecility, idiocy, or other hereditary disease.

Dr. William George MacCallum has been elected to succeed Professor T. Mitchell Prudden in the chair of Pathology at the College of Physicians and Surgeons, Columbia University, New York. Dr. Prudden, as already announced, will retire at the close of the present academic year. Dr. MacCallum is a Canadian, and a graduate of the University of Toronto in the class of 1894, and of the Johns Hopkins Medical School in the class of 1897. At present he occupies the position of Associate Professor of Pathology at the Johns Hopkins Medical School.

Epidemics in Mexico.—The epidemic of scarlet fever in Mexico City is reported as being under control. At Zacatecas, smallpox has been epidemic, and within three days 1,200 children were vaccinated in the attempt to check the disease. Typhoid fever has been extremely prevalent in Oaxaca and there have been many deaths. At Guaymas, bonds to the amount of $60,000 have been issued, the proceeds to be used for sewers and waterworks to guard against yellow fever. Construction work will begin at once.

Dr. M. J. Seifert has been appointed attending surgeon to St. Mary's of Nazareth Hospital, Chicago.

Health of the Canal Zone.—The report of the department of sanitation for the month of December, 1908, shows that while the sick rate for the month showed a slight improvement over that for November, being 25.95 per thousand, as compared to 27.16 per thousand, the death rate shows a considerable increase. This increase, however, was largely due to the fact that the number of deaths from violence during December was the largest in the history of the work on the Isthmus, being 48.6 per cent. of the total number of deaths. Considering only the deaths from disease, the rate shows a considerable improvement, being 12.81 per thousand for December, 1908, and 14.69 for December, 1907, the total number of deaths being 50 and 44, respectively. The total rate for the Canal Zone, including employees and non-employees, was 20.75, while for Panama and Colon the rate was 33.28. No cases of yellow fever, smallpox, or plague have occurred.

Prof. Irving Fisher of Yale University addressed the Association of Life Insurance Presidents and invited guests at a meeting in New York, on Friday, February 5, on the promotion of hygienic conditions and public health.

Trustees of Bellevue.—Dr. John Winters Brannan, President of the Board of Trustees of Bellevue and Allied Hospitals, whose term recently expired, has been reappointed by the Mayor. Mr. James A. Farley has also been appointed to succeed John J. Barry recently made Commissioner of Correction.

Low Death Rate.—Springfield, Mass., reports for 1908 the lowest death rate in seventeen years. The total number of deaths during the year was 1,224, making a rate of 15.03. An increase in the number of cases of diphtheria during the year was reported, but cases of scarlet fever and typhoid fever show a decided decrease. The report of the Board of Health strongly urges more sanitary methods in the cleaning of school rooms, and recommends medical and dental inspection of school children.

Vital Statistics in New Jersey.—The report of the New Jersey State Registrar of Vital Statistics for the month of January shows 3,164 deaths, which is 117 less than for the corresponding month of last year. Of the deaths, 602 were of children under one year of age, 267 were of children between the ages of one and five, and 982 were of persons sixty years of age and over. There was a large increase in the number of deaths from pneumonia and from cancer. The suicides numbered 44, the largest number for any month in the past half year.

New York Milk Committee Lectures.—A series of lectures on infant feeding and hygiene has been arranged by the Association of Physicians of the New York City Milk Depots, to be given in the Assembly Hall of the United Charities Building, at 105 East Twenty-second street, during February, March, and April. The lectures are intended for all doctors, nurses, social workers, and other individuals interested in the problem of the mother and her child. The program is as follows: February 19, General Principles of Infant Feeding, by Godfrey R. Pisek, M.D.; March 3, Value of Fats in Infant Feeding, by John Howland, M.D.; March 13, Infant Feeding: Its Relation to Infant Mortality, by Joseph E. Winters, M.D.; March 26, Value of Carbohydrates in Infant Feeding, by Henry Dwight Chapin, M.D.; April 14, Milk Sanitation, by Rowland G. Freeman, M.D.; April 23, Hygiene of Infancy, by William P. Northrup, M.D.; April 30, Dietary of Children After the First Year, by I. E. LaFetra, M.D. The lectures will be given at three o'clock in the afternoon.

Vital Statistics in New York.—The State Health Department, in a bulletin issued on February 5, reported that there were 133,441 deaths in

New York State in 1908, or 8,449 less than in 1907. The total number of births recorded was 203,159, against 195,735 in 1907. New York City, with nearly half the total population, reported 73,075 deaths. Troy showed the highest death rate and the lowest birth rate. The total number of deaths from tuberculosis was 16,521, about 12 per cent. of the total mortality. Typhoid fever showed a total of 1,368 deaths, or 305 less than in 1907, and pneumonia 8,602 deaths, a decrease of 2,412 from the total for 1907.

Fellowship in Pathology.—Announcement is made by the Committee on the George Blumenthal, Jr., Fellowship in Pathology, Mount Sinai Hospital, New York, that the Committee will meet in March for the appointment of a Fellow for the ensuing year. The Fellowship carries an allowance of $500 per annum and all graduates in medicine are eligible. The object of this Fellowship is to further the scientific work of the hospital and to aid graduates in medicine who are anxious to obtain thorough laboratory training. The work done under the Fellowship may be carried on either in Mount Sinai Hospital or elsewhere, according to agreement with the Committee in charge. Applications for this appointment will be received on or before March 15, 1909, by Dr. F. S. Mandlebaum, Pathologist, Mount Sinai Hospital.

Gifts to Charities.—By the terms of the will of the late Max Freund of New York, Mt. Sinai Hospital receives $1,000, and the Montefiore Home for Chronic Invalids and Lebanon Hospital, each $500. The will of the late Mrs. H. W. Miller of Providence, R. I., provides for the endowment of two beds in the Rhode Island Hospital, to be known as the "Horace George Miller Free Bed," and the "Helen Woods Miller Free Bed." The Rhode Island Medical Society receives a fund of $5,000 the income of which is to be applied to caring for, binding, and repairing of the library given to the society by the late Dr. Miller, the husband of the testator, or for the purchase of new books.

The Springfield (Mass.) Hospital has received a gift of $10,000 in memory of Mrs. Louisa J. G. Pease, to be used for an additional operating room.

The East Side Physicians' Association.—A clinical meeting of this Association will be held at the Café Boulevard, New York, on Friday, February 19, at 8.30 P.M., and an attractive program has been arranged. The annual dinner of the Association will be given at the Hotel Majestic on February 24.

The Elkhorn Valley (Neb.) Medical Association, at its annual meeting at Norfolk, on January 19, elected the following officers: *President,* Dr. J. M. Aiken, Omaha; *Vice-Presidents,* Dr. A. B. Tasjean, Norfolk, and Dr. A. C. Johnson, Creighton; *Secretary,* Dr. W. R. Peters, Stanton; *Treasurer,* Dr. W. Pilger, Norfolk.

San Francisco County Medical Society.—At a recent meeting of the directors of this society, Dr. August J. Lartigau, formerly of New York, was elected president. Dr. Lartigau has served as librarian of the society for some time.

The Red River Valley (Mich.) Medical Association held its annual meeting on January 27. The following officers were elected for the ensuing year: *President,* Dr. H. Holte, Crookston; *Vice-President,* Dr. Bratrud, Warren; *Secretary and Treasurer,* Dr. H. E. Nelson, Crookston; *Board of Censors,* Dr. H. C. Stuhr, Argyle; Dr. I. Lemiex, Red Lake Falls, and Dr. C. H. Denniston, Crookston; *Delegate to State Meeting,* Dr. C. E. Dampier, Crookston.

The State Charities Aid Association held its annual meeting at Albany on February 2. The Hon. Joseph H. Choate presided. At the evening meeting Governor Hughes spoke on "Cooperation of Private and Public Agencies in Preventive Philanthropy." Dr. Albert W. Ferris, president of the State Commission in Lunacy, also spoke on "Avoidable Causes of Insanity," and Dr. Livingston Farrand emphasized the need of hospital accommodations for advanced and hopeless cases of tuberculosis, as well as for the incipient and curable cases.

Indianapolis Medical Society.—At the annual meeting held January 5, the following officers were elected: *President,* Dr. Theodore Potter; *Vice-President,* Dr. Walter N. Sharp; *Secretary-Treasurer,* Dr. Roscoe H. Ritter; *Delegates to the State Medical Association,* Drs. Allison Maxwell, Albert C. Kimberlin, and Edmund D. Clark: *Alternates,* Drs. Thomas B. Eastman, William T. S. Dodds, and Charles R. Sowder.

Central Texas District Medical Association.—The annual meeting of this association was held in Waco January 12 and 13, 1909. The opening session was called to order by the Chairman of the Arrangement Committee, Dr. M. B. Saunders of Waco. In the Section of General Medicine, the Chairman being absent, Dr. O. I. Halbert, Secretary, presided, and the following papers were discussed: "Report of a Case of Chronic Interstitial Nephritis with Death from Uremia," by Dr. S. B. Kirkpatrick, Waco; "The One Universally Applicable Diagnostic Test for Tuberculosis and the Three Fundamental Factors in its Treatment," by Dr. Boyd Carnick, San Angelo; "Some Remarks on Malarial Fever," by Dr. J. A. Tate, Ennis; "Electricity in General Medicine," by Dr. J. M. Martin, Dallas; "Chorea," by Dr. J. F. Ford, Decatur; "Malarial Hematuria and Hemoglobinuria," by Dr. A. S. Epperson, Cameron; "Treatment of Amebic Infection," by Dr. M. B. Saunders, Waco. In the Section of Gynecology and Obstetrics, Dr. W. E. Sturgis, Stephenville, chairman, the following papers were read: "Chairman's Address," by Dr. W. E. Sturgis, Stephenville; "Report of an Interesting Gynecological Case," by Dr. J. M. McCutchan, Waco; "Puerperal Fever," by Dr. H. E. Connelly, Eddy; "The Relation Between Some Perineal Lacerations and the Neurasthenic State," by Dr. H. M. Johns, Waco. In the Section of Surgery, Dr. William Yater, chairman, the following papers were read: "Aneurysm of the Ascending Aorta," by Dr. G. B. Fosque, Waco; "Gunshot Wound of the Abdomen," by Dr. J. W. Hale, Waco; "Surgical Aspect of Kidney Lesions, Including Diagnosis," by Dr. J. L. McGlasson, Waco; "What I Have Seen in Baltimore," by Dr. H. K. Ainsworth, Waco. Following each of these papers was a general discussion of the subject, and it was the opinion of those present that the personnel of the program, the character of the papers, and the discussions have never been better in the history of the Central Texas District Medical Association. On Tuesday night, at 8:30, the retiring president, Dr. W. A. Wood of Hubbard City, delivered his annual address, in which he gave an interesting history of the Central Texas District Medical Association and paid a glowing tribute of respect to the living and to the dead ex-

presidents. During the latter part of the first day's session the association enjoyed a visit from the majority of the Board of Counselors of the State Medical Association, and at this time there was a general discussion upon the subject of division of fees. Several members of the Board of Counselors took part in this general discussion. This question is being agitated by men in certain sections of the State, but it was the consensus of opinion of those present, including the Board of Counselors, that these methods should under no circumstances be encouraged or countenanced by the medical profession of Texas. The election of officers resulted in the choice of the following: *President*, Dr. M. P. McElhannon, Belton; *Secretary*, Dr. William Yater, Cleburne. Marlin, Texas, was selected as the place of meeting and the president announced the following appointments: *For the Section of Practice*, Dr. W. H. Allen, Marlin, chairman; Dr. J. W. Gibney, West, secretary. *Section Ear, Eye, Nose, and Throat*, Dr. W. R. Washburn, Cleburne, chairman; Dr. B. L. Scott, Waco, secretary. *Section of Gynecology and Obstetrics*, Dr. R. R. White, Temple, chairman; Dr. A. O. Cragwall, Stephenville, secretary. *Section of Surgery*, Dr. R. B. Sellers, Comanche, chairman; Dr. R. J. Alexander, Waco, secretary.

Obituary Notes.—Dr. ALEXANDER WILLIAMSON of Asbury Park, N. J., died at his home on February 2 of heart disease, aged 61 years. He was graduated from the medical department of the University of Pennsylvania in 1878.

Dr. JOSEPH BERNARD MAUCH of New York died suddenly at his home on February 2. Dr. Mauch was born in Germany in 1849. He was a member and the last survivor of the North Pole expedition of 1871-1873 on the steamer *Polaris*, serving as clerk to the commander. He was graduated from the College of Physicians and Surgeons, New York, in 1886.

Dr. JOHN JAMES MITCHELL of Newburgh, N. Y., died suddenly on February 1, aged 75 years. Dr. Mitchell was graduated from the University of New York in 1857. He was a member of the American Institute of Homeopathy and of the State Homeopathic Society. After serving as City Physician in Brooklyn for a short time, Dr. Mitchell in 1859 removed to New York, where for several years he occupied the chair of chemistry in the New York Homeopathic Medical College. In 1869 he removed to Newburgh. In 1883 he was elected president of the State Homeopathic Medical Society.

Dr. GORDON W. RUSSELL of Hartford, Conn., a graduate of the Yale Medical School in the class of 1837, died at his home on February 3.

Dr. EDWIN C. DENNIN died in the Long Island College Hospital on February 1, aged 40 years. He was a graduate of the New York School of Pharmacy and of the Long Island College Hospital.

Dr. CHARLES E. HOYE of Seattle, Wash., died on January 24 of disease of the kidney, aged 43 years. Dr. Hoye was graduated from the medical department of the University of New York in 1889.

Dr. DANIEL JAMES HANLON of Hyde Park, Mass., died suddenly on January 24, while making a professional call. Dr. Hanlon was born in 1867, and was graduated from the Boston University Medical School in 1891. He was a member of the American Medical Association.

Dr. DAVID L. DOUGLASS of Colfax, Ill., died of paralysis at the home of his brother in Morristown, N. J., on February 5. He was a graduate of the University of Chicago.

Correspondence.

WELLS AND DARWIN AND THE DOCTRINE OF EVOLUTION.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—William Charles Wells, one of the world's great men, was born in Charleston, S. C., May 25, 1757. His parents came to America from Dumfries, Scotland, in 1753. Wells was probably the leading intellect of his century, yet his name is omitted in some of the chief encyclopedias, and in some of the biographical reference books he is mentioned only in connection with his scientific essay on dew. After winning in science, handicapped by poverty and disease, Wells died in London September 18, 1817. His genius has brought to England much of her renown in science, and his fame is for the future.

About a century ago Wells enunciated the doctrine of evolution which has revolutionized thought. He applied his discovery in evolution to the solution of "that mystery of mysteries," and thus put into the hands of the scientific a model in practical working order for thinkers to follow in solving problems of life.

Wells' remarkable essay was read before the Royal Society in 1813. Although he was eminent in science, his brief paper is omitted in the printed Transactions of the Royal Society, but this omission may be attributed to the intellectual originality of the essay. New intellectual science, even though presented in simple language, is usually not understood until it receives the attention and study of great interpreters.

The Origin of Species, published by Charles Darwin in 1859, seems to have been a development of the line of thought of Dr. Erasmus Darwin, his grandfather, who pondered over this problem. Wells criticized some of the elder Darwin's theories, and in his memoir writes that he was attacked in print by him. Wells' solution of the problem of the origin of species was given to the world subsequent over the controversy with Dr. Darwin, and after the latter had come to an erroneous conclusion regarding the origin of species.

Darwin idolized his grandfather, but while he gave studious attention to his works and frequently with just pride spoke of his genius, his attention may never have been called to the controversy or to Wells' extensively read essays, published in 1818. Wells and Darwin were distinctly honored members of the Royal Society. Wells received its Rumford medal. Singularly, Darwin seems to have read everything written on this deep theme with the exception of Wells' essay.

Darwin's modesty is proverbial, and had he looked more carefully into the literature at home, it is probable that Wells' discovery would have been set forth in the first edition of "The Origin of Species," a work slowly, deliberately, and carefully written. In the later editions, Darwin acknowledges his indebtedness to Mr. Rowley, of the United States, for calling his attention to the essay of Wells, which Darwin at that time seemingly had not read. The "Historical Sketch" then appears and attention is directed to many writers; some of these have ingenious theories, others have claims of independence in discovery and of precedence in promulgation; further, scientists of originality and ability are quoted. In reviewing the work of more than a score of writers, "the first recognition" and "the mere enunciation of the principle of natural selection" are referred to, but the scope and magnitude of Wells' discovery, as well as his scientific presentation of creative thought, are overlooked. Darwin writes: "In this paper he" (Wells) "distinctly recognizes the principle of natural selection, and this is the first recognition which has been indicated; but he applies it only to the races of man, and to certain characters alone." After remarking that negroes and mulattoes enjoy an immunity from certain tropical diseases, he observes, firstly, that all animals tend to vary in some degree, and, secondly, that agriculturists improve their domesticated animals by selection; and then, he adds, but what is done in this latter case "by art, seems to be done with equal efficacy, though more slowly, by nature, in the formation of varieties of mankind, fitted for the country which they inhabit."

The casual reader can see from the above excerpt, or from the text printed below, that Wells' doctrine applies to all animals.

Alfred Russell Wallace, whose independent discovery of the principle of natural selection is set forth by Darwin, claims the independent discovery, not only for himself, but for Darwin also. Before the Linnean Society, in celebration of the fiftieth anniversary of the reading of the views of Darwin and Wallace, the latter is reported to have said

that "during the first half of the nineteenth century many biological thinkers and workers had been pondering over the problem and had even suggested ingenious, but inadequate solutions." Why did so many of the great intellects fail, he asked, while Darwin and he (Wallace) hit upon the solution? Wallace in endeavoring to explain why the same solution of the problem of the origin of species had occurred to both of them, pointed out that a closely similar course of events had led up to the same result in each case.

Wells' essay is a paragon of scientific observation and intellectuality, and as a model for evolutional thought has never been surpassed. The original essay has never been in print. The edited essay has been in type but once, in 1818. It is now rare. The MEDICAL RECORD may do science a great benefit by reproducing below about one-half of Wells' essay.

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SOME OBSERVATIONS ON THE CAUSES OF THE DIFFERENCE IN COLOR AND FORM BETWEEN THE WHITE AND NEGRO RACES OF MEN.—BY WILLIAM CHARLES WELLS, M.D., F.R.S., L. & E.

"On considering the difference of color between Europeans and Africans, a view has occurred to me of this subject, which has not been given by any author, whose works have fallen into my hands. I shall, therefore, venture to mention it here, though at the hazard of its being thought rather fanciful than just.

"There is no circumstance, perhaps, in which these two races differ so much as in their capacity to bear, with impunity, the action of the causes of many diseases. The fatality to Europeans of the climate of the middle parts of Africa, which are, however, inhabited by negroes without injury to their health, is well known. Let it then be supposed that any number of Europeans were to be sent to that country, and that they were to subsist themselves by their bodily labor; it seems certain, that the whole colony would soon become extinct. On the other hand, the greater liability of negroes in Europe to be attacked with fatal diseases is equally well established. If, therefore, a colony of the former race were brought to Europe, and forced to labor in the open air for their subsistence, many of them would quickly die, and the remainder, from their inability to make great bodily exertions in cold weather, and their being frequently diseased, would be prevented from working an equal number of days in the year with the whites. The consequence would be, that without taking farther into account the unfriendliness of the climate to them, their gains would be inadequate to the maintenance of themselves and their families. They would thence become feeble, and be rendered still more incapable of supporting life by their labor. In the meantime, their children would die from want, or diseases induced by deficient or improper nourishment, and in this way a colony of the negro race in a cold country would quickly cease to exist.

"This difference in the capacity of the two races to resist the operation of the causes of many diseases, I assume as a fact, though I am utterly unable to explain it. I do not, however, suppose that their different susceptibility of diseases depends, properly, on their difference of color. On the contrary, I think it probable that this is only a sign of some difference in them which, though strongly manifested by its effects in life, is yet too subtle to be discovered by an anatomist after death; in like manner as a human body, which is incapable of receiving the smallpox differs in no observable thing from another, which is still liable to be affected with that disease.

"Regarding then as certain that the negro race is better fitted to resist the attacks of the diseases of hot climates than the white, it is reasonable to infer that those who only approach the black race will be likewise better fitted to do so than others who are entirely white. This is, in fact, found to be true with regard to the mixture of the two races: since mulattoes are much more healthy in hot climates than whites. But among men, as well as among other animals, varieties of a greater or less magnitude are constantly occurring. In a civilized country which has been long peopled, those varieties for the most part quickly disappear, from the intermarriages of different families. Thus, if a very tall man be produced, he very commonly marries a woman much less than himself, and their progeny scarcely differs in size from their countrymen. In districts, however, of a very small extent, and having little intercourse with other countries, an accidental difference in the appearance of the inhabitants will often descend to their late posterity. The clan of the Macras, for instance, possess both sides of Loch-Duich, in Scotland; but those who inhabit one side of the loch are called the black Macras, and the others the white, from a difference which has always been observed in their complexions. Again, those who attend to the improvement of domestic animals, when they find individuals possessing, in a greater degree than common, the qualities they desire, couple a male and a female of these together, then take the best of their offspring as a new stock, and in this way proceed till they approach as near the point in view as the nature of things will permit. But what is here done by art seems to be done with equal efficacy, though more slowly, by nature in the formation of varieties of mankind fitted for the country which they inhabit. Of the accidental varieties of man which would occur among the first few and scattered inhabitants of the middle regions of Africa, some one would be better fitted than the others to bear the diseases of the country. The race would consequently multiply, while the others would decrease, not only from their inability to sustain the attacks of disease, but from their incapacity of contending with their more vigorous neighbors. The color of this vigorous race, I take for granted, from what has been already said, would be dark. But the same disposition to form varieties still existing, a darker and a darker race would in the course of time occur, and as the darkest would be the best fitted for the climate, this would at length become the most prevalent, if not the only, race in the particular country in which it had originated.

"In like manner, that part of the original stock of the human race which proceeded to the colder regions of the earth would in process of time become white, if they were not originally so, from persons of this color being better fitted to resist the diseases of such climates, than others of a dark skin.

"The cause which I have stated as likely to have influence on the color of the human race would necessarily operate chiefly during its infancy, when a few wandering savages from ignorance and improvidence must have found it difficult to subsist throughout the various seasons of the year, even in countries the most favorable to their health. But, when men have acquired the knowledge of agriculture and other arts, and in consequence adopt a more refined mode of life, it has been found that an adherence to their ancient customs and practices will preserve them long as a distinct race from the original inhabitants of the country to which they had emigrated. Examples of this kind are frequent in the islands in the eastern seas in the torrid zone, where the inhabitants of the seacoast, evidently strangers, are in some degree polished, and of a brown color, while the ancient natives, who live in the interior parts, are savage and black. Similar facts occur in respect to other species of animals. It seems certain, for instance, that fine wooled sheep, like the Spanish, never both arose and sustained their breed in the northern parts of Europe; yet, by care this feeble race, after being formed in Spain, has been propagated and preserved in very cold countries. Thus the late Mr. Dryander, the learned librarian of the Royal Society, informed me that the breed of fine wooled Spanish sheep had been kept perfect in Sweden during a very long term of years—I think he said a century. If, then, my memory be accurate upon this point, we have here an example of a variety of animals much more liable to be affected by external circumstances than the human race, being preserved without change in a country very different from their own, by assimilating their new state as much as possible to their old during at least fifty generations, that is, during a period equivalent to 1,500 years in the history of man.

"Hitherto, while speaking of the external appearance of negroes, I have taken notice only of their color. I shall now say a few words upon their woolly hair, and, according to our notions of beauty, the deformity of their features.

"There are several facts which seem to show that these circumstances are somehow connected with their low state of civilization.

"First, the black inhabitants of the Indian Peninsula within the Ganges who, compared with the African negroes, may be regarded as a polished people, have hair and features much less dissimilar to the European.

"Secondly, woolly heads and deformed features appear again as we proceed further to the east among the savage inhabitants of New Guinea and the adjacent islands at the distance nearly of half of the circumference of our globe from Africa, and consequently without the smallest probability of any communication having ever existed between the two countries.

"Lastly, it appears probable from the reliques of ancient

art that the early inhabitants of Egypt were of the negro race. If, then, the negroes of Africa were ever to be civilized, their woolly hair and deformed features would perhaps, in a long series of years, like those of the Egyptians, be changed. On the other hand, their present external appearance may possibly be regarded not only as a sign, but as a cause of their degraded condition, by preventing, in some unknown way, the proper development of their mental faculties; for the African negroes have in all ages been slaves; and the negroes in the eastern seas are in no instance, I believe, masters of their handsomer neighbors, but are in many places in entire subjection to them, though the latter be frequently less numerous.

"It will no doubt be objected to what I have advanced, respecting the difference of color between Europeans and Africans, that the Indian inhabitants of the greater part of the immense continent of America have skins nearly of one hue. Plausible reasons may, I think, be given for this fact, consistently with what has been said upon the color of the two former races; but I forbear trespassing any longer upon the time of the reader in discussing a subject which admits only of conjectural reasoning."

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RESEARCH ENDOWED AT THE LONDON HOSPITAL COLLEGE—HOSPITAL MANAGEMENT, A STATISTICIAN'S VIEW—SEASIDE VS. INLAND RESORTS—OBITUARY.

London, January 22, 1909.

The Medical School of the London Hospital is to be congratulated on the receipt of a small fortune. A sum of £20,000 has been handed by a beneficent anonymous donor to trustees to invest and pay the income to three administrations chosen by the donor, who are to spend it in the advancement of medical research within the walls of the London Hospital or College. The selected administrators are the chairman and two members of the medical staff of the hospital. The benefits will not be confined to students of the hospital, but will be open to qualified men from any part of the empire. The donor wishes to remain anonymous in the hope that the fund thus started may be added to by others and in time become of such magnitude as to serve future generations in the fight against disease.

It is not often that the Royal Statistical Society deals with questions of special interest to medical men, but a paper read on Tuesday demands attention. The author is Mr. P. E. Braun and the paper was that which gained for him the Howard medal for a prize essay on the "Cost, Conditions, and Results of Hospital Relief in London." Founded for the most part by private donors and largely maintained from that source, they are mainly managed by trustees and are independent of the charity commissioners or other body. In the last decade the King's and the Sunday Funds have succeeded in introducing more uniformity into accounts. The paper contained a detailed examination of the statistics and accounts for 1906 of 123 hospitals in Greater London, excluding, as far as possible, expenditure on teaching, on convalescent and nursing homes. The total ordinary expenditure amounted to £999,982, being £227,252 for provisions, £118,006 for surgery and dispensary charges, £195,966 domestic expenses, £96,792 for rent, rates, taxes, repairs, etc., and £226,995 for salaries, wages, and pensions. The management expenses varied from 1.3 to 26 per cent. of the total, the most economical working being by the very large and the very small hospitals, due, no doubt, on the one hand to the larger scale and on the other to the absence of a paid secretariat. The highest figures are those of the Blackfriars Skin and the Royal Waterloo Hospitals, the lowest the Sydenham Children's and St. John's, Lewisham. In the great hospitals the lowest percentage is St. Bartholomew's (3.2), St. Thomas's (3.3), the London (3.9). The author pleaded for a great improvement in the accounts, and toward that end a separation between in-patient and out-patient accounts and also a uniform system of statistics. The summary of statistics of the 123 hospitals shows 10,947 beds, 8,977 being the average number in daily use; 132,670 in-patients and 1,871,405 out-patients. The income of the hospitals from invested property was £265,089, or 31.3 per cent. of the total ordinary income. The twelve great general hospitals with medical schools derived 52.8 per cent. of their united incomes from investments—the percentage varying from 96 per cent. at St. Bartholomew's and 93.3 at St. Thomas's to 14 at the Royal Free and 10.9 at St. Mary's. The author's investigations clearly show that the work done by the hospitals is very great, but the conclusion to which he points will not be anticipated by many. "So great are the figures of patients treated," he says, "that other feelings are swamped in the realization of the physical degradation implied by them. Add to these patients the 30,000 dealt with by the Metropolitan Asylums Board, the unknown number of infirm and sick dealt with by the Poor Law guardians during the year (on February 10, 1906, there were 13,500 in the Poor Law Infirmaries, on January 1 30,000 were in receipt of outdoor medical relief), the 28,000 London lunatics, and the unknown numbers dealt with by provident and charitable dispensaries and private practitioners—and one is appalled by the misery and disgrace of it all. However noble the work that the hospitals are doing, it is of the order of 'patchwork.' This must be so, or they could not keep their numbers. Other hands than those of the hospitals, and other methods striking at the roots, must be put in play before we shall have a healthy community of which one can be proud."

The Seaside doctors have been exercised of late as to the value of sea bathing compared with a resort to inland brine springs and incidentally as to the effects of sea water and sea air in various conditions. The question started afresh last month and many of us have talked about it since. It began with a paper by Dr. Brodribb of Hastings on "The Therapeutic Uses of Sea Water," read at the Balneological and Climatological Society. He was inclined to blame our South Coast authorities for neglect of their resources. He dwelt on the various modes of applying sea water—baths, douches, sprays, and so on, as well as on the numerous conditions in which the remedy was useful.

Dr. Street held that the value of brine baths at the inland spas had been long admitted and sea baths were certainly of equal use, though the explanation of the action was in neither understood.

Dr. Gurney pointed out that in sea bathing the mechanical stimulation of the skin by the salt was increased by the impact of the waves and this must, he thought, render it in many cases more effectual than the use of inland brine baths.

Dr. Buckley said we could not contend that sea water was more powerful on account of the excess of solid ingredients, for we had no definite knowledge as to what were the constituents to which mineral waters owed their remedial virtues. One might have anticipated further consideration of persons and temperature as well as of variety of atmospheric conditions at a society which professes to be climatological.

Following this discussion was a paper dealing with rheumatic affections, which seems specially suited for the society. But the paper was not on spa or climate effects, but a plan of rather active treatment by counterirritation applied to the spine. It was by Dr. W. J. Middleton of Bournemouth, who reported that he had treated with more or less success 27 cases of polyarticular rheumatoid disease (besides two of hysteria and three of paralysis) by blisters in the neighborhood of the cervical and lumbar enlargements of the spinal cord.

He thought the good effect might be due to some extent to the elimination of germs in the discharge and not merely to the action on the nervous system. Dr. Luff of London had employed blistering the spine in various joint diseases, but confessed that the results had not satisfied him. Dr. Armstrong of Buxton had employed electric cautery to the sides of the cervical enlargements when the joints of the superior extremities were most affected and the lumbar enlargement when the inferior were chiefly suffering. He took care not to make lesions of the skin. The treatment was not a specific for arthritis, but he was able to report improvement in many cases. Dr Buckley of Buxton had tried blisters and other counterirritants in these cases and preferred Paquelin's cautery. He felt sure it relieved pain, but it was not curative nor did he expect it to be, for he believed the disease was bacterial.

Dr. Mantle of Harrogate did not think the treatment any advance. Dr. Llewellyn Jones of Bath looked upon the method with favor. We have heard something of this plan in London lately and there are some who appear to think it rather novel.

The death of Dr. Alex. Patterson, late surgeon to the Western Infirmary, Glasgow, removes one of the

most distinguished operators of that city. He retired some time since, but for many years his position was one of the highest. He graduated at the university in 1854, took the F.R.C.S. in 1860, and in a few years established a position almost unrivaled. He anticipated the fresh air treatment, as from an early period he insisted on open windows in the wards night and day. He adopted Lister's views from the beginning and carried them out most strictly. He was the first surgeon to cut down and extract a stone from the kidney. His colleagues reposed the greatest confidence in his surgical judgment, as well as his remarkable operative skill, and quote him as a man of the most upright character.

Progress of Medical Science.

Boston Medical and Surgical Journal, January 28, 1909.

The Cold Storage of Poultry.—W. F. Roos says that it makes no difference whether fowls are drawn or not before being placed in cold storage, but they must be perfectly fresh before they are stored. As they are kept below zero, no chemical or bacterial changes can occur in them. He refers to a mamal uncovered by a landslide in Siberia. It had evidently died by accident, and, although there perhaps fifty thousand years, its flesh when thawed was perfectly sweet and formed a palatable and agreeable food eaten without harm by both animals and men. The danger, if any exists from frozen poultry, must come from improper handling after it is removed from storage. Markets are often uncleanly, and the same water is used to soak the birds overnight before they are placed on sale. This water-soaked bird has an insipid and often disagreeable flavor and quickly decomposes. If they are not quickly sold they are again placed in storage, and if sold later they may be dangerous. After removal from storage the undrawn birds kept better than drawn birds. This is probably due to the fact that the aerobic bacteria which prepare the way for the more profound processes of anerobic putrefaction in the entrails are destroyed in a great measure by freezing. All in all, it is better to draw the fowls before they are stored. The customer should buy the frozen fowl and let it thaw in the air.

Laryngotomy and Laryngectomy for Cancer, with Report of Cases.—D. C. Greene, Jr., reports four cases, one of a man sixty-four years dying from collapse eight hours after operation; the second, a man of sixty-one years, living in good health three years after operation; the third, a man of fifty-eight years, living in good health eighteen months after operation, and the fourth, a man of fifty-two years, living nine months after operation, but with probable recurrence. The author says that with attention to a certain essential details in these operations, the mortality can be kept at a comparatively low figure. These details comprise a careful selection of cases, attention to oral cleanliness, and the avoidance of shock by the use of atropine before operation, local use of cocaine during it, and the Trendelenburg position during the second stage Inhalation pneumonia should be avoided by the Trendelenburg position during operation, rectal feeding, and the elevation of the foot of the bed after operation. The technics of both operations are fully described according to the methods of Semon, Butlin, and Jackson.

What Type of Operation Is Best Adapted for the Relief of Disease of the Frontal Sinus?—E. A. Crockett says that in acute frontal sinus infections the use of the ice-bag over the sinus and of adrenalin solutions is all that is necessary. In the severer cases the middle turbinate, or at least a portion of it, should be removed under general anesthesia. Cocaine is not sufficiently anesthetic. The nose should not be packed. In chronic cases, and when the infection involves merely the frontal sinuses and anterior ethmoidal region, with perhaps the antrum filled by drainage, a simple type of operation should be performed, the antrum being tapped and washed out at the same time. Under primary anesthesia the middle turbinate and ethmoidal region should be cleaned out as far back as the bulla with a Luc forceps. This is easy for one accustomed to work in the nose. Care should be taken not to disturb the cribriform plate. If this operation does not relieve the pain, a probe can easily be passed up the frontal nasal duct. For the more severe cases the Killian operation is undoubtedly the best for hospital patients, but this should be avoided as far as possible in private practice on account of possible deformities. If the chronic case is accompanied by orbital abscess and the infection is through the floor of the sinus, the usual operation for chronic cases plus the opening of the orbital swelling will suffice. In cases in which there is caries of the orbital plate of the ethmoid or the sphenoid or posterior ethmoid cells are involved, the Killian operation is preferable, at least in hospital cases. The author has had no complicating meningitis in his cases. The nose should not be packed, and the sinus but lightly. In seventy-five cases a secondary intervention has been necessary in but three. He has had some trouble with sepsis, but only when it was present before the operation.

Some of the Vagaries of the Obstetrician from the Standpoint of the Pediatrician.—J. L. Morse comments on the subjects of cyanosis and congenital heart disease, phimosis, breast feeding, artificial feeding, premature infants, icterus and sepsis, autointoxication, and congenital deformities in the newborn. He says that most obstetricians refer cyanosis to heart disease, but it may be due to an enlarged thymus gland, atalectasis, pulmonary apoplexy, diaphragmatic hernia, cerebral hemorrhage, or sepsis. Atalectasis is the most common, and in his experience cerebral hemorrhage and sepsis come next. There are many forms of congenital heart disease besides patent foramen ovale. There is no benefit from placing the baby on the right side. Phimosis is overdone. In most instances the breaking up of preputial adhesions with a probe and retraction meet every need. Obstetricians do not as a rule appreciate the importance of breast feeding. Almost the only contraindications are tuberculosis or some serious disease of the mother. Breast feeding should not be given up unless continued trial shows that the milk cannot be regulated so as to agree with the baby, or the mother's health is being seriously impaired. In making artificial mixtures, the obstetrician does not understand what creams are. The author believes them to be any milk containing more than four per cent. of fat. Top-cream after the bottle has stood eight hours may contain 16 per cent. of fat. Consequently the amount of this ingredient in the baby's food is often in great excess. Premature infants are often given too strong mixtures and overfed. Jaundice may come from sepsis, but here we generally have in addition fever, a bad general condition, and hemorrhages. Calomel is not needed for the simple icterus neonatorum. Sepsis is often overlooked and is very common. It may cause cyanosis, jaundice, hemorrhage, hemorrhagic disease of the newborn, digestive disturbances, bronchitis and broncho-pneumonia. It is due in every instance to germ-entrance. Dirty water often enters the mouth during the bath and when the mouth is cleaned with the finger. Autointoxication from absorption of bowel contents is not uncommon. The bowels should be cleared out with castor oil. Every newborn child should be most carefully examined for the presence or absence of congenital malformations. Cleft palate may occur without harelip.

New York Medical Journal, January 30, 1909.

The Serum Diagnosis of Syphilis and Its Clinical Value.—This question receives a general consideration from W. J. Butler. His personal results were as follows: Of the 150 cases of syphilis, suspected syphilis, latent syphilis, and metasyphilis examined, 123 were positive and twenty-seven negative, making eighty-two per cent. of positive reactions. This corresponds quite closely to the later results obtained by various investigators in these cases. The gross figures, however, do not indicate sufficiently close the results obtained by the reaction at different stages of the disease, as will be seen from the following: Of ten cases in the primary stage, including all cases prior to the appearance of secondary symptoms, all, or 100 per cent., gave a positive reaction. Of thirty-six cases in the secondary stage, thirty-four, or ninety-five per cent., gave a positive reaction. Of thirty-one cases in the tertiary stage, twenty-nine, or ninety-four per cent., gave a positive reaction. Of sixteen latent cases, nine, or fifty-six per cent., gave a positive reaction. Of fifty-five cases of parasyphilis and visceral syphilis, forty-one, or seventy-six per cent., gave a positive reaction. Two cases in which the patients had been treated energetically by mercury, the one with injections and the other with inunctions, gave a negative reaction. The latter case had, before the beginning of the treatment, given a strong reaction. The author says that a positive reaction may be regarded as an indication for antisyphilitic treatment. We cannot advise its discontinuance if the test becomes negative later. We should not await external manifestations of the disease before beginning treatment.

Pathology and Treatment of Chronic Gonorrhea.—A. A. Uhle and W. H. Mackinney ascribe the apparently mild catarrhal condition of the urethral mucosa to the presence of deeply situated gonococci in a low degree of activity. In the anterior urethra these chronic changes are particu-

larly confined to Littre's glands, which run obliquely from before backward, most prominent on the upper wall of the urethra, some being quite superficial, others extending deeply even into the erectile tissue. The lacunæ of Morgagni, likewise here present, are also involved. They cannot be regarded as true glands, but as crypts or depressions in the mucous membrane. In the posterior urethra glandular structures are rudimentary, but their pathological equivalent is found in the numerous prostatic ducts and the ejaculatory ducts. The authors discuss the tissue changes which are set up in these. Three varieties are recognized: catarrhal, follicular, and parenchymatous. For treatment the authors advise urethral irrigation, massage of the prostate, and then careful examination of the urine passed. The silver salts are overestimated, for much of their repeated value is due to the flushing of the canal which their use entails. In the later stages, astringent injections, passage of sounds and dilaters, prostate massage may all fail, owing to the weak natural resistance of the tissues toward the gonococcus. Strong resistance may require only general hygiene and simple internal remedies. In closing, the authors say that in their opinion we have at our disposal no drugs which possess the power of penetrating the mucous membrane and the glands and ducts communicating therewith to a sufficient degree to destroy all the gonococci, and, further, that all the means used in the cure of subsiding and chronic gonorrhea, be they injections, instillations, instrumentations, massage, etc., have as a basis of action the production of local, artificial congestions, which make possible the activity of the natural defenses of the body against the continued activity of infectious organisms.

Preventive and Abortive Treatment of Mastoiditis.—W. S. Bryant says that the prevention of a patient from mastoid inflammation is conditioned upon an integral condition of the upper air tract, and this means good hygiene and sometimes operative or medical intervention. These latter are necessary when local conditions have passed beyond simple functional disturbances with structural and tissue abnormalities. If functions alone are at fault, local applications will be found of benefit. In general infection the case of the upper air tract will safeguard against mastoid involvement. As soon as infection of the middle ear is suspected, treatment should begin. As a rule, we require more drainage than we can expect from one tube, and consequently we should incise the membrana tympani. Rest in bed should be insisted on if there is any evidence of incipient mastoid trouble, a saline purge given and hot water applied. Hot douching with a boric acid solution should be done hourly when awake. We may also use cupping, blood letting, and Wilde's incision. Nasopharyngeal treatment is the text for prevention and abortion of mastoid inflammation.

Electricity in the Treatment of Fractures.—C. O. Files believes that the processes of repair are essentially the same in fractures as in sprains, for all the vascular structures are repaired in practically the same manner. If the swelling and pain of a sprain are relieved and the injured tissues are cured by electricity, then the fractured bone will be restored by the same process. The swelling and pain, or, in other words, the inflammatory changes, are as unnecessary in a fracture as in an external wound. The conditions are in fact more favorable in a simple fracture, because there is no occasion for antiseptic treatment. The tight bandaging of a broken limb is an effort in the right direction, in preventing too much extravasation, and in favoring absorption, but the result is almost nil as compared with the efficiency of electricity. Moreover, the author says that in fractures there is a period of from seven to ten days, and sometimes longer, when there is no progress whatever in the work of repair. This time is spent in bringing to the parts an excess of material and in laboriously absorbing that excess. The whole trend of knowledge in regard to the therapeutics of electricity goes to show that this period may be diminished, if not eliminated, and that the subsequent stages of the process of osseous regeneration may be much hastened by the careful use of electricity.

Journal of the American Medical Association, January 30, 1909.

Classification of Pulmonary Tuberculosis.—L. Brown says that no perfectly satisfactory classification of pulmonary tuberculosis has been achieved, though it has often been attempted. It is a relapsing disease, and the results must therefore be considered under two heads, immediate and ultimate. Sanatorium patients must be classified on admission, on discharge, and according to final results. The classification should take into account not only the amount of disease in the lung, but the actual condition of the patient. Symptoms, as well as the pathological and general conditions, must be considered, and the divisions should be as sharply separated as possible. He reviews and criticizes the various classifications that have been proposed, and points out the difficulties that are met with, finally giving the classification which he thinks best, and which is somewhat modified from that of the National Association for the Study and Prevention of Tuberculosis. There are no important alterations in the classification of the incipient stage, and the definition of "moderately advanced" has been only slightly altered and simplified, that of "far advanced" is the same as in the other. As to the classification on discharge, the definitions have been but little altered: "cured," "apparently cured," "arrested," when the symptoms have been stationary or retrogressive, with absence of all constitutional symptoms; "improved" when the constitutional symptoms are lessened or absent, but cough or expectoration still continues with bacilli usually present and the physical signs are improved or stationary; and lastly, "unimproved" or "progressive," which explains itself. In classification of ultimate results he has, besides the heading "cured," that of "well" for such patients as fulfil all the conditions required under "cured," but about whose sputum no definite information can be obtained. The "arrested," "improved," and "progressive" are defined as in the classification on discharge.

Opium Smokers in the Philippines.—A. S. Rochester describes the experience and the methods used for the cure of the opium habit in Manila. Permanent cures involving the complete loss of appetite for the drug are seldom, if ever, realized and are not expected. Of 206 patients treated, 197 were Chinamen and three were Filipinos. The length of time which they had been victims of the habit averaged seven and one-half years. A striking fact noticed was the abandonment of the Chinese to a very large extent of the pipe for the use of the hypodermic syringe, and another was the general good physical condition of those who confined themselves to the pipe, as compared with that of the users of the hypodermic syringe. The two classes could be recognized at sight. The rapid withdrawal of the opium from the habitual Chinese opium smoker seems to be attended with very little danger and a surprisingly small amount of suffering. His system regulates itself in a comparatively short time to the absence of the drug, and the removal causes very little diarrhea. The hypodermic users of morphine and those who took opium by the mouth were far harder to treat, and the treatment presented nothing new from that employed in other races. The hyoscine substitution treatment was used in a few cases with very unsatisfactory results, and is unqualifiedly condemned by the author.

Respiration in Chorea Minor.—The importance of the respiratory symptoms in chorea is emphasized by W. W. Graves, who believes that their more general recognition will be a decided aid in diagnosis, especially in the milder and atypical forms of the disease. They are best observed with the thorax entirely exposed, the patient in the supine position with the trunk and limbs in position to afford the most complete bodily reaction. The points to which he calls attention are: "1. Irregular breathing, which is probably due to two factors, (a) lessened amplitude in some movements and increased amplitude in others, giving the impression that no two respiratory excursions are equal. (b) Sudden halts or cogs occurring (usually singly) during either inspiration or expiration, and most frequently during the latter. These do not occur in every respiratory movement, but are of frequent occurrence and appear to be due to a sudden arrest of the movement in one phase by the development of an incomplete movement of the opposite phase, but the original movement usually goes on to completion. These cogs render the respiratory movements distinctly jerky and may well be called choreic inspiratory and expiratory cogs. An inspiratory cog occurs most frequently near the end of expiration and an expiratory cog near the end of inspiration. 2. Now and then a sudden deep inspiration occurs, far exceeding in amplitude the usual unequal inspiratory movements and is succeeded by a sudden explosive (forced) expiratory movement, the whole differing essentially from a sighing respiration by its rapidity in its every phase and by the absence of a pause at the end of expiration. 3. Relative decrease in the length of the normal expiratory phases and relative increase in the length of the so-called normal expiratory phase, and distinct pauses are of frequent occurrence at the end of expiration. 4. Sudden changes from abnormal to costal, or from costal to abnormal, breathing occur frequently, both being observed at times in a single respiratory

combination—a mixture of abnormal and costal breathing and the frequent impression of incoordination—a dissociation in the respiratory movements. When 'pure abdominal breathing' occurs in chorea, movements of the whole chest are reduced to a minimum, and when 'pure costal breathing' occurs the upper abdomen remains practically motionless. 5. The respiratory rate is frequently accelerated and occasionally this may be slower than normal." These phenomena may be seen not only in the mildest cases, but may be also noted by palpation and auscultation, and some of them are among the earliest manifestations of the disease, continue prominently during its active stage and are still perceptible after the other usually recognized motor symptoms have disappeared. This, he thinks, indicates not only that actual recovery may be long delayed, but that the recurrences often observed are true relapses. Three case histories with tracings illustrating the respiratory phenomena are given in detail. Graves has not been able to find a single reference to these easily recognized appearances in recent periodical literature and says that no one has hitherto emphasized their significance in diagnosis. He gives a list of over fifty citations from authors who have written on chorea, giving their utterances as regards the implication of the respiratory organs, and holds that, in spite of the evident general lack of attention to these features, the literature itself warrants the conclusion that certain respiratory phenomena are among the most constant signs of the disease. Of course, if the trunk muscles are involved, those of respiration cannot escape, but this only partially explains the conditions—the incoordination, the amplitude variations, the sudden changes of type, etc., call for another explanation. This he finds in assuming that most of them can be accounted for only by an involvement of the respiratory center by the agent causing the disease.

Medical Graduates.—A. L. Benedict gives a statistical study of the supply of doctors in the United States, from which he figures out that with the present tendencies of the output of graduates from medical colleges and the decrease in the profession by death and otherwise, the number of physicians in the country, which was given as 132,000 by the U. S. Census of 1900, will be 154,000 and over in 1910. This, with the estimated increase in population, will give a slightly increased clientele per doctor from 572 to 594. European experience shows that one physician can easily care for 1,000 of general population, and it is scarcely possible, he thinks, that even by continuing to raise the medical standards, coalescing colleges, and discouraging matriculants, the average graduation list can be so much further diminished as merely to keep the profession at its present numerical strength. Should this result be reached, however, the average clientele would be only increased about ten annually, with the expected increase of the general population, and it would be past 1940 before we reach the proportions of doctors to population deemed normal in European conditions. In other words, we are over thirty-five years in advance of the natural requirements, which means not only individual average suffering for the profession, but also a serious economic problem for the country.

Rocky Mountain Spotted Fever.—H. T. Ricketts describes a somewhat pleomorphic bipolar bacillus which is found in enormous numbers in the eggs of infected ticks, and in their salivary glands, ovaries and the alimentary sac. They are absent from similar structures in uninfected ticks. The organisms are so numerous in the eggs that a sufficient quantity could be obtained for satisfactory agglutination tests, which show as a result that the serums of immune animals produce complete agglutination in dilutions as high as 1 to 160, with marked agglutination still at 1 to 200. Normal serums, on the contrary, produce no agglutination. Positive agglutination was also obtained by the use of serums from human patients, although the results were not so striking, perhaps, because of the fact that the serums were several months old. Normal human serum causes agglutination only in dilutions of 1 to 1 and 1 to 10. Taking advantage of the agglutinative power of immune serums, Ricketts concentrated the bacilli in the serum of freshly infected guinea pigs, subsequently centrifugating the clumps, which were recognized after being fixed and stained with Giemsa's stain. He apparently is convinced that the evidence indicates a specific relationship between this organism and Rocky Mountain spotted fever.

The Lancet, January 23, 1909.

Intestinal Indigestion.—After a general description of this affection, P. J. Cammidge says that its early recognition and treatment are primarily important because of the discomfort the condition causes the patient and also because the interference with nutrition that it brings about but the complications and sequelæ that are liable to occur in chronic cases are of no less moment. Toxemia may entirely unfit the patient for any occupation involving mental strain or concentration and one finds that a considerable number drift into that somewhat heterogeneous group of cases provisionally labeled "neurasthenia." A remote consequence of chronic intestinal indigestion, in the author's view, is the ultimate occurrence of diabetes. This is apparently due to the involvement of the pancreas in the disease, and although at present we do not know with certainty why some cases of chronic pancreatitis, due to infection of the ducts, should develop glycosuria while other and apparently quite similar cases do not, the fact remains that it is not a negligible possibility. The progress of the disease is usually slow, and in some diabetics the symptoms of intestinal indigestion have antedated the glycosuria by fifteen years. The author strongly insists on the prophylactic treatment of diabetes, and to this end the early care of disturbances in the chemistry and bacteriology of the large intestine largely contributes.

Endemic Funiculitis.—D. K. Coutts refers to the incidence of this disease (cellulitis of the spermatic cord) in Egypt where he saw ten cases and was able to follow up five, the histories of which are here given. Frequent reference is made to articles previously published in the *Lancet*. The author thinks that the disease is caused by thrombosis of the pampiniform plexus, due, in turn, to inflammatory changes in the vas deferens. All the author's cases have a history of urethritis which is extremely common in Egypt, but the sequelæ of which are much less severe and of much less significance than in Western European countries. In the acute cases, the onset is quick, but in the milder cases it is more gradual. A swelling is noted in the inguinal region, which increases in size and becomes swollen and painful. The temperature rises rapidly, and unless surgical intervention occurs, the case assumes the acute type. In some cases the affected tissues may be completely excised. In others, the inflamed mass is exposed through the skin and external oblique muscles and is then freely incised. The wound is left open and fomentations are applied every four hours till the surface is cleaned. Orchidectomy seems rarely called for. In the radical operation it is not always easy to decide when the whole of the infected tissue has been removed. In tying the cord high up in the internal ring, an infected focus may be left behind in the apparently healthy stump and cause considerable trouble in the extraperitoneal tissues, below the reconstructed inguinal canal.

Infantile Splenic Anemia.—W. K. Hunter gives extensive clinical notes on ten cases and presents much tabulated material which must be consulted in the original. He refers to three clinical types of the disease, the chief point of distinction between them being the degree of leucocytosis that may happen to be present. In the first type the blood picture is much the same as in splenic anemia of the adult, that is, the white cells are diminished instead of being increased in number and there is most often a lymphocytosis. In the second type the leucopenia is replaced by a moderate leucocytosis, fourteen thousand to twenty thousand per cu. mm. The proportion of the various white cells is little altered, although some myelocytes are to be found in the stained films. This type is more severe than the preceding, and includes most of the cases described under the name of Splenic Anemia of Infants. There is still a third type described (von Jaksch) as pseudoleukemic anemia of infants. Here there is a greater leucocytosis even up to one hundred thousand per cu. mm. Differential counts almost always show a definite proportion of marrow cells and generally there is a greater variety of leucocytes than in normal blood. Most often the lymphocyte predominates, but occasionally the polynuclears. Examination of the red cells in all three types shows nothing distinctive. The causes of the condition are the same as those for ordinary secondary anemia without splenic enlargement. Recovery may occur in the infantile type of the disease.

British Medical Journal, January 9, 1909.

Vincent's Angina.—J. T. C. Nash reports the case of a girl of 20 years with a sore throat. A true case of Vincent's angina had occurred in the house some weeks previously. The girl presented a patch on the right tonsil with mild constitutional symptoms. A swab test revealed the customary fusiform bacilli and spirilla. Recovery followed a week's use of iodine tincture locally and potassium chlorate internally. The author says that in many instances the inhalation of street dust accounts for the sore throat and streptococci and that the Vincent organisms

are merely accidental. He believes that systematic bacteriological tests would reveal them very frequently and hardly regards Vincent's angina as a disorder sufficiently distinct to deserve a specific designation.

Leucocytosis in Appendicitis.—G. Mitchell says that the behavior of the leucocytes in most cases gives a sure index of both the intensity of the local irritant and the patient's power of resistance. A low count signifies a mild case, an abscess thoroughly walled off (Cabot) or a very severe case. When the leucocyte count rises above that indicating pus formation or gangrene and keeps on rising rapidly it shows that a virulent poison is circulating in the system which may gain the upper hand at any moment if operation is not performed. If the general symptoms are severe and the count low death often results. The author recalls two cases of perforated gangrenous appendix with diffuse peritonitis in which the count was 12,000. As to differential count, in the author's cases of acute appendicitis going on to gangrene or pus formation, the percentage of polynuclear cells varied from 70 to 90 per cent. and was generally higher in the gangrene cases than in those of abscess formation. It was also higher in cases presenting evidences of severe toxemia. There is no constant relation between leucocytosis and fever. Several illustrative counts are given. It was noted in operative cases that very soon after the percentage of polynuclear cells and lymphocytes had returned to normal, the percentage of lymphocites became increased.

Appendicostomy, with Notes on the Surgical Aspect of Colitis.—J. B. Dawson recalls the fact that the use of appendicostomy for colitis was preceded by the operations of right inguinal colostomy and cecostomy. The former operation is difficult and the constant flow of fluid irritating feces over the surface of the wound and surrounding skin which becomes excoriated and sore is distressing and requires rest in bed with constant attendance. It is true that by this operation the fecal stream is entirely directed away from the colon, which is thereby given greater rest, but the complete daily evacuation and irrigation possible with appendicostomy seem to be sufficient for the purpose. Cases of colitis have a well-known tendency to relapse, and it is not easy to decide when to close the colostomy wound, for having once closed, the opening is not readily reestablished. With appendicostomy, however, if after treatment has ceased the opening be allowed to stenose naturally, it gives no trouble and at a later date can be dilated with suitable bougies, presence of the mucous membrane presenting complete closure of the fistulous tract. Hence in the author's view cecostomy has been largely superseded by that of appendicostomy. The author notes that the first use of the appendix for irrigation purposes was the result of an unlooked-for incident. Weir was about to perform cecostomy, but in opening the abdomen the appendix presented itself so opportunely that it was utilized instead of the cecum.

Appendicostomy in Diffuse Septic Peritonitis.—W. Billington refers to the Murphy method of treatment which he highly commends and says that he himself has had success in introducing large quantities of fluid into the large bowel by means of the appendix. When the appendix is healthy, as in a perforated gastric ulcer, an incision is made over the lesion and rapid measures are instituted to prevent further contamination. No attempt is made to irrigate or map the peritoneum, but adequate drainage is provided for. Then instead of the usual suprapubic puncture to allow of a rubber tube being passed into Douglas's pouch, a small, vertical incision is made over the lower portion of the right rectus muscle, the fibers of which are separated. The appendix is then pulled into the wound, the distal portion cut off, and the stump fixed in the upper angle of the wound by one or two sutures passed through all its coats and the skin with the surface of which the open mouth of the stump is practically flush. A small catheter is passed into the cecum, while through the lower part of the wound a large catheter is passed down to Douglas's pouch. The patient is placed in the Fowler position and the small catheter connected to a tank of warm saline, which should not be more than three inches above the plane of the cecum.

Berliner klinische Wochenschrift, January 11, 1909.

A Case of Atrophy of the Pancreas.—Keuthe reports the case of a male patient who suffered for several years with recurrent attacks of diarrhea that were often accompanied by glycosuria. Clinical examination of the various digestive functions showed that the stomach and liver functionated properly. On the other hand the administration of a large amount of glucose and of starchy food showed that the tolerance for sugar was markedly diminished; the Cammidge reaction was positive; proteolytic ferment was absent from the feces, the bodies of the meat fibers in the feces were undigested, as shown by their staining reaction, excess of fat was found in the feces. These facts justified the diagnosis of a chronic pancreatitis, malignant disease being excluded by the duration of symptoms and pancreatic cyst being improbable because of the absence of any palpable tumor. The patient died of tuberculosis and the autopsy showed an atrophied pancreas that possessed but the rudiments of pancreatic tissue containing several concretions; a few islands of Langerhans were present, some of them being markedly hypertrophied. Keuthe concludes that the tests employed by him in diagnosing this case are all open to many objections, but the positive result of them all show that an affection of the pancreas may be diagnosed by the careful and thorough use of as many of the recently proposed reactions and tests for pancreatic disease as possible.

Münchener medizinische Wochenschrift, January 12, 1909.

Wassermann's Reaction in Syphilis.—Rolly has examined twenty-five syphilitic patients, seventeen tabetics, and a few persons suffering from hereditary syphilis or from progressive paralysis. He concludes that non-syphilitic patients, even though suffering from such affections as tuberculosis, typhoid fever, etc., do not give a positive reaction in Wassermann's sense. On the other hand, in the cases of syphilitic and parasyphilitic affection, Rolly obtained positive reaction in 95.5 per cent. of the total number. As antigen he used the alcoholic extract of the livers of syphilitic fetuses, and considers that much better results are obtained with this substance than with any other. He warns against the numerous possibilities of error connected with the carrying out of the reaction and names a number of methods by which control experiments may be performed and the various reagents used tested.

The Formation of Concretions.—Schade describes a number of experiments by which he endeavored to learn the conditions favoring the formations of concretions and calculi, as well as the processes that lead to the appearance of these objects in the human body. He concludes that so far as urinary calculi are concerned similar structures may be experimentally produced by the simultaneous precipitation of colloid and crystalline substances. Fibrin may be used as such a colloid, though the formation of calculi succeeds with many other substances of like nature. He claims that urinary calculi are likewise not of crystalline nature alone, but are composed of various colloid substances derived from the urine which form the skeleton of the calculi and about which the salts are deposited. A minimal amount of a colloid substance is enough to act as such a framework, and this explains why only crystalline material seems to form the substance of calculi on superficial examination. The occurrence of soft calculi in which colloid material predominates corroborates the truth of his theory of the formation of calculi. Foreign bodies do not always lead to the formation of calculi; they may be simply incrusted with salts if no reaction has taken place about them. However, the presence of an inflammatory reaction about them may result in the precipitation of more colloid and crystalline substances in that portion of a viscus and then the foreign body may become a nucleus of a calculus. The therapy as well as the prophylaxis of urinary calculi must consider the rôle of colloid substances in the formation of calculi; further study of the conditions favoring the precipitation of these substances should be undertaken in order that diet and remedies may be devised which would oppose the occurrence of such precipitation.

Traveling Needles.—The *Lancet* refers to the curious wanderings of needles through the bodily tissues, and recalls the history of a remarkable case published in its columns some twenty-five years ago. The patient was a healthy Scotch girl, aged 20 years, who had no sign of hysterical tendency but was in the habit of putting pins in her mouth, and sometimes had been known to fall asleep without removing them. She was admitted to hospital, having swallowed five pins accidentally, while fixing clothes, and by the help of emetics she was relieved of them. Returning home, she began regularly to vomit pins and got rid of 23 in the course of a month. She then began to produce needles and in a fortnight 13 came out from the following situations—the left nostril, the origin of the sternomastoid behind the left ear, and a spot on the front of the right forearm, at the same time she continued vomiting pins until 75 had appeared. The needles were blackened and slightly eroded, and two of them were threaded with about three inches of thread.

Book Reviews.

ΙΣΤΟΡΙΑ ΤΩΝ ΗΝΩΜΕΝΩΝ ΠΟΛΙΤΕΙΩΝ ΤΗΣ ΑΜΕΡΙΚΗΣ. Ὑπὸ ΣΟΛΩΝΟΣ Ι. ΒΛΑΣΤΟΥ καὶ ΝΙΚΟΛΑΟΥ ΓΚΟΡΤΖΗ. Ἐν Νέᾳ Υόρκῃ: ἐκ τοῦ Τυπογραφείου τῆς "Ἀτλαντίδος." 1909.

ΑΠΟ ΤΗΣ ΑΚΡΟΠΟΛΕΩΣ ΕΙΣ ΤΗΝ ΑΛΤΙΝ. Ὑπὸ ΣΠΥΡΙΔΩΝΟΣ ΠΑΓΑΝΕΛΗ. Ἐν Νέᾳ Υόρκῃ: ἐκ τοῦ Τυπογραφείου τῆς "Ἀτλαντίδος." 1908.

ΔΥΟ ΕΠΙΤΟΜΑ ΛΕΞΙΚΑ, Ἀγγλοελληνικὸν καὶ Ἑλληναγγλικὸν. μετὰ Προφορᾶς. Ἐν Νέᾳ Υόρκῃ: ἐκ τοῦ Τυπογραφείου τῆς "Ἀτλαντίδος." 1908.

THE publishers of *Atlantis*, a daily Greek newspaper of New York City, in getting out these three books for the Greek inhabitants of this country, have done an unwitting service to all students of Greek. It is an axiom in the study of languages, as in all other acquisition of knowledge, that we should proceed from the known to the unknown, from the easy to the difficult. The study of Latin is much facilitated by a previous knowledge of Italian, and in a much greater degree the difficulties in the way of a comprehension of Ancient Greek are smoothed out for the student by a familiarity with the modern form of the language. As Geldart has said, "Modern Greek is simply Ancient Greek made easy." If one who aims to acquire a knowledge of classical Greek will first set himself to learn the modern form of the language, he will spare himself time and drudgery, and will reach his goal more rapidly than if he began with a grammar of ancient Greek and the reading of Homer or even Herodotus.

In the study of modern Greek, after a preliminary review of the principles of the language, one can make rapid progress by selecting for his reading the first of these books, "A History of the United States," by Solon J. Vlasto and Nicholas Gortzis, for his familiarity with the subject matter will make the reading easy. After he has read that he can take up the second book, "From the Acropolis to Altis" (Olympia), by Spyridon Paganelis, one of the most highly gifted of modern Greek writers, whose description of Greece and of the ancient landmarks is most entertaining, and couched in almost classical language. The reading of both books will be made easy by the very complete, though concise, Greek-English and English-Greek Dictionary. The books are excellently printed, in clear type on good paper, and can be recommended not only to the student who is beginning the study of Greek, but also to anyone familiar with the classical language who wishes to acquire a knowledge of the slight modifications which Greek has undergone in the centuries following the period of Athens' primacy in literature and art.

ELECTRICAL TREATMENT. By WILFRED HARRIS, M.D., F.R.C.P., Physician to Out-Patients, Physician to the Department for Nervous Diseases, and Lecturer on Neurology, St. Mary's Hospital: Physician to Out-Patients, Hospital for Epilepsy and Paralysis, Maida Vale. Illustrated. "We must take the current when it serves, or lose our ventures." Julius Cæsar, Act iv., Sc. iii. Chicago: W. T. Keener & Co., 1908.

THIS little book is a contribution to the Cassell "Modern Methods of Treatment" series, and for those who use electricity therapeutically in their practice, will be found convenient and practical. Particular attention is given to the work that may be done with a good faradic and galvanic battery. Explanations of the theory of the various forms of current are entered into, however, and those who wish to familiarize themselves with the uses of the "high frequency," or the sinusoidal, or the Leduc current, electric light baths, etc., may therein be enlightened.

COMMON AFFECTIONS OF THE LIVER. By W. HALE WHITE, M.D., F.R.C.P. Senior Physician to and Lecturer on Medicine at Guy's Hospital. New York: William Wood & Company, 1908.

IN response to many requests, the author has recast his clinical lectures on diseases of the liver, and now offers them in book form. What he may have lost in completeness he has more than made up by the incisiveness and personal touch which accompanies his descriptions. The less common affections of the liver he either omits or passes over briefly, concentrating his attention on the ordinary ailments. The contents comprise Hepatoptosis, Jaundice, Diseases of the Vessels and Suppurative Conditions, Cirrhosis, Syphilis, Cancer, Fatty and Waxy Liver, Tuberculosis, Actinomycosis Hydatids, and other cystic conditions. The section on Cirrhosis is particularly helpful and full of useful hints, which are urgently brought out in the manner of the clinical instructor whose business it is to teach and not merely enumerate.

Although the author has designed this work for students, it could well prove most useful to those further advanced, and we believe that very few practitioners could read these lectures without learning something either new or forgotten. The vast experience of the author in the wards and autopsy rooms of Guy's Hospital has enabled him to speak with authority and with well-balanced ideas of the relative importance of signs, symptoms, or treatment. Discarding the irrelevant, and proceeding to the root of the matter is an excellent method of teaching, and the Senior Physician of Guy's shows these traits throughout his excellent little book.

HUMAN FOODS AND THEIR NUTRITIVE VALUE. By HARRY SNYDER, B.S., Professor of Agricultural Chemistry, University of Minnesota, and Chemist of the Minnesota Experiment Station. New York: The Macmillan Company, 1908.

THE book before us was prepared by the author for his classroom at the University of Minnesota. It is practical and concise, and contains much instruction in proportion to its size. The work will prove of great value to physicians who need instruction on dietetics, the physical, chemical, and bacteriological changes occurring in food. The effects of storage, the relative cost and value of food are also considered. Numerous tables, illustrations, formulæ, etc., help to make the book of value as a reference handbook. The rational feeding of man, the various kinds of household waters, the interpretation of water analysis are all important subjects, and receive due notice at the hands of the writer. It is a book of value to both sanitarian and physiological chemist.

MÉDICAMENTS MICROBIENS: BACTÉRIOTHERAPIE VACCINATION SÉROTHÉRAPIE PAR METCHNIKOFF, SACQUÉPÉE, REMLINGER, L. MARTIN, VAILLARD, DOPTER, SALIMBENI, BESREDKA, WASSERMANN, LEBER, DUJARDIN-BEAUMETZ, CALMETTE. Avec 26 figures dans le texte. Paris: Librairie J. B. Baillière et Fils, 1909.

THIS is one of a series of volumes on Therapeutics that is to appear under the general direction of Gilbert and Carnot. As seen from the title, it considers the most recent methods of therapy, and consists of a series of special articles written by men who have done original work in the subject considered. Metchnikoff's contribution deals with intestinal bacteriotherapy, and states the well-known views of the author in regard to the rôle of the bacterial flora of the intestines in health and in disease; Wassermann and Leber write of serum treatment of epidemic meningitis; Calmette considers the treatment of snake bites; the other authors consider vaccination, the treatment of rabies, the prevention and specific treatment of typhoid fever, of infection with the streptococcus, of bubonic plague, of Asiatic cholera, of diphtheria, and of tetanus. It is hardly necessary to recommend this book to the attention of physicians because the subject of it is of such daily importance, both to the practical worker and to the scientist, that the mere title with the list of collaborators is enough to attract the attention of the progressive physician. The volume saves a great deal of hunting through recent literature, the latest work in the subject being presented by the authors of the various articles. It gives an authoritative picture of the success that has attended the introduction of vaccination and of serotherapeutic procedures into the treatment of disease and at the same time shows the limitations of such therapy and the problems that still await solution.

THE ART OF NATURAL SLEEP. With definite directions for the wholesome cure of sleeplessness, illustrated by cases treated at Northampton and elsewhere. By LYMAN P. POWELL, Rector of St. John's Church, Northampton, Mass. Author of "Christian Science: Its Faith and Its Founder"; Editor of "Historic Towns of the United States." G. P. Putnam's Sons, New York and London: The Knickerbocker Press, 1908.

THIS little book is likely to become one of the "official books" of the so-called "Emmanuel Movement." Like some other similar books, it is doubtless a protest in part against the ultraconservatism of the medical profession toward the legitimate employment of hypnotic suggestion in the treatment of certain nervous disorders in their practice. The American neurologist is constantly complaining that his field is so much encroached upon. His European confrère is less conservative in this respect and therefore less harassed. This book, written by a layman, contains nothing new from a medical standpoint. Injected throughout, however, is the principle on which the Emmanuel movement mainly relies, viz., faith. This is "first reinforced by heterosuggestion and then by patient and persistent autosuggestion." Verily, is there not "something in it?" The author contemplates a treatise on the suggestive treatment of other nervous disorders.

Society Reports.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Eighteenth Annual Meeting, Held at Minneapolis, Minn., December 29 and 30, 1908.

THE PRESIDENT, DR. W. W. GRANT OF DENVER, COLO., IN THE CHAIR

Value of Enterostomy in Intestinal Obstruction.—Dr. JOHN P. LORD of Omaha, Neb., said that the general mortality after operation for intestinal obstruction was probably from fifty to eighty per cent. According to Elsberg, in only about ten to fifteen per cent. of cases entering Mount Sinai Hospital, New York, was the condition still to be considered a good one; and fifty-four died out of one hundred cases entering three of the large hospitals in New York during 1906. The extreme conditions commonly met with required too much anesthetic, too much surgery, and too much time for successful surgical relief by radical intervention. Until earlier diagnoses were made enterostomy should be done to drain the toxic contents of the intestinal tube and stop the absorption of the ptomains. This relieved conditions which, if allowed to continue, became rapidly fatal. It met the indications without necessarily killing those who were extremely ill. It was not a last resort, to be withheld from those who were in good or fair condition. Inanition, formerly feared, skin excoriation, and the necessity for a secondary operation, were all eliminated by the present methods. Liquid nourishment, stimulants, and cathartics might be administered with most valuable results. Irrigation and drainage and the use of the Moynihan tube, now considered so valuable, might also be accomplished before the wound was closed, and might also be used to a limited extent afterwards. The necessity for a radical secondary operation was sometimes obviated by this "tide-over" procedure, because of the subsidence of peritonitis, the consequent infiltration, the paralysis, and even the angulation which was due to overdistention. The author reported four successive, but successful, cases to illustrate the results of enterostomy in acute post-operative obstruction.

Dr. WILLIAM D. HAGGARD of Nashville, Tenn., thought the lesson of this paper should be heeded. There was not a surgeon who had not had the mortifying experience of a tremendously high mortality attending the hopelessly delayed cases of intestinal obstruction. If we could operate on these cases quickly under local anesthesia by enterostomy, he had no doubt we would be able to save a much larger proportion of them primarily.

Dr. J. F. PERCY of Galesburg, Ill., said that in 1902 he opened the abdomen of a doctor's son for delayed appendicitis. He did it at the request of the young man, and found therein a condition that was embraced in the title of Dr. Lord's paper, where everything was black, and he recognized that there was something besides opening the abdomen for drainage to be done in the care and cure of these patients. His next patient, about a year afterwards, was brought into the hospital cyanotic and in a moribund condition. He directed the anesthetist to put cold water on the mask because the man was near dead, and he wanted one or two members of the family in the room, so that if the patient died on the table there would not be any question as to responsibility on part of the operator. He made a quick opening in the right iliac region and grasped the first piece of intestine that presented, fastened it, and opened it. The patient remained in a semiconscious condition for three weeks, but made an operative recovery. Some two or three months afterwards, when he got tired of the fistula he had, Dr. Percy opened him up and resected about sixteen or eighteen inches of the gut, after which the patient made a perfect recovery. He had had three similar cases, this one making four in all, since 1903, and all of them had recovered by that treatment.

Dr. R. C. COFFEY of Portland, Ore., said that the mortality from intestinal obstruction was doubtless fifty per cent. less than it was two years ago. This lowered mortality rate was due to two or three things. First, the family physician recognized now that acute distention of the abdomen, which could not be accounted for in any other way, was to be looked upon with grave suspicion. Second, we had learned that a paralyzed bowel, distended, in which there were ecchymotic spots developed on the intestine above, was dangerous, and it would not empty itself, even though the constriction was relieved. Finally, one of the most important things in dealing with these cases of intestinal obstruction was to keep out everything from the stomach that was possible, in order to prevent the formation of gas.

Dr. F. GREGORY CONNELL of Oshkosh, Wis., said that there could be no question as to the advisability of performing enterostomy in severe cases of intestinal obstruction, and he did not think any one would doubt the inadvisability of doing this operation in the early or mild case. If we did enterostomies unnecessarily, the mortality rate would be higher than was necessary. This point should be emphasized. In cases of acute intestinal obstruction the necessity of infiltration anesthesia should be used.

Dr. JAMES E. MOORE of Minneapolis asked when one should do enterostomy, and when a radical operation in these cases of acute intestinal obstruction? He thought it would be equally objectionable to undertake to do a radical operation in all these cases as to do enterostomy in all cases, because a fecal fistula was a very uncomfortable thing for the patient, and it did not enhance the reputation of the surgeon. It would necessitate an operation later, which was not free from danger.

Dr. FREDERICK A. DUNSMOOR of Minneapolis reported the case of a girl who had been operated on three times for obstruction of the bowels. He operated on her a year ago for an acute appendicitis from which she made a good recovery. Six months later she was operated on again by a colleague in his absence for acute intestinal obstruction, which was relieved. Later, while skating, she was seized with pain, and was operated on, the operation disclosing obstruction at the upper part of the ileum, and by liberating bands and separating adhesions he was enabled to establish perfect patency of the intestinal tract. Two weeks later he was called to see the girl again for obstruction of the bowels, with enormous dilatation of the entire small intestine. The intestine was filled with the same kind of fluid that had been described in cases of acute dilatation of the stomach. There were three quarts of this black fluid, which was largely made up of bloody substance at the time. He succeeded in establishing normal patency of the bowel, and while the patient was not in the very best of condition at the present time, she was still alive. She had a fistula.

Dr. A. L. WRIGHT of Carroll, Ia., spoke from the standpoint of a patient. In March he had his first attack of appendicitis. Within eight hours from the onset the appendix had ruptured, and it was removed within fifteen hours from the onset of the first symptoms of any trouble in his right flank. Following the operation he had septic ileus, and for four or five days suffered intensely. The abdomen had been packed open, but not until a ligature was placed about the appendix for closure did he get relief, which was prompt. He wished, therefore, as a recent sufferer, to urge opening up the bowel (if the patient was in such a condition that further operative interference was unwarranted) by using sharp-pointed scissors, and giving vent to the contents, as he thought by so

doing we would save a much larger percentage of these patients.

Dr. Clifford U. Collins of Peoria, Ill., said the remarks of Dr. Connell raised the question in his mind with regard to the drowning of these patients in the fecal vomit. A few years ago, when Dr. E. Wyllys Andrews published his paper, he saw a case in which the material which came from the mouth of the patient was greatly in excess of any quantity that could be contained in the stomach. Probably under the influence of the anesthetic the pylorus became relaxed and a vast quantity of material was forced into the stomach by the combined pressure below. If that was the case, it occurred to him that washing out of the stomach as a preliminary to anesthesia would prevent that trouble. Since then he had operated on patients in the reverse Trendelenburg position, allowing gravity to keep the intestinal contents from escaping, and so far that trouble had been obviated.

Dr. Van Buren Knott of Sioux City, Ia., said that enterostomy had lowered the mortality from intestinal obstruction, but it had by no means eliminated it. From the general trend of the discussion it would seem that enterostomy in these cases, no matter how late it was done, in the hands of a good surgeon, was a life-saving procedure. This was by no means his experience. He had had many cases in which enterostomy had been done, yet the patients had gone on and died just the same. Multiple enterostomy with drainage had proven valuable in his hands.

Abscess of the Brain.—Dr. W. H. Magie of Duluth, Minn., reported two cases of brain abscess in detail and made a plea for a more thorough and systematic exploration of the brain in suspected cases. He was satisfied that, as a rule, the surgeon of ordinary experience was too timid in his exploration of the brain in suspected abscess. These cases were absolutely hopeless unless the abscess was located and drained. Knowing this to be the fact, we were justified in undertaking almost any operative procedure in our efforts to locate and drain such abscesses.

Indications for Obliterative in Contradistinction to Reconstructive Endoaneurysmorrhaphy.—Dr. W. J. Frick of Kansas City, Mo., believed that in the vast majority of cases the radical obliterative endoaneurysmorrhapy was the operation to be preferred, for the following reasons: 1. The procedure was definite, thorough, and radical. 2. No plastic work in diseased tissue was required, such work being notoriously uncertain. 3. In a majority of cases the sac configuration and intrasaccular conditions would preclude plastic work. 4. In reported cases, where apparently either method might have been employed equally well, the obliterative method had been more satisfactory and had shown greater freedom from untoward sequelæ, such as recurrence, hemorrhage, thrombosis, gangrene, etc. 5. A pathological aneurysm was a malignant degeneration in a vital structure. The diseased vessel could no longer be depended on and deserved obliteration. The author reported two cases, one the saccular type of aneurysm, the other a large popliteal aneurysm of nine months' duration, on which he had operated, with recovery in both instances. The technique of intraaneurysmal surgery resolved itself into several distinct essential steps: 1. Preliminary hemostasis. To accomplish this was more or less difficult, according to the situation of the aneurysm. Esmarch compression of the main artery above, and temporary, direct compression above and below were variously used. A bloodless field was almost a *sine qua non*. 2. Free opening of the aneurysmal cavity to permit a careful survey of the interior of the sac before deciding on the plan of procedure. 3. Intrasaccular suture of orifices. 4. Obliteration of cavity by sutures. 5. Closure and drainage. The after-treatment of these cases was usually simple, only one or two points being worthy of comment. The part operated on was best immobilized by some suitable fixed dressing in a position of relaxation. This prevented tension on the vessel wall longitudinally, and also allowed free play for the establishment of a collateral circulation. Drainage should be removed early, as soon as its purpose was served.

Dr. John P. Lord of Omaha was greatly interested in the work of Matas from the first, as well as in the work done by others, and had been looking for cases that were suitable for the Matas procedure. He had had two cases of popliteal aneurysm, but when he came to consider the feasibility of treatment by this method, and began to look up the subject, he found that both of these cases were poor subjects for surgical exploitation. The arteries were generally sclerosed; the arterial tension was high, while the kidneys were not in a good condition. One of his patients was a man, 60 years of age. When one looked over the literature he became impressed with the wisdom of John Hunter and the value of his procedure of litigation of the femoral artery. He was likewise impressed with its simplicity and how easily the operation was borne by the patient. Dr. Lord resorted to litigation in both of his cases; the patients did well, made good recoveries, and were still alive. He was not fully convinced of the advantage of doing aneurysmorrhaphy in all cases of popliteal aneurysm. It did not appeal to him.

Subserous Appendectomy.—Dr. E. M. Sala of Rock Island, Ill., reported four cases in which he resorted to the removal of the appendix, except its serous coat, thus avoidin gdisturbing adhesions of the appendix to other viscera. He believed the method had a permanent place in surgery and was the operation of choice in certain forms of adherent appendix. 1. The vermiform appendix might be shelled out of its peritoneal covering or serous coat. 2. The remaining serous coat could not cause a recurrence. 3. This method of dealing with an appendix, which was glued to other important structures, avoided the disagreeable sequences of loosening up strong adhesions, and in many cases might preclude subsequent operations, which were always embarrassing to the operator, and a misfortune to patients.

Dr. John P. Lord of Omaha had availed himself of this procedure in suitable cases, and was reminded of one patient upon whom he operated eight years ago, following a technique similar to the one that had been described by Dr. Sala. In this case a young surgeon had worked for an hour and a half in trying to deliver the appendix, but by this means the speaker was enabled to deliver it from the bottom of the pelvis. This procedure was valuable, in that it saved much trouble and lessened danger.

Chronic Dilatation and Prolapse of the Stomach.—Dr Arthur E. Benjamin of Minneapolis said that the disease known as dilatation of the stomach was now engaging the attention of the medical and surgical world. The association and relative importance of stomach prolapse was also being recognized. Recent investigations had demonstrated that reported deaths due to heart failure, gastralgia, acute indigestion, etc., might have been in some instances due to acute dilatation of the stomach. His conclusions were that: 1. Chronic dilatation and prolapse of the stomach were often interdependent and associated. 2. As possible antecedents of an acute dilatation they must be recognized. 3. As factors in the causation of ulcers or cancer they should be considered. 4. The causes for dilatation and prolapse might be similar and primarily were often due to indiscretion in diet, followed by weakened gastric support, motor insufficiency, or partial obstruction. 5. The exact nature and variety of the ptosis or the dilatation should be determined, if possible, by *x*-ray and other means. 6. Symptoms actually due to chronic dilatation or prolapse were frequently termed hysteria, neurasthenia, or nervous dyspepsia. 7. Acute upper abdominal pain or attacks of vomiting were often misinterpreted; they were frequently due to acute pyloric or duodenal obstruction and gastric disten-

sion. 8. Hyperchlorhydria, post-operative vomiting and vomiting of pregnancy might be dependent upon the presence of chronic dilatation or prolapse of the stomach. 9. The treatment should depend on the conditions found. 10. Simple cases were often amenable to medical and mechanical means, such as diet, exercise, mechanical support, hygiene, etc. 11. Certain cases should be operated on, especially those of actual pyloric or duodenal obstruction or of the sagging type, and other aggravated cases not relieved by medical means. 12. Some cases were dependent on an associated visceroptosis and relaxed abdominal walls. These should be properly treated to bring about the relief dependent on such a general prolapse. 13. In the sagging types the Beyea operation, whether alone or supplemented by the Coffey operation, if there was an associated sagging of the transverse colon should be done. 14. Chronic dilatation of the stomach not dependent on obstruction and when not otherwise relieved was greatly benefited and often cured by the Bircher operation of plication. 15. In chronic dilatation, dependent on a benign pyloric obstruction, a short loop gastroenterostomy should be performed. 16. Obstruction or dilatation dependent on malignant growths might call for a pylorectomy. 17. In operating a careful search should be made for any other points of chronic bowel obstruction, as from disease of the gall-bladder, appendix, or from a kinking colon, etc. These conditions might add to digestive disturbances and should be corrected at the same time. 18. All cases operated upon should be followed for some time and the subsequent treatment carefully managed.

The Surgical Importance of the Intestinal Gases.—Dr. B. B. Davis of Omaha said the points that practical surgeons needed especially to have in mind were: (1) To have as little fermentable substance as possible in the intestines before operation. (2) To do as little as possible during the operation, which would interfere with the normal circulation in the intestinal wall. This could probably best be prevented by a minimum amount of handling and resulting trauma. (3) To leave the intestines in the best condition for active peristalsis. Long exposure and much cooling were inimical to active peristalsis.

Dr. D. S. Fairchild of Des Moines, Ia., read a paper in which he discussed post-operative acute dilatation of the stomach.

Dr. R. C. Coffey of Portland, Oregon, said there were able men who considered prolapse of the stomach a non-surgical condition, while there were others who believed that it was a surgical condition under practically all circumstances. From the experience he had had in this work, he should say there was a happy medium. Not more than twenty-five per cent. of the cases of prolapse of the stomach, as seen by the internist, had any surgical features. Probably not more than one in five had any surgical features, but the fact remained a certain number of them did have surgical features and the results of surgical treatment were practically as good as in gastric ulcer.

Dr. Daniel N. Eisendrath of Chicago said that during the past few years at the Michael Reese Hospital, Chicago, they had paid special attention to acute cases of dilatation of the stomach in order to determine the cause of some of them. They had found in quite a large proportion of cases that the direct cause of the acute dilatation of the stomach was repeated capillary hemorrhages, and had substantiated this by examinations of the washed contents of the organ and by other tests, showing that the hyperacid contents were bloody. There was no hematemesis in the sense that we get it from a gastric ulcer or from gall-stone complications.

Dr. Charles H. Mayo of Rochester, Minn., said that if the internist picked out one case in twenty-five and sent it to the surgeon, he would probably operate on one in five, which would be one in 125 that presented symptoms. If the stomach got larger and was able to do its work and to empty itself, it was probably not [illegible] surgical condition. If one could find the pylorus open, and there was no kinking of it, operation might not be called for.

Dr. Jabez N. Jackson of Kansas City, Mo., said that some years ago he had two unfortunate experiences. In each instance the patient belonged to that class of people in whom there was a marked disturbance of metabolism previous to operation, as evidenced by a change in the color of the skin, flabbiness of the complexion, and general laxity of the tissues. These patients consumed an unusual amount of the anesthetic. He had, therefore, come to believe that probably the primary cause in most cases was a disturbance of the metabolism which was increased as the result of the toxic influence of the excess of anesthetic. In recent years, since the open method of administering ether had been adopted, and the giving of it in small quantities, this trouble had disappeared.

Dr. J. W. Andrews of Mankato, Minn., was reminded of the case of a woman, past middle age, with malignant kidney of sufficient size to bulge forward to a considerable extent, and he removed it through the peritoneal cavity. The patient did well for about ten days, then acute dilatation of the stomach occurred, beginning with vomiting of coffee-ground material. The patient died, and at the post-mortem examination he found the largest dilated stomach he had ever seen. It was so enormously dilated that it reached down to the brim of the pelvis. During the past year a severe epidemic of typhoid fever occurred in his region, and there were several cases of acute dilatation of the stomach accompanying the typhoid. In these typhoid patients the stomach was greatly dilated; but the intestines were no more distended than was usually the case in typhoid fever, yet every one of those patients died from acute dilatation of the stomach. Whether this was due to the capillary hemorrhages spoken of or not he did not know. At any rate, it was an extremely fatal condition.

The President asked if the stomach was washed out.

Dr. Andrews replied that they did not wash out the stomach in the typhoid cases.

Dr. M. L. Harris of Chicago said that he had come to classify the cases of chronic dilatation of the stomach under two heads: those in which there was mechanical obstruction and where surgical interference was the proper treatment, and those in which there was no mechanical obstruction. It was doubtful, in his mind, whether the latter were benefited by operative measures. He had never seen any good reason for the plication of a dilated stomach. If a stomach was dilated as the result of mechanical obstruction, plication was useless. If it was not dilated from mechanical obstruction, but from atony or any other condition, the plication would interfere with vermicular action. He had never seen the rationale of plication of the stomach.

Dr. Henry T. Byford of Chicago said that a dilated stomach was different from a normal stomach. If one plicated the normal intestine, for instance, it would interfere with its function, and if the stomach was plicated it would interfere with its contraction. There was a pouch, it hung down, and would not relieve itself, and we could not very well, if it was a surgical case, diminish the contractile power of the stomach. In such a case, if we could bunch it up, relieve the pouch, help drainage through the duodenum, and help the physical condition, we were establishing temporarily postural treatment, thus giving the stomach a chance to empty itself, and as probably the adhesions would stretch after a while, we had not injured the stomach; we had not injured motility which did not exist.

Diagnosis in Its Relation to the Laboratory and the Bedside.—Dr. W. W. Grant of Denver selected this title for his presidential address, and, among other things, said that a detailed critical study of the history of cases and of the meaning of clinical signs, subjective and objective, was, he feared, not the common practice, even of sur-

geons. There was too much reliance, even when not necessarily exclusive, placed upon instruments of scientific precision and upon laboratory diagnoses, and too little upon the training and discipline of one's own faculties in his accustomed work. The result was a few expert diagnosticians in certain departments, and a general decadence in diagnostic skill and acumen. Sound judgment in the many phases of our work was the growth of natural fitness, education, close observation, and the knowledge of laws and facts governing specific and general diseases. A great surgeon was not a mere mechanic; he was as well a good physician and a trained clinician. Science was not the exclusive property of the expert nor the necessary product of the laboratory. The aim should be not to produce fewer experts in research work, but more scientific clinical experts and diagnosticians. This was necessary to the broader culture and usefulness of the profession, as well as to the best welfare of the sick. Surgery as a study was not exclusive, although its practice might be. A narrower view of the subject was not conducive to the best education, nor to the most thorough equipment. The personal equation was of the greatest moment; but great surgeons were not made by imitation, and skill in diagnosis was a protean product that could never be measured by the rod and the plumb.

Sarcoma of the Fibula.—Dr. J. Clark Stewart of Minneapolis read a paper on this subject which was based upon two cases observed within one month. The tumor was quite rare, though probably not so rare as the study of the literature would show, as many cases were not reported. The trend of the best modern practice seemed to lean toward the less severe operation followed by the Coley treatment, rather than the classical high amputation or disarticulation. The histological type of sarcoma seen before dissemination determined the result. The softer periosteal sarcomata, as well as their prototypes in the central groups, after they had penetrated the bone and invaded the soft parts, were probably never cured by operation, and only rarely by the Coley treatment, while giant and large spindle-cell tumors were of slow growth and slow to form metastases, and thus made possible better results and permitted of conservative operations. He thought that every case of inoperable sarcoma and every case of sarcoma after operation should be given the Coley injection treatment, as the successes of this method had been too numerous and striking to justify anyone in not giving his patient what was certainly a fighting chance for his life.

Dr. James E. Moore of Minneapolis thought that conservative operations were the proper ones. Patients who were to be saved by operation could be saved by a conservative operation, and those cases of the most malignant type were not saved by extreme operation, so that it was proper and right to remove the bone involved or part of it at times and take the chance.

Dr. J. W. Andrews of Mankato, Minn., said that a few years ago he had a case similar to the one reported. In this case the sarcoma occurred at the distal end of the fibula and involved one-third or possibly one-half of the bone. He recommended the removal of the fibula; but the patient went to Rochester, where amputation above the knee was recommended. She was not willing to submit to that operation, returned, and concluded to take the speaker's advice of excision of the entire fibula. This operation was performed by him, and she made a beautiful recovery.

Dr. B. B. Davis of Omaha said that of the cases of sarcoma he had seen, he had observed a number of them which involved the tibia, but only one of the fibula.

Dr. Jabez N. Jackson of Kansas City, Mo., reported a case of sarcoma of the upper end of the fibula which was treated by operation, but recurrence took place in less than a year after operation at the site of the original tumor.

Treatment of Tetanus.—Dr. William Hessert of Chicago said the best treatment of tetanus was to prevent the disease by prophylactic injections of antitetanic serum. He summarized the treatment of tetanus as follows: (1) General accepted methods of local wound treatment should include the use of peroxide of hydrogen and balsam of Peru. (2) The serum treatment should be limited to subcutaneous injections, at least 1,500 units, twice daily, and continued for days and weeks, as the case demanded. (3) Injections of 25 per cent. magnesium sulphate solution by lumbar puncture, exercising great care, especially with the initial dose and in the case of children. The patients should be in a sitting posture and the injection repeated as often as necessary. Its toxic effect on the medulla should be watched for, as shown by depression of the heart and respiration. (4) Proctoclysis was a valuable adjunct. Much depended on good nursing, with proper food and stimulation. Chloral and bromides could also be given, if there was no contraindication.

Dr. M. L. Harris of Chicago thought that when tetanus had once developed antitoxin was practically useless, and our hope must be centered entirely on the injection of some substance or agent which would control the spasms of the patient long enough to permit the system to break up the combination of the toxins in the body and eliminate them. So far, the best treatment seemed to be injections of sulphate of magnesia. He had used it in three cases, two of which recovered and one died.

Dr. Daniel N. Eisendrath of Chicago said that every punctured or blank cartridge wound ought to be converted into an open wound, and the only way to treat these cases, no matter whether the wound or wounds were in the hand or foot, was to anesthetize the patients, put on an Esmarch constrictor, open up the wound from one end to the other, and cut away all necrotic tissue, taking away the pabulum for the bacteria to develop there.

Dr. F. Gregory Connell of Oshkosh reported two cases of tetanus in which he injected magnesium sulphate into the spinal canal, but both patients died.

Dr. Roger B. Brewster of Kansas City, Mo., said that he had had two cases under observation recently. These occurred in the practice of Dr. Geo. M. Gray. One was a boy with a wound of the hand. His jaws were locked. He was given antitetanic serum, the wound was thoroughly cared for, he was put on potassium bromide, and recovered. The other case was a young man, 21 years of age, with a wound of the index finger. Dr. Hertzler amputated the finger; gave him antitetanic serum; put the patient on 20-grain doses of potassium bromide every four hours, and kept him under that for about ten days. It was ten days before trismus was relieved. His spinal and neck muscles were all set, as well as abdominal muscles, but on the tenth day he was relieved, and from that time made a good recovery.

Dr. Mayo said that the incubation period was the main thing in considering these cases. If we took the cases of tetanus that began within seven or eight days, we lost eighty per cent. of them, whereas of those cases that did not begin until after the tenth or twelfth day, we would save eighty per cent. of them.

Dr. W. D. Haines of Cincinnati said prevention of tetanus was the *sine qua non* of treatment, and after they had introduced an ordinance in Cincinnati doing away with the toy pistol and the cannon cracker, they had not had a death the first year.

Technique of Cleft Palate and Hare-lip Operations.—Dr. Joseph Rilus Eastman of Indianapolis said that Lane, who declared the best time for cleft palate operations to be the day after birth, or as soon thereafter as possible, and whose position at first seemed open to criticism, had many followers. Many operators had expressed an assured conviction that the newborn child bore surgery much

better than had been imagined. In ordinary cleft palate operations, during the first week, the loss of blood should be trivial, but however this might be, the danger from loss of blood was not greater than at a later period. Experience had not suggested the slightest foundation for the truth of the statement that young infants did not bear the loss of blood well. There was no reliable evidence to the effect that a very young infant did not bear the loss of a given proportion of its blood as well as an older individual. In denuding the margins of an incomplete palate cleft, the strip of mucous membrane should be removed, if possible, from the entire edge in one piece, in order that the denudation might be complete all around. If the two sides of the cleft were denuded separately, there was considerable likelihood that a small piece of mucosa might be left at the apex, interfering with union at a critical spot. Denudation should begin at the tip of the uvular half upon one side and continue all around the edge of the cleft, finishing at the tip of the opposite half of the uvula. In cutting off the strip the knife should be so held that more membrane was cut from the nasal than from the oral side of the palate. This facilitated coaptation with mattress sutures. In cases of narrow cleft combined with high palatal arch, it was often not difficult to coapt the edges with mattress sutures after the separation of the muco-periosteum from the hard palate with Brophy's periosteotome or dentists' scalers curved at right angles on the flat. In cases of high palatal arch, if the cleft was not too wide, it was sometimes unnecessary to make incisions for the relief of tension, for after separation the two flaps would fall together, like the two halves of a cantilever drawbridge, and might be sutured without tension. The soft palate must be quite completely separated from the hard palate at the posterior border of the latter, as emphasized by Barry. In order to avoid the occurrence of a notch on the lip after the wound had shrunken, the following practice might be followed: After freshening was done, according to one of the well-known methods suitable in the case, and after introducing the horsehair sutures, a little roll of gauze about the size of the distal phalanx of one's little finger was fixed with its long axis transversely to the plane of suture, and the long ends of the upper most and lowest horsehair sutures were tied over the little gauze roll, so that the line of suture was wrapped, so to speak, around the gauze for about two-thirds of its circumference. This simple plan would effectively prevent notching after healing was completed, and, moreover, it kept the dressings in place and by gently stretching the wound margins maintained coaptation.

Plastic Surgery of the Abdominal Wall.—Dr. Robert C. Coffey of Portland, Ore., defined abdominal hernia as a protrusion of the abdominal contents through the abdominal wall proper, or beyond the ordinary plane of the abdominal wall; therefore either an absolute hernia in which the contents passed through an actual opening in the fascial wall—inguinal, femoral, umbilical, and post-operative or traumatic—or relative, in which a certain portion of the abdominal wall of fascia was weakened to such an extent as to allow protrusion of the contents of the abdomen without an actual opening in the fascial wall. Another form of relative hernia was manifested by an increase in distance and protrusion between the umbilicus and the anterior superior spinous process of the ilium, due to transverse stretching of the fascia of the external oblique. This condition might be unilateral or bilateral. This condition was treated as follows: Split the fascia of the external oblique parallel to the fibers in such a manner as to converge with a like split on the opposite side at a point just above the symphysis pubis. Separate the fascia from the internal oblique. Draw one layer of fascia under the other with quilt sutures of linen, taking care to have the loop of thread include the fibers of fascia in a transverse direction. Suture the remaining free edge of fascia to the outer surface of other layer with a continuous catgut suture to further improve apposition at the free edge. Thus the distance between the umbilicus and anterior superior spinous process had been diminished, the protrusion had been reduced, and the fascial wall had been doubled. The result was an abdominal supporter made of the patient's own tissues, and might therefore be termed an autoplastic bandage. Two cases treated by this method, one unilateral and one bilateral, had been entirely successful. The one was performed eighteen months ago, and the other eight months ago.

Surgical Types of Abdominal Tuberculosis.—Dr. William D. Haggard of Nashville, Tenn., said that after the lungs and bones, the intestines, pelvic organs, and peritoneum were the strongholds of tuberculosis. The duodenum and esophagus seemed practically immune, due to the rapid passage of the contents of these tubes, which allowed no opportunity for microbic fixation. The stomach immunity was due to the destructive action of the gastric juice on the tubercle bacilli. There were nine instances of primary tuberculosis in the literature, and 57 cases of secondary involvement of the stomach. The small intestines were involved secondarily, usually, but it occurred primarily oftener than was formerly believed. About 25 per cent. of tuberculosis was said to gain entrance into the system through the intestinal mucosa. It was a disorder of child-life, due most probably to infected cow's milk. It attacked lymphoid tissue, which abounded in the lower ileum. Stagnation invited bacterial entrance. Intermittent pain and diarrhea were the chief symptoms. Strictures and peritonitis were the principal sequelæ. Nearly half of the cases of intestinal stenosis were caused by tuberculosis. It was marked by chronic obstruction and the "ladder-like" appearance of the abdomen. Resection or short-circuiting was indicated. Eighty-five per cent. of abdominal tuberculosis occurred in the ileocecal region. Swallowed bacilli were causative. Chronic obstruction sometimes resulted. Clinical examples, with operative records of the author, were reported. Hyperplastic tuberculosis of the cecum, with perpendicular induration in the right flank, was fatal without excision or other surgical measures. Illustrative cases were cited. Mixed infection resulting in abscess from ileocecal disease was also illustrated by two operative cases, with recovery. A case of tuberculosis of the omentum adherent in a hernial sac of a boy, requiring removal of almost the entire omentum and the appendix, was narrated. Tuberculosis of the appendix, apart from the cecum, was comparatively rare. Chronic peritonitis with ascites was usually tuberculous. The Fallopian tubes accounted for greater prevalence in women. From 7 to 17 per cent. of all tubes removed were tuberculous. Simple laparotomy cured only those cases of the ascitic variety in which the tube became adherent and the tuberculous process became thus obliterated. Recurrent cases required the removal of the focus of disease in the tubes for permanent cure. The ulcerative and fibrous types were unsuited to operation. The suppurative form was usually fatal in spite of operation.

Repair of the Internal Ring in Oblique Inguinal Hernia.—Dr. F. Gregory Connell of Oshkosh, Wis., divided the methods of radical cure of oblique inguinal hernia into two unequal divisions. (1) In which the result was an anatomical reproduction of the normal relations. (2) In which the resulting relations were markedly different from the normal. In class one all the relations were, as a rule, reproduced except that of the internal ring in the transversalis fascia, which was usually allowed to remain in a dilated condition, or was sutured from above downward, which resulted in an abnormal descent of the ring, with consequently a shorter and less oblique canal

In order to reproduce the normal internal ring, the transversalis fascia must be sutured from the lower boundary of the ring upward to the cord, in this way elevating and diminishing the internal ring, with consequently a longer and more oblique canal. The various steps in the anatomical repair of oblique inguinal herna consisted of (1) the removal of the sac, with redundant parietal peritoneum. (2) Repair of the internal ring. (3) Protection of the ring by suture of the internal oblique muscle to Poupart's ligament. (4) Reunion of the aponeurosis of the external oblique muscle with the formation of a proper external ring.

Accidents and Complications in Goiter Operations.—Dr. CHARLES H. MAYO of Rochester, Minn., said accidents and complications were the cause of most of the deaths following operations upon goiter. Hemorrhage was a serious accident. When secondary, it was usually from muscle inclusion in ligating the inferior thyroid artery. Preservation of the posterior gland capsule tended to preserve the recurrent laryngeal nerves. also the parathyroid bodies. The greatest danger of parathyroid injury was in secondary operations for goiter.

Diagnosis and Treatment of Renal Calculi.—Dr. DANIEL N. EISENDRATH of Chicago discussed the influence of the presence of renal calculi upon the kidney in which they were lodged, as well as upon the opposite one. The number of cases in which calculi were found in both kidneys simultaneously was increasing. The chief points in the diagnosis so far as symptoms were concerned were hematuria, pain, and the passage of calculi. The treatment was considered chiefly from a surgical standpoint. The operation of choice was nephrotomy and pyelotomy. The relative merits and disadvantages of each were pointed out.

The Removal of the Gall-bladder.—Drs. ARCHIBALD MACLAREN and H. P. RITCHIE of St. Paul, in a joint paper on this subject, said that cholecystectomy was performed 21 times in 165 operations upon the gall-bladder, liver, and pancreas. The reasons for removal of the gall-bladder were: Contracted and useless gall-bladders in 10 cases; dilated and hypertrophied in 6 cases: phlegmonous and gangrenous gall-bladders, 1 case; empyema, 2 cases; mucous fistula, 2 cases. Three deaths had occurred—14.2 per cent. mortality. The gall-bladder was removed in three cases in which the common duct was involved. It would have been impossible to have used them in any subsequent operation. They believed in leaving the gall-bladder in common-duct cases for the purpose of cholecystenterostomy if it could be so used when needed. Both drainage and ligation of the cystic duct were proper procedures and depended upon the individual case. Nine cases were reported in which contracted and cystic gall-bladder empyema from typhoid fever and other conditions had been left and the patients had remained well from varying periods up to nine years. Many times after drainage, bile would not commence to flow until the fourth or even up to the seventh day. There were many cases in which the gall-bladder was so definitely diseased that there would be no question as to the necessity of removal, and anyone, no matter how limited his experience, would know that such gall-bladders ought to be removed. Those in which it was difficult to decide were the cystic gall-bladders, where the stone had been impacted a short time, or those which presented small hemorrhagic spots, or moderate-sized perforations. And they believed with Deaver that in case of doubt drainage should be used. Pancreatic disease occurred frequently in gall-bladder diseases, and drainage was necessary for cure.

New Incision to Reach the Bile Tracts.—Dr. CLIFFORD U. COLLINS of Peoria, Ill., described a new incision through which to reach the bile tracts. It began at the inner edge of the sheath. The rectus muscle was separated from its sheath and retracted outward. The same diagonal incision was then made through the posterior wall of the sheath and peritoneum. A short transverse incision from the upper end, through the linea alba, and another from the lower end through the linea semi-lunaris completed it. The advantages were: (1) There was not a continuous opening down through the layers of the abdominal wall. The openings through the aponeurotic structures were protected by the uninjured muscle, which lay between them. (2) The intercostal nerves were not injured as they entered the muscle through its outer border. (3) It made a stronger closure where drainage was required. The tube or gauze held the rectus muscle to the outer side. When it was removed, the muscle slid over to its former bed and placed a barrier of uninjured muscle across the drainage tract. (4) No injury was done to the muscular structure.

He also presented an instrument to facilitate the removal of stones from the first portion of the common duct. It consisted of forceps with an incomplete ring at the end of each jaw covered with rubber tubing. If the stone was found in the first portion of the common duct, or could be pushed up into the first portion, the lower jaw of the forceps was passed into the foramen of Winslow below the stone. When the jaws were closed, the incomplete rings would surround the stone and it might be drawn up into the incision.

Pericolitis.—Dr. JABEZ N. JACKSON of Kansas City, Mo., said that the term pericolitis had been generally vaguely used to describe adhesions about the colon, and at most times of an unknown origin. He believed that there was a form of pericolitis which had a distinct pathological identity, and was characterized by a distinct clinical picture. This pericolitis was characterized by the formation of an apparently entirely new layer of distinctly vascularized peritoneum in which the vessels were parallel and appeared to begin on the outer side at the root of the mesocolon, whence they advanced on to the colon, and then generally passed in the direction parallel to the long axis of the ascending colon. This membrane served to bind the ascending colon close to the posterior abdominal wall, and the longitudinal strands tended to produce a shortening and often a marked angulation of the colon. Sometimes this membrane passed across the ascending colon and up onto the transverse colon, which was then drawn downward and to the right until the transverse colon paralleled the ascending colon and distinct angulation was produced at the hepatic flexure above and below where the transverse colon turned back. With this latter condition the stomach was always drawn down and a mechanical gastroptosis was produced. The general effect of this membrane was a mechanical interference with the free peristalsis of the colon, also the stomach, thus producing stagnation, distension, pain, flatulency, and a train of nervous symptoms distinctly neurasthenic in character. This condition was believed to be of very frequent occurrence, and must have been observed by all surgeons of experience, but thus far had not been adequately described. He had found that this membrane could be dissected off *in toto*, and when this was done the mobility of the colon was restored.

Gastric and Duodenal Ulcer.—Dr. W. D. HAINES of Cincinnati presented the autopsy findings in a large series of examinations, with special reference to ulcer cicatrices. A strong plea was made for the removal of the gland-bearing tissue between the lesser curvature of the stomach and the pancreaticosplenic group of glands in operating for cancer of the pylorus. A concise résumé of the diagnostic features of gastric and duodenal ulcer, together with their differential diagnosis, was followed by a discussion of the surgical treatment of chronic ulcer. By pushing an instrument through the crater of the ulcer-producing artificial perforation, ligating the surrounding varicose vessels and turning in the margin of the ulcer by two layers of serous

sutures, local rest was obtained for the inflamed indurated tissues, and a gastrojejunostomy completed the technique. It was shown that nearly all gastric cancers had their origin in chronic ulcer.

Mistakes in Diagnosis in the Upper Abdomen.—Dr. James E. Moore of Minneapolis made no effort to elucidate obscure or moot-points in diagnosis, but endeavored to point out some common errors that could and should be avoided. The principal reason for mistakes in diagnosis in all regions of the body was lack of careful and systematic examination, and the two special reasons for mistakes in the upper abdomen were difficulty in palpitation and the comparatively recent origin of upper abdominal surgery. He cited a case in which two operations had been done, one for appendicitis and one for gallstones, and in which the whole trouble was due to splanchnoptosis. He pointed out the dangers of a false history given by the patient, particularly when she was neurasthenic. Every patient, especially every female patient, coming for examination of conditions in the upper abdomen accompanied by abdominal crises, should be carefully examined with a view of establishing the presence or absence of splanchnoptosis. It was not safe to conclude in the presence of splanchnoptosis that the patient was not suffering from other pathological conditions, because they were oftentimes combined. The evidences of ptosis of the various organs were so plain that they should always be discovered when proper examination was made. The liver was more frequently misplaced and misshapen than was generally understood, and was very liable to give rise to mistaken diagnoses. He warned the profession against the dangers of overlooking pathological conditions amenable to surgical treatment in neurasthenic patients. Pott's disease in its early stages, when located in the middle or upper dorsal region, caused pain that had frequently been the cause of mistaken diagnoses. This mistake could usually be avoided by ascertaining the presence or absence of rigidity of the spine.

Peritoneal Adhesions.—Dr. A. W. Abbott of Minneapolis said the cause of peritoneal adhesions was often obscure. Rough handling, hemorrhage, and traumatism were given more credit than they should receive. The relation between adhesions and symptoms was very contradictory. Extensive adhesions often were not accompanied by symptoms, and *vice versa*, severe symptoms were accompanied with very few adhesions.

The Versatile Omentum.—Dr. Frederick A. Dunsmoor of Minneapolis referred to the importance of the functions of the omentum in surgical practice. It was his practice to use the omentum as a patch for wounded intestine or denuded peritoneum, or to fill in ulcerations which were not otherwise readily closed. When large pus cavities were opened, after removing pus and wiping contaminated parts with iodoform gauze, the omentum was in all cases, where possible, made to adhere to the infected part instead of using a drainage tube. The author reported two cases illustrating how this most important organ might be utilized. His conclusions were: 1. It seemed sensible to follow natural and physiological efforts in attempts at cure. 2. The functions of the omentum to combat infection and drain dangerous elements from the peritoneal cavity were well established. 3. We should aim to secure the assistance of such functions, and at the same time use ingenuity to prevent permanent adhesions, which might be harmful. 4. We should deprecate the wasteful amputation of parts of the omentum appearing redundant or occupying the hernial sac. 5. That damaged, over-affected or strangulated portions of the omentum should be removed, in order that greater utility might be possible from the portion remaining.

Colles' Fracture.—Dr. J. W. Andrews of Mankato, Minn., discussed the surgical anatomy and the reasons for the characteristic deformity in Colles' fracture. He spoke of making the diagnosis by inspection. Crepitus and increased mobility were rarely present. An anesthetic was necessary for complete reduction, if not for accurate diagnosis. The injuries sustained by the soft tissues were extensive and important. In this form of fracture rapid bony union was the invariable rule. The prevention of deformity was not always possible.

The Cancer Question, with Special Reference to the Treatment of Cancer of the Breast.—Dr. J. E. Summers of Omaha, Neb., said the subject of cancer deserved equally as much attention by the laity as did that of tuberculosis. More women died of cancer than of tuberculosis. In a better education of the public lay the hope of the prevention of cancer. In its early recognition lay the promise of cure. He narrated some personal observations on cancer of the breast.

The following papers were read: "Splenic Anemia," by Dr. Van Buren Knott of Sioux City, Iowa; "The Surgeon and His Ideals," by Dr. W. E. Rochford of Minneapolis; "Diagnosis and Treatment of Cancer of the Uterus," by Dr. George C. Barton of Minneapolis; "Abdominal Pregnancy; Report of a Case, with Operation and Delivery of the Living Child," by Dr. J. N. Warren of Sioux City, Iowa; "Treatment of Retrodisplacements of the Uterus," by Dr. C. A. Stewart of Duluth, Minn.

Officers.—*President,* Dr. A. L. Wright of Carroll, Iowa; *First Vice-President,* Dr. J. F. Percy of Galesburg, Ill.; *Second Vice-President,* Dr. W. B. Haines of Cincinnati, Ohio; *Secretary-Treasurer,* Dr. Arthur T. Mann of Minneapolis, Minn.

Place of meeting, Omaha, Neb.; time, December 20 and 21, 1909.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held December 21, 1908.

The President, Dr. Robert T. Morris, in the Chair.

Gastric Neuroses.—Dr. John B. Deaver of Philadelphia read this paper. He said there was perhaps no single word in medical terminology that had been made to cover so many deficiencies in learning and diagnostic acumen as the term "neurosis," and he referred to the complexity of the classification and description of gastric neuroses in the text-books, the diversity of opinion concerning their causation, and the innumerable modes of treatment suggested by various authors. There could be no doubt, however, that there were certain morbid gastric conditions which had been and were still classified as neuroses, and that the surgeon as well as the medical practitioner was often called upon to confirm a diagnosis or suggest a treatment. As a fundamental principle, we could safely state that a gastric neurosis without other neuroses or neurasthenic conditions was a most rare thing, although the gastric symptoms might so overshadow all others that attention was directed only to them. Of the sensory disturbances, we found more or less anorexia or at least capriciousness of appetite in almost every case. True gastralgia he had found very rare. Of the secretory disturbances, hyperchlorhydria was by far the most important. It was far more frequent than hypersecretion or gastrosuccorrhea, which in its true form was indeed very rare, or than deficiency in hydrochloric acid in the gastric juice. Vomiting, eructations, and colic were as a rule but symptomatic. We might have often repeated attacks of vomiting, or vomiting of special articles of diet, in which operation or autopsy failed entirely to give even a clue to the causation. Atony of the stomach could not at times be considered as anything but a neurosis, and its treatment fell fully as much within the province of the surgeon as

of the internist. Finally, we had that vague group of symptoms, sensory, motor, and secretory combined, which in the absence of any definite or tangible demarcation had been called "nervous dyspepsia." A gastric neurosis was a thing of infinite variations, and the diagnosis was most difficult. The most important feature in the diagnosis was the eliciting of a careful history, which would show us the general neurasthenic condition of the patient. His ocular or cardiac symptoms might give us a clue. Carcinoma in its early stages was more often considered a gastric catarrh or nervous dyspepsia than it was recognized. The same was true of gastric ulcer. The speaker also referred to gastric neuroses of various forms associated with some lesion outside of the stomach, such as the gall-bladder, appendix, the kidneys, or pelvic organs. He said it was evident that text-books dealing with diseases of the abdominal organs must be rewritten, as the descriptions they now contained of diseases of those organs were of no moment at all in making an early diagnosis. Until they were rewritten on the lines of living pathology, they would be useless in the early recognition of these diseases. We were coming to recognize more clearly every year the fact that the various organs concerned in digestion formed a system correlated in every part. The stomach, intestines, biliary system, and even the appendix, the latter often described as functionless, did their work regularly in orderly sequence to accomplish the preparation of food for assimilation. In discussing the attitude of the surgeon toward cases of gastric neuroses, Dr. Deaver said it should be "hands off," with but very few exceptions. These cases belonged to the internist and neurologist, and they were in need of rest, with general and special dietetic treatment. Removal of the primary mental cause was essential, and these patients demanded the most careful management if their recovery was to be assured.

Indications for Surgery in Gastric Disease.—Dr. Anthony Bassler first took up the subject of malignant disease of the stomach. He said the first factor in this connection was early diagnosis, and although gastric cancer was a digestive disorder of a primary nature and was frequently encountered, the recognition of the condition in its early stages was not always easy, and often an impossible matter in the medical way. The disease was met with so differently in its course, sometimes rapid, sometimes chronic, and always insidious in its beginning. Usually, it developed at the end of a prolonged dyspeptic condition, in which a history of an early gastric ulcer could often be obtained. There were no definite subjective symptoms in early cases that were characteristic. There might be increasing anorexia, occasional nausea and vomiting, distress after meals, a sense of oppression, distaste for meats, and so on, and, again, not one local symptom downfall of from one to four per cent. of hydrochloric dilatation, and tumor were all late local symptoms. It might be said that the diagnosis of early cancer of the stomach could practically never be made by physical diagnostic means alone. Upon what, then, must we depend? In all middle-aged persons who came under observation for digestive disturbance, the first diagnosis was between cancer and the benign affections, and in the persistency of a continued clinical course—whatever the diagnosis or the treatment—cancer should be suspected, and the case became surgical after the following findings had been obtained: The securing of a piece of carcinoma tissue; a short upward curve, followed by a steady downfall of from one to four per cent. of hydrochloric acid a week, with a corresponding increase in the quantities of the organic acids; when test meals, carefully removed, usually contained blood in small quantities; when an increased bacterial flora of streptococci, staphylococci, diplococci, or streptobacilli were present in test meals, and the same type of organism was always found in large numbers and apparently did not originate from the saliva or sputum; when pus cells were always present in the empty stomach, and sarcinæ were not found in the test meals; when slight evidences of gastric retardation and fermentation existed or took place; and, finally, when the patient, weighed stripped each morning before breakfast, and after the contents of the bladder and rectum had been voided, showed a steady loss of weight. Assuming that after close attention to a suspicious case, the foregoing findings had been obtained, an exploratory incision should be advised immediately. Dr. Bassler next discussed gastric ulcers, which, when acute and under ordinary conditions, were medical affections. When they did not heal completely or perforated, bled too freely, or developed sequelæ, such as marked cicatricial contractions, pyloric stenosis, perigastric adhesions, or degenerated into carcinoma, they became surgical affections. The last class of cases in which operations were indicated were those with the presence of benign growths, such as large-size obstructing polypi or papillomata. The congenital stenoses were also included, as well as those cases of foreign substances in the stomach, as hair balls, or the swallowing of improper articles, as might be observed in those of vicious habits, such as the hysterical or the insane. Finally, the speaker emphasized the fact that the internist must be fair to his patient, and deliver to the surgeon many of the cases of generally termed "chronic dyspepties" when these did not improve or became worse under his care, and in which surgery offered possibilities of a better therapy than would be at his command.

Dr. George E. Brewer said he had been especially interested in that part of Dr. Deaver's paper that related to gastric neuroses, because of the not infrequent mistakes that were made by the surgeon in dealing with those conditions. While the general practitioner and the internist, as a rule, were prone to wait too long before advising operation in organic lesions of the stomach, the surgeon, on the other hand, spurred on by the brilliant work done during the past five or six years in relieving chronic gastric lesions, was inclined to operate more freely than he perhaps would after longer experience. About two years ago, Dr. Brewer said, he collected eighteen cases of operation done by him on the stomach during one year, and in five of these absolutely no benefit followed the operation. In every one of these five cases he was so firmly convinced by the symptoms that he was dealing with an organic lesion, although there were no evidences of it, that he did a gastroenterostomy. Subsequently, he became convinced that they were examples of gastric neuroses. This was well shown in the following case: The patient was a young woman who had vomited incessantly for six weeks, who was referred to him from the medical side of the hospital for immediate operation. The gastric analyses were of little assistance, the only symptoms being the persistent vomiting and tenderness. An exploration of the stomach showed nothing abnormal. In spite of this, a gastroenterostomy was done. The operation made the patient infinitely worse. The vomiting persisted, and she became weak and exhausted. Finally, she developed symptoms of a general neurasthenia, with peculiar sensations in various regions of the body, and with the advent of these symptoms, her vomiting ceased. In another of the five cases that were not helped by operation the patient was a most intelligent person, who gave a very distinct history, which was attributed to an organic lesion of the stomach. The operation revealed nothing, and the patient's symptoms were aggravated by it. She developed a general traumatic neurasthenia, which persisted for a year. In operating on cases of this character, Dr. Brewer said, he thought a safe rule to follow was not to do a gastroenterostomy in patients where no

lesion was discoverable by a thorough exploration. The speaker referred to the great progress that had been made during the past decade or two in the diagnosis and surgical treatment of gastric cancer, a condition which was formerly looked upon as absolutely hopeless. Now, we were saving a certain number of these cases, and Professor Hartmann of Paris recently told him that he regarded his results in cancer of the stomach as equal to those of cancer of the breast. It was to be hoped that with still more refined methods of diagnosis, especially those relating to gastric analyses, the results would be still better, but even now they were surprisingly good, when we considered the fact that we were dealing with an organ that was hidden from view, and not with cancer of the external surface of the body. Personally, he was firmly convinced that the greatest advance that could be made in reducing the death rate from cancer of the stomach was to advocate early exploratory operation. If the facts were clearly explained to these patients, he believed that most of them would be willing to submit to an operation in which there was comparatively little risk rather than take the even remote chance of suffering from a disease which, if allowed to take its course, would result fatally within two years.

Dr. Max Einhorn said that, while the diagnosis of certain gastric conditions was difficult, there were some that we could recognize with a fair degree of certainty. He was glad to hear that both Dr. Deaver and Dr. Brewer were opposed to operating in neurosis of the stomach, even of a severe type. Personally, he did not believe in advocating an operation simply because the patient was not doing well under non-operative treatment; we should have a certain aim in view or hope to accomplish something if the operation was successful. To operate simply for the suggestive effect of the operation was unworthy of both physician and surgeon. Dr. Einhorn said he saw many cases of gastroptosis that did not require operation at all, and were cured by bandaging and building up the general nutrition. He thought that at least 95 per cent. of these cases were amenable to this method of treatment. He did not believe that gastroptosis ever gave rise to stagnation of food, and the condition we had to deal with was entirely distinct from that occurring in real dilatation of the stomach, with obstruction of the pylorus, which had to be relieved by surgical means. After two or three weeks' observation we could decide the degree of pyloric obstruction, and whether an operation was necessary or not. In many cases where the obstruction was not of a high degree the patients could get along in comparative comfort and enjoy a moderately free diet. So long as gastroenterostomy was still attended by a certain mortality, he did not feel justified in recommending early operation as a routine measure in all these cases. For the same reason, he was not in favor of indiscriminate exploratory operation in all cases of gastric disease where there was a possibility—say one in ten—that it might be cancer. On the contrary, he was in favor of delay and further observation in such cases. Such conditions were so frequent that if we operated in every instance with the idea that the case might be one of cancer, it would entail an endless number of needless operations, and, furthermore, the same patients might require repeated operations. His own plan in these cases was as follows: When the diagnosis of cancer of any part of the digestive tract was made, operate as soon as possible. When, after a thorough examination, the probabilities were evenly divided in favor of malignant disease, operate. In closing, Dr. Einhorn said that a cancer of the stomach was not always recognized, even upon exploratory operation, and he emphasized the thought that, instead of trying to draw a hard-and-fast line between medical and surgical cases, the internist and the surgeon should unite, with a single object in view, and that to help the patient.

Dr. Robert Coleman Kemp said that in cases of hyperchlorhydria, to differentiate between this condition and possible gastric ulcer, to the importance of which Dr. Deaver had referred in his paper, certain checks might be used, namely, frequent analyses of the gastric contents, and especially the examination of the gastric contents and of the stools for the presence of occult blood. In hyperchlorhydria we might also expect to accomplish something by intelligent medicinal and dietetic treatment, so that careful observation of the subsequent clinical course of these cases was of diagnostic value. The symptoms of hyperchlorhydria might simulate gall-bladder disease, and it was not always easy to differentiate between these two conditions. Indeed, they might occur together. The treatment of both, fortunately, was very similar. An examination of the stools and the detection of gallstones might clear up the diagnosis. Dr. Kemp said he had seen several cases of impaction of the caput coli that simulated appendicitis. In the early recognition of cancer of the stomach the data furnished by gastric analyses were of very little value. The comparative frequency with which cancer was engrafted upon an old gastric ulcer should be borne in mind. The speaker said he agreed with Dr. Brewer that an early exploratory operation should be urged in every case of gastric disease in which there was even a remote possibility of cancer—even when the chance of its being cancer was one to twenty, and that the present mortality was due to neglect of early exploration. By the time the typical gastric analysis was found and the tumor was palpable, the case had usually progressed beyond the stage of possibility of curative operation. Dr. Kemp said the symptoms of stenotic dilatation and atonic dilatation, to which Dr. Deaver had referred, were entirely different. With the latter, which he had found very common in his examination of insane patients, there was usually no vomiting, no peristaltic unrest, and the symptoms were chiefly those of intestinal toxemia. With stenotic dilatation, on the other hand, we had peristaltic unrest and vomiting, and relief in those cases could only be sought through an operation. In gastroptosis the speaker did not favor operation, as the condition usually only represented one phase of a general enteroptosis; it was part and parcel of a general abdominal relaxation which could be best treated by improving nutrition, and by the use of an abdominal support, preferably Rose's belt; or, in extreme cases, by Dr. Morris' operation of tightening up the abdominal muscles.

Dr. Ransford E. Van Gieson said we might properly look upon the stomach as the storm center for all sorts of reflex conditions and neuroses. He recalled a case of persistent vomiting in a young woman which was regarded as a pure neurosis and was relieved by various methods of treatment, especially when they were discussed in her presence. The girl finally died of inanition after two years of treatment. Cases of acute perforative ulcer of the stomach, Dr. Van Gieson said, were rare, and unfortunately were not preceded by symptoms which would call our attention directly to the stomach. In many instances there was no history of preceding pain, and the perforation might occur within a comparatively few hours. The speaker said that his experience was unlike that of Dr. Deaver in regard to continuous gastric symptoms being caused by gallstones. In many of the cases he had seen the patients were absolutely free from symptoms in the intervals between the gallstone attacks; as soon as the acute attack was over, digestion was apparently perfect, and there were no gastric symptoms whatever. He agreed with Dr. Kemp that gastroptosis was merely a single manifestation of a general abdominal relaxation, and that adhesive strapping by the Rose method was preferable to surgical intervention.

The President, Dr. Morris, said he had found that in a

certain number of cases perfect relief of the gastric symptoms followed correction of urinal defects. Many good ophthalmologists were not competent, however, in this particular field. The test might perhaps rest upon their ability to cure Ménière's disease and migraine. If any were known to do this regularly, then they might take up gastric neuroses. In speaking of gastric lesions of doubtful character, Dr. Morris said that here, as in other regions of the body, the diagnostic value of an immediate examination of frozen sections should not be lost sight of.

Dr. DEAVER, in closing, said that in dealing with a gastric neurosis it was his practice to have the patient gone over by a neurologist and to have not only a preliminary examination of the eyes, but also of the throat, ears and nose. He could recall a number of cases where the stomach symptoms cleared up after errors of refraction were corrected. He agreed with the various speakers that ptosis, *per se*, was not within the province of the surgeon. He did not approve of Dr. Einhorn's teaching of delay and further observation in cases where there was a possibility of cancer of the stomach.

Dr. A. ERNEST GALLANT emphasized the importance of early, careful and repeated examinations in cases of suspected gastric cancer. The speaker said that during his connection with the New York Cancer Hospital, fifty per cent. of all the cases brought there were inoperable.

Dr. FRANZ TOREK said he could not subscribe unreservedly to the statement made by Dr. Bassler that when a cancer of the stomach was of such a size that it was palpable, the condition was practically always inoperable and fatal. The speaker said he could recall one case where the gastric tumor was not only palpable, but actually visible through the emaciated abdominal wall. In that case a resection was done four or five years ago, and the patient was still alive and showed no evidence of a recurrence.

Dr. BASSLER, in closing, said he did not believe that the diagnosis of early cancer of the stomach could be made by ordinary surgical means only, but that medically it could be made only by laboratory methods. In the making of such a diagnosis one could not depend upon gastric symptoms. In most instances cancer of the stomach began insidiously, with perhaps only slight anorexia, and some increase in the fermentation of foods in the organ. The patients were usually over 40 years of age, and a number gave a history of previous ulcer or diseased condition of the stomach. An exploratory operation could usually be done under cocaine anesthesia. Patients would consent to the cocaine method, but would balk until too late at ether. The main reason of this was that those afflicted with the early disease did not consider themselves ill enough for operation in the broad sense.

College of Physicians of Philadelphia.

At a stated meeting, held January 6, Dr. JOHN H. GIBBON read "A Memoir of the Late Dr. John H. Packard." Dr. GEORGE E. PFAHLER presented a communication entitled "The Roentgen Rays as an Aid in the Diagnosis of Carcinoma of the Stomach," with lantern demonstration. He pointed out the necessity of depending upon the *x*-rays merely as an adjunct in the diagnosis, to be taken into consideration in connection with the history, symptoms, and other physical signs. The use of the fluoroscope will yield the best results, but it is attended with danger, and several valuable lives have been sacrificed on the altar of this method of examination. By means of improved methods exposures may be brief, and satisfactory radiographic plates can be obtained. By the employment of bismuth emulsions the size, shape, and position of the stomach can be determined, as well as the condition of the walls of the viscus. An election for officers was held, with the following result: *President*, Dr. James Tyson; *Vice-President*, Dr. G. E. de Schweinitz; *Secretary*, Dr. Thomas R. Neilson; *Treasurer*, Dr. Richard H. Harte.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS, NEVADA.

November, 1908.

ANATOMY.

1. Describe the circle of Willis.
2. Give the origin, insertion, and function of the flexor longus hallucis.
3. Bound the scaphoid or navicular tarsal bone.
4-5. Give location and approximate number of submaxillary lymphatic glands.
6-7. Give length and weight of medulla oblongata. About what proportion does it form of the whole cerebrospinal axis?
8-10. What part of the body weight does the liver form in the adult male? In the female? In the fetus at the fourth month?

PHYSIOLOGY.

1. What is the function of the sixth (abducens) nerve?
2. Describe a complete physiological revolution of the heart.
3. Name the secretions of the alimentary canal and give the functions of each.
4. Describe the process of segmentation of the ovum.
5. What are amyloid foods, proteid foods? Give example of each.
6. Describe the action of the kidneys. Give the normal constituents of urine.
7. What test should be applied to sustain the integrity of (*a*) the superficial reflexes, (*b*) the deep reflexes?
8. What are the accepted theories as to the origin of (*a*) the red blood corpuscles, (*b*) the white corpuscles?
9. State the functions of the fifth cranial nerve.
10. Describe the portal circulation; renal circulation.

CHEMISTRY AND TOXICOLOGY.

1. What class of food should be excluded from the diet when iodic preparations are being used?
2. Why should pepsin and pancreatin not be given in combination?
3. When opium and acetate of lead are combined, what reaction takes place?
4. Give another example of a common prescription in which a chemical change takes place.
5. Describe a method for determining the quantity of sugar in urine.
6. Describe various methods by which poisons kill.
7. How would you prepare the antidote for arsenic?
8. What is the first indication of excessive use of carbolic acid externally?
9. Describe a case of lead poisoning.
10. Give antidotes for silver nitrate, belladonna, strychnine, tartar emetic.

MATERIA MEDICA AND THERAPEUTICS.

1. Name four preparations of opium; give the morphine strength of each.
2. Give classification of cathartics with example of each.
3. What action would you expect from five minim, one dram, and one ounce doses of turpentine?
4. Indicate the various uses of iron.
5. Name five remedies having a special action on the heart. Indicate field of usefulness for each.
6. What is eliminative treatment? Name five drugs of special use in this line.
7. Indicate the therapeutic uses of quinine.
8. Name five coal-tar derivatives; give indications for and against their use.
9. Indicate the uses of salicylic acid, its antagonists, and incompatibles.
10. Give the various routes by which medicines are introduced into the organism.

BACTERIOLOGY.

1. What methods would you use to prevent the spread of tuberculosis when the patient was unable to go to a sanatorium?
2. How would you manage a case of typhoid fever to prevent its spread?
3. What is immunity?
4. How would you determine the presence of the malarial parasite?
5. Describe the *Staphylococcus pyogenes aureus*. Where is it found?

6. Define ptomains, toxins, flagella?
7. Discuss the modes of infection by the tubercle bacillus.
8. Describe the cholera bacillus.

PATHOLOGY.

1. Give the pathology of diphtheria.
2. Describe microscopically the lesions found in the bowel in a case of typhoid fever.
3. Give the pathology of hypostatic congestion of the lungs.
4. Give the pathology of chronic interstitial nephritis.
5. Give the pathology of pericarditis.
6. Describe in full the pathology of gout.
7. Give the pathology of cerebral hemorrhage.
8. Give the pathology of chronic myelitis.

PRACTICE OF MEDICINE.

1. Give etiology, symptoms, and treatment of cholera infantum.
2. Describe the symptoms of any one disease of the pancreas.
3. Give the diagnosis and treatment of tetanus.
4. Define neurasthenia and give etiology, symptomatology, and treatment.
5. Write a short article on Addison's disease.
6. Give causes, symptoms, and treatment of simple catarrhal jaundice.
7. Differentiate epilepsy and hysteria.
8. What is the treatment for pertussis?
9. What are the manifestations in a case of hereditary syphilis?
10. Give the symptoms and the treatment of general paresis.

OBSTETRICS.

1. During the fifth month of pregnancy how does the liquor amnii compare, in weight, with the weight of the fetus?
2. May syphilis be transmitted by the father to the embryo without infecting the mother?
3-4. Give treatment of chorea gravidarum in pregnancy. What is the percentage of mortality in such cases?
5. About what is the average duration of labor in multiparæ? In primiparæ?
6-7. Should the membranes be punctured in the case of a primipara at the beginning of the second stage of labor? Give reasons for or against such procedure.
8. Give symptoms, causes, and treatment of uterine inertia.
9. What three signs indicate that labor has actually begun?
10. Give treatment for presentation of the greater fontanel.

SURGERY.

1. Describe the ligation of the femoral artery at apex of Scarpa's triangle.
2. How would you reduce a dislocation of the inferior maxillary bone?
3. Define volvulus and give its treatment.
4. Relate the difference between a sinus and a fistula.
5. How is resection of the elbow joint performed?
6. Name the causes of intestinal obstruction.
7. What structures are divided in the operation for strangulated hernia?
8. Describe the operation for ligature of the subclavian artery at its second part.
9. Give symptoms and treatment of nevus.
10. What are the symptoms of morbus coxæ in its different stages?

GENITOURINARY AND DERMATOLOGY.

1. Enumerate causes of cystitis, and how you would treat it.
2. What complications may arise in cases of acute urethritis?
3. Describe an operation for circumcision.
4. Describe syphilis in all its stages, and give treatment for each stage.
5. Differentially diagnose chancre, chancroid, and herpes progenitalis.
6. What is eczema?
7. What are the symptoms, cause, and treatment of scabies?
8. What are the causes, symptoms, and treatment of urticaria?
9. Describe alopecia areata.
10. What are the causes, symptoms, and treatment of prurigo?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS NEVADA

November, 1908.

ANATOMY.

3. The *scaphoid or navicular tarsal bone* is bounded: *in front*, by the three cuneiform bones; *behind*, by the astragalus; and *externally*, by the cuboid.

4 and 5. The *submaxillary lymph glands* are in the digastric triangle; they vary from eight to twelve in number.

6 and 7. The *medulla oblongata* is about one inch to an inch and a quarter in length; and its weight is about a quarter of an ounce. It forms about 1/125 of the whole cerebrospinal axis.

8 to 10. The *liver* forms about 1/40 part of the body weight of an adult male; about 1/36 in the adult female; and about 1/10 in the fetus at the fourth month.

PHYSIOLOGY.

1. The sixth (abducens) nerve is the motor nerve to the external rectus muscle of the eye.

2. A *complete physiological revolution of the heart* or *cardiac cycle* includes all the changes which occur between the commencement of one heart-beat and the commencement of the next; it consists of the alternate contractions (or systole) and relaxations (or diastole) of the auricles and ventricles of the heart. The contraction of the two auricles takes place simultaneously and is followed by the simultaneous contraction of the two ventricles; then follows a period during which the whole heart is in a state of diastole. The cycle then begins again with the auricular systole.

3. The secretions of the alimentary canal are: Saliva, gastric juice, pancreatic juice, bile, and succus entericus.

The functions of the saliva are: (1) To moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste, (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar.

The functions of the gastric juice are: (1) To change proteids into proteoses and peptones, and (2) to curdle the casein of milk.

The functions of the pancreatic juice are: (1) To change proteids into proteoses and peptones, and afterwards decompose them into leucin and tyrosin; (2) to convert starch into maltose; (3) to emulsify and saponify fats; and (4) to cause milk to curdle.

The functions of the bile are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

The functions of the succus entericus are: The secretion of enterokinase, secretin, and erepsin, which assist the pancreatic juice in digestion.

5. *Amyloid foods* are foods containing amyloses or starches. They contain no nitrogen, but are made up of carbon, oxygen, and hydrogen; the hydrogen and oxygen are in the proper proportions to form water. *Example:* Potatoes.

Proteid foods are foods containing proteids. They contain nitrogen, and have a composition similar to that of albumin; other elements contained in them are carbon, hydrogen, oxygen, and sometimes sulphur. *Example:* Meat.

6. The mechanism of the *secretion of urine by the kidneys* is twofold: (1) By filtration, most, if not all, of the fluid is eliminated, and also inorganic salts; this depends upon blood pressure, and takes place in the glomeruli. (2) By cell activity and selection, in the cells of the convoluted tubules, the urea and principal solids are eliminated.

The normal constituents of the urine are: Water, urea, uric acid, urates, hippuric acid, kreatinin, xanthin, hypoxanthin; sulphates, chlorides, and phosphates of sodium and potassium; phosphates of magnesium and calcium; nitrogen, and carbon dioxide.

8. (*a*) The *red blood corpuscles* have their origin in the red marrow of bones.

(*b*) The *white corpuscles* are formed in the spleen, lymph glands, and lymphoid tissue.

9. THE FUNCTIONS OF THE FIFTH CRANIAL NERVE. *First, or ophthalmic branch* supplies sensation to conjunctiva, and skin of upper eyelid, cornea, skin of forehead and nose, lachrymal gland, and skin of nose. *Second, or superior maxillary branch,* supplies sensation to skin and conjunctiva of lower eyelid, nose, cheek, upper lip, upper teeth, and palate. *Third, or inferior maxillary branch,* supplies sensation to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, and skin of lower part of face. This branch, in addition, supplies motion to the muscles of mastication (Masseter, Temporal, External and Internal Pterygoids), and the Mylohyoid, and anterior belly of the Digastric.

CHEMISTRY AND TOXICOLOGY.

1. Starches.

2. Because *pancreatin* only acts in an alkaline medium; while *pepsin* only acts in an acid medium, and further becomes decomposed in an alkaline medium.

3. A precipitate results.

4. Potassium iodide and mercuric chloride.

5. Method for the *quantitative estimation of sugar in urine: Fehling's method:* The solution is made as follows:

I. Dissolve cupric sulphate..... 51.98 gm.
in water to.....500.00 c.c.

II. Dissolve Rochelle salt..... 259.9 gm.
in sodium hydroxide soln. sp. gr. 1.12 to 1,000 c.c. (Piffard).

When required for use, one volume of I. is to be mixed with two volumes of II. The copper contained in 10 c.c. of this mixture is precipitated completely, as cuprous oxide, by 0.05 gm. of glucose.

"To determine the quantity of sugar, place 10 c.c. of the mixed soln. in a flask of about 250 c.c. capacity, dilute with H_2O to about 30 c.c., and heat to boiling. On the other hand, the urine to be tested is diluted and thoroughly mixed with four volumes of H_2O if it be poor in sugar, or with nine volumes of H_2O if highly saccharine, and a burette filled with the mixture. When the Fehling soln. boils, add a few gtt. NH_4HO and then 5 c.c. of the urine from the burette, boil again, and continue the alternate addition of diluted urine and boiling of the mixture until the blue color is quite faint. Now add the diluted urine in quantities of 1 c.c. at a time, boiling after each addition until the blue color just disappears. Have ready a small filter, and, having filtered through it a few gtt. of the hot mixture, acidulate the filtrate with acetic acid, and add to it 1 gtt. soln. of potassium ferrocyanide. If a brownish tinge be produced, add another ½ c.c. of dil. urine to the flask, boil, and test with ferrocyanide as before. Continue this proceeding until no brown tinge is produced. The burette reading, taken at this point, gives the number of c.c. of dilute urine containing 0.05 gm. glucose, and this divided by 5 or 10, according as the urine was diluted with 4 or 9 volumes of H_2O, gives the number of c.c. of urine containing 0.05 gm. sugar. The number of c.c. of urine passed in twenty-four hours divided by 20 times the number of c.c. containing 0.05 gm. glucose, gives the elimination of glucose in twenty-four hours in grams.

Example: Urine in 24 hours =2.436 c.c.
Fehling's solution used = 10 c.c.
Urine diluted with 4 vols. H_2O
Burette reading = 18.5 c.c.

$\frac{18.5}{5} = 3.7 =$ c.c. urine containing 0.05 gm. glucose.

$\frac{2,436}{3.7 \times 20} = 32.92 =$ grams glucose eliminated in 24 hours."
(Witthaus' *Urinalysis.*)

6. *Poisons may kill,* by: Shock; by effect on heart, lungs and brain, and spinal cord; narcotism, asthenia, or tetanus; perhaps some chemical change in the blood.

7. The antidote for arsenic is a freshly prepared solution of ferric hydroxide; this may be prepared by keeping the two following solutions in separate bottles, and when needed it is only necessary to mix them and administer: (1) liq. ferri tersulphatis, ℥ij; aquæ, ℥vj. (2) magnesiæ, ℥iij; aquæ, ℥viij.

8. The *first indication of excessive use of carbolic acid externally,* is the dark color and smoky appearance of the urine.

9. The *symptoms of acute lead poisoning* are: "Metallic taste; dryness of the throat; thirst; severe colicky abdominal pains, referred particularly to the umbilical region, and relieved by pressure; pulse very feeble and slow; great prostration; constipation; urine scanty and red; violent cramps; paralysis of the lower extremities; convulsions, and tetanic spasms.

The antidotal treatment consists in administering "magnesium sulphate, which brings about the formation of the insoluble lead sulphate, while the purgative action of the magnesia is also useful. It should be preceded by an emetic, or by the use of the stomach tube."

10. The *antidote:* for *silver nitrate,* is solution of sodium chloride; for *belladonna,* is morphine, or tannin; for *strychnine,* is chloroform or chloral; for *tartar emetic,* is tannin.

MATERIA MEDICA AND THERAPEUTICS.

1. *Four preparations of opium:* (1) Powdered opium; (2) Deodorized opium; (3) granulated opium; (4) extract of opium. The first three contain from 12 to 12.5 per cent. of crystallized morphine; the last cpntains 20 per cent. of morphine.

2. *Cathartics are classified* as: (1) *Simple cathartics,* as Rhamnus purshiana; (2) *Laxatives,* as magnesia; (3) *Salines,* as potassium tartrate; (4) *Drastics,* as colocynth; (5) *Hydragogues,* as elaterium; (6) *Cholagogues,* as podophyllin.

3. From *turpentine,* given in *five minim doses,* I should expect a stimulant and expectorant effect; in *one dram doses,* an anthelumintic effect; and in *one ounce doses,* suppression of urine, strangury or death.

5. *Five remedies which have a special action on the heart:* Digitalis, aconite, strychnine, belladonna, and strophanthus.

6. *Eliminative treatment* is the method of treatment by the administration of agents which will cause the excretion or removal of noxious or waste matters from the system. *Five drugs useful in this line,* are: Castor oil, rhubarb, aloes, colocynth, elaterium.

8. *Five coal tar derivatives:* Carbolic acid, salicylic acid, salol, phenacetin, and resorcin.

10. *The various routes by which medicines are administered:* Mouth, stomach, rectum, respiratory tract (by inhalation), skin (by inunction, fumigation, hypodermically, by cataphoresis).

BACTERIOLOGY.

1. "The preventive measures which may be taken to reduce tuberculosis may be summarized as follows: (1) The compulsory notification of phthisis. (2) The removal of those conditions of domicile and of occupation which are known to promote the incidence of the disease, including the regulation of certain dusty trades. (3) The diffusion of knowledge (by medical men, leaflets, etc.) regarding the nature and modes of spread of the disease, and the precautions which should be taken in order to prevent its extension. (4) The testing of sputum and other suspected discharges, and of milk, meat, etc., supposed to be tuberculous—reports to be furnished free of charge. (5) Local authorities to undertake, without charge, the disinfection of houses recently occupied by phthisical persons. (6) The establishment of sanatoria and isolation accommodation for the cure of phthisical patients, and the isolation of those who are a distinct source of danger to fellow lodgers or workers. (7) the enforcement of measures against spitting in public conveyances and in places of public resort. (8) The efficient sanitary supervision of dairy farms, dairies, and milkshops. The periodical veterinary inspection and testing (by tuberculin) of milch cows, and the slaughter of tuberculous animals. The prohibition of the sale of milk of cows affected with tuberculosis. (9) The proper inspection of meat in public abattoirs, and the adoption of due precautions for the control of imported meat and milk." (Parkes' *Practical Hygiene.*)

2. To prevent the spread of typhoid fever: Flies should be kept out of the house as far as possible, by means of screens or otherwise; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed, and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient, physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over. Further, each household should boil all water that is to be used for drinking or for washing dishes, etc.; milk should be boiled also; and no ice should be put *in* water or other drink or food.

3. *Immunity* is the power of resistance of cells and tissues to the action of pathogenic bacteria. Immunity may be either natural or acquired.

Natural immunity is this power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups .

Acquired immunity is this resistance acquired: (1) by a previous attack of the disease, caused by the bacteria, or

(2) by the person being made artificially insusceptible. The conditions which give immunity from the pathogenic action of bacteria are: (1) a previous attack of the disease; (2) inoculation, with small quantities of bacteria, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

4. *To determine the presence of malarial parasite:* A few hours before the chill, a drop of blood should be taken from the cleansed lobe of the ear or tip of the finger of the patient. The blood should be received on the center of a cover-glass, which should then be quickly placed, blood side down, on a slide. Search should be made with a one-twelfth oil immersion objective, and but little illumination. The ordinary tertian parasite appears as a small, pale, and ring-like body within the red corpuscles; it has an active vibratile motion; sometimes a dark pigment is present, and segmenting bodies or rosettes may be seen.

5. The *staphylococcus pyogenes aureus* is a small round cell which appears in clusters like a bunch of grapes; its diameter is about 0.8 to 1.0 mikron; it is facultative anerobic, has no flagella, is not motile, it stains readily with the anilin dyes, and is not decolorized by Gram's method; it forms an orange pigment on gelatin, potatoes and other media; it also liquefies gelatin.

It is *found* on the skin; in the nose, mouth, ears, and eyes, and under the nails; also in abscesses, boils, carbuncles, osteomyelitis, arthritis, empyema, and suppurative inflammations in general.

6. *Ptomains* are the putrefactive products of dead animal tissues, or fluids; they are basic, nitrogenous, and resemble alkaloids in their action.

Toxins are the products of pathogenic bacteria or ptomaines and leucomains, and are actively poisonous.

Flagella are delicate filaments which are attached to some bacteria, and are supposed to aid in their locomotion.

7. The *modes of infection of the tubercle bacillus,* are: The respiratory tract, by inhalation; the digestive tract (by food and drink); through the skin or mucous membranes, when abraded, or by inoculation.

8. The *cholera bacillus:* is a spirillum, actively motile, and with a flagellum at one end; it is curved, has rounded ends, and is about half the length of the tubercle bacillus; it stains readily with ordinary anilin stains, but not by Gram's method; it is easily cultivated on the usual media; it has but slight power of resistance; it liquefies gelatin, and does not produce pigment.

PRACTICE OF MEDICINE.

3. Tetanus. *Diagnosis:* Dysphagia; pain and stiffness in the muscles of the lower jaw and neck; tonic spasms of the muscles of the back, legs, and abdomen; the jaws become rigid and locked; opisthotonus and risus sardonicus are present. Tetanus may be confounded with poisoning by strychnine, but there are marked differences: In *tetanus,* the onset is gradual, is apt to begin with trismus, swallowing is difficult or impossible, the condition is persistent, consciousness is dulled or lost, and there is history of a wound or injury. In *strychnine poisoning,* the onset is more sudden, the muscles of the jaw and neck are generally the last to be affected, there are marked remissions with muscular relaxation, consciousness is retained, and there is no history of a wound or injury.

Treatment: Rest in bed in a dark, quiet room; tonics and nutritious food; opium, chloral, chloroform, or bromides to control the spasms; antitetanic serum has been used; the ideal method of treatment lies in prophylaxis by careful antisepsis in case of all wounds, particularly punctured wounds.

7.

Epilepsy.	Hysteria.
1. No apparent cause.	1. Cause, emotional.
2. Sudden and rapid onset.	2. Onset gradual, usually after some mental excitement.
3. Aura generally present.	3. Globus hystericus or palpitation.
4. Consciousness lost.	4. Consciousness generally preserved.
5. Pupils generally dilated.	5. Pupils normal.
6. Tongue often bitten.	6. Tongue never bitten.
7. Patient very liable to hurt himself.	7. Patient not liable to hurt himself; may injure others.
8. May be involuntary bladder and bowel discharges.	8. Never.
9. Of short duration.	9. Duration longer.

OBSTETRICS.

1. During the fifth month of pregnancy, the fetus weighs nearly 9 ounces; but the liquor amnii weighs a little more than this.

2. Yes; syphilis may be transmitted by the father to the embryo without infecting the mother.

3. and 4. *The treatment of chorea gravidarum in pregnancy:* Rest, both physical and mental; good hygienic surroundings; chloral, bromides, hyoscin, chloroform, arsenic, tonics, and sodium salicylate have all been recommended; induction of premature labor may be necessary. The *percentage of mortality* in such cases is about 30 to 35.

5. The *average duration of labor,* in *multiparæ,* is about ten or eleven hours; in *primiparæ,* is about fifteen hours.

6 and 7. No; there is no need to puncture the membranes at the *beginning* of the second stage. By puncturing, we would induce a dry labor and consequently prolong the labor and possibly turn the case from one of eutocia to dystocia.

9. *Three signs indicating that labor has actually begun,* are: (1) True pains; (2) dilatation of the os, with effacement of the cervical canal; (3) The "Show."

SURGERY.

4. A *sinus* is blind at one end and open at the other; while a *fistula* is open at both ends.

6. *The causes of intestinal obstruction* are: Strangulation through apertures, or by means of bands and contracting adhesions; impaction of foreign bodies or feces; the presence of tumors; volvulus or intussusception; intestinal paralysis; disease in the intestinal walls ultimately narrowing the lumen.

7. From without inwards, the coverings of hernia are as follows:

Direct Inguinal.	*Oblique Inguinal.*	*Femaral.*
Skin	Skin	Skin
Superficial fascia.	Supercial fascia	Superficial fascia
Intercolumnar fascia.	Intercolumnar fascia	Cribriform fascia
Conjoined tendon.	Cremasteric fascia	Crural sheath
Transversalis fascia	Infundibuliform fascia	Septum crurale
Subperitoneal tissue	Subperitoneal tissue	Subperitoneal tissue
Peritoneum	Peritoneum	Peritoneum

It is not always possible (or necessary) to distinguish all these layers.

10. Morbus coxæ. *Symptoms of first stages:* Night cries; lameness in the morning; a slight limp; tendency to become tired on slight exertion; wasting; spasm; pain; swelling; and deformity (either real or apparent).

Symptoms of Second Stage: Abduction, limping, pain, which is worse at night, apparent lengthening of the limb, abscess, atrophy of thigh muscles, flexion of thigh, effusion into hip joint, and there may be crepitation in the joint.

Symptoms of Third Stage: Flexion, adduction, and shortening of the limb, the joint may be dislocated or ankylosed, or suppuration may occur.

GENITOURINARY AND DERMATOLOGY.

1. Cystitis. *Causes:* Exposure to cold and wet; traumatism, calculus, use of cantharides and some other drugs; spread of urethral inflammation, pus, infectious diseases; vesical paralysis; enlarged prostate; bacteria.

Treatment: Remove the cause, if possible; rest in bed; the imbibition of plenty of milk and water, and the avoidance of all highly seasoned food; laxatives; diuretics; sitz bath; irrigation of the bladder with a hot, mild, antiseptic solution; hot fomentations to the epigastrium, and suppositories of opium, and belladonna are often helpful; sometimes intravesical medication is necessary.

2. *The complications of a urethritis* may be: Prostatitis, cystitis, pyelitis, epididymitis, inflammation of the vas deferens and of the seminal vesicles, periurethritis, retention of urine, bubo, inflammation of Cowper's glands, peritonitis, gonorrheal rheumatism, gonorrheal conjunctivitis.

4. *The first stage of syphilis,* is characterized by the *hard chancre.*

The second stage, by: Sore throat, mucous patches; the skin lesions or syphilides, which are characterized: By not itching; by being of a coppery or raw ham color; by being painless; by polymorphism, macules, papules, pustules, etc., being present at the same time; by being generally symmetrical. In this stage may also appear: Iritis, periostitis, and alopecia.

The third stage, is marked by: Anemia, gumma formation, periosteal nodes, headaches, endarteritis, and various other diseases.

5.

CHANCRE.	CHANCROID.	HERPES PROGENITALIS.
First lesion of a constitutional disease, viz., syphilis.	A local disease.	A local neurosis.
Due to syphilitic infection.	Due to contact with secretion from chancroid.	Due to irritation.
Generally a venereal infection.	Always a venereal infection.	May be non-venereal.
May occur anywhere on the body.	Nearly always on genitals.	Occurs generally on prepuce; may occur anywhere on genitals.
Period of incubation never so short as ten days.	Period of incubation always less than ten days (generally about three).	No incubation period.
Generally single.	Generally multiple.	Multiple vesicles occurring in crops.
Not autoinoculable.	Autoinoculable.	Not autoinoculable.
Secretion slight.	Secretion profuse and purulent.	Secretion little or none.
Slightly or not at all painful.	Generally painful.	Tingling and itching rather than painful.
As a rule only occurs once in any patient.	May reoccur in same patient.	Apt to reoccur.
Buboes are painless and seldom suppurate.	Buboes are painful, and usually suppurate.	Lymphatics seldom involved.

7. *Scabies* is a contagious, animal, parasitic disease, due to the *Sarcoptes scabiei*, characterized by burrows and a multiform eruption, and attended by severe itching. The eruption usually occupies certain areas where the skin is thin; these are the interdigital spaces, the flexor surface of the wrist and arm, the anterior and posterior axillary folds, the mammæ and nipples (in women), the umbilicus, the buttocks, the penis, the inner side of the thighs and legs, and the toes. The face is exempt except occasionally in infants. The itching is intense and worse at night. The affection is curable, but dermatitis may result from overtreatment.

Treatment consists in a thorough scrubbing with soap and warm water, followed by friction to dry the skin, and the application of sulphur ointment; the latter to be repeated morning and night for three days. The whole process may need to be repeated one or more times.

9. ALOPECIA AREATA. *Etiology:* The real cause is unknown; it has been regarded as a neurosis; as due to parasites; or as the result of malnutrition of the hair.

Symptoms: There are circumscribed round or oval patches of baldness, which may appear suddenly or gradually, generally in early adult life; the scalp appears unchanged or may be pale or hyperemic; there are no scales; occasionally the eyebrows or beard are involved.

It is distinguished from *Ringworm*, in that the latter is rare in adults, is characterized by scales in which are broken-off stumps of hairs with split ends, and a microscopical examination shows the presence of the tricophyton fungus in ringworm.

Texas.—Under certain conditions, this State now reciprocates with Ohio and Virginia. Ohio certificates issued since January 1, 1900, are accepted, and from Virginia since July 1, 1900.

Ohio.—The State Medical Board has received information that some medical students having preliminary educational requirements less than demanded by the Ohio law have been induced to attend medical colleges in other States, under the impression that after graduation they can return to and obtain a license to practise in Ohio under reciprocity. This should be corrected. All medical students who have or who contemplate matriculating in colleges in other States with such impression should understand that a license from another State is accepted in place of an examination only. The applicant in all other particulars must comply with the laws of Ohio and the rules of this board. The preliminary educational attainments must be the same as required of students of Ohio colleges.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending February 6, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	487	180
Diphtheria	422	42
Measles	521	28
Scarlet Fever	370	21
Smallpox	—	—
Varicella	225	—
Typhoid Fever	26	7
Whooping Cough	58	3
Cerebiospinal Meningitis	12	11
Malarial Fever	—	—
Totals	2121	292

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending February 5, 1909:

SMALLPOX—UNITED STATES

			CASES.	DEATHS.
Alabama, Mobile	Jan.	16–23	1	Imported
Mobile County	Jan.	31	5	..
California, Los Angeles	Jan.	9–16	2	..
Illinois, Danville	Jan.	17–24	1	..
Indiana, Elkhart	Jan.	16–23	2	..
Fort Wayne	Jan.	9–16	1	..
Indianapolis	Jan.	17–24	1	..
La Fayette	Jan.	18–25	9	..
Kansas, Kansas City	Jan.	16–23	1	..
Topeka	Jan.	9–23	15	..
Kentucky, Covington	Jan.	16–23	2	..
Lexington	Jan.	16–23	6	..
Louisiana, New Orleans	Jan.	16–23	1	..
Shreveport	Jan.	1–20	32	1
Maine, Van Buren	Jan.	16–23	8	..
Maryland, Baltimore	Jan.	31	1	Imported
Minnesota, Duluth	Jan.	14–21	1	..
Ohio, Cincinnati	Jan.	8–22	49	1
Tiffin	Jan.	16–23	1	..
Pennsylvania, Harrisburg	Dec.	18–29	3	..
Tennessee, Nashville	Jan.	16–23	6	..
Texas, Laredo	Feb.	4	1	..
San Antonio	Jan.	16–23	4	..
Wisconsin, La Crosse	Jan.	16–23	3	..
Manitowoc	Jan.	16–23	1	..
Milwaukee	Jan.	9–23	40	..
Virginia, Lynchburg	Jan.	16–23	1	..
Washington, Tacoma	Jan.	3–17	17	..

SMALLPOX—FOREIGN.

Australia, New Castle	Nov.	23–30	1	..
Brazil, Para	Dec.	26–Jan. 9	2	3
Rio de Janeiro	Dec.	13–27	253	111
Canada, Halifax	Jan.	9–16	4	..
Hamilton	Jan.	16–23	1	..
Chile, Talcaguana	Jan.	2	..	Present
China, Amoy	Dec.	12–Jan.	..	Present
Shanghai	Dec.	5–12	2	..
Greece, Athens	Dec.	26–Jan. 2	..	1
India, Bombay	Dec.	22–29	..	4
Calcutta	Dec.	5–12	..	6
Rangoon	Dec.	12–19	1	..
Indo-China, Saigon	Dec.	1–19	4	2
Italy, General	Dec.	27–Jan. 10	19	..
Mexico, Monterey	Jan.	10–17	..	1
Veracruz	Jan.	2–9	1	..
Netherlands, The, Rotterdam	Jan.	9–16	1	..
New Foundland, St. John's	Jan.	16–23	1	Vessel..
Peru, Lima	Dec.	24	8	in lazaretto
Russia, Moscow	Dec.	9–16	13	7
Siberia, Vladivostok	Dec.	13–20	1	..
Spain, Valencia	Dec.	26–Jan. 9	7	..
Vigo	Dec.	26–Jan. 2	2	..
Turkey, Constantinople	Dec.	27–Jan. 10	..	8

YELLOW FEVER.

Brazil, Bahia	Feb.	1	..	Epidemic
Manaos	Dec.	12–19	..	1
Dutch Guiana, Paramaribo	Dec.	18–Jan. 2	21	6
Mexico, Merida	Jan.	9–16	2	..
San Bernadino, vicinity of Maxcanu	Jan.	9–18	..	1

CHOLERA.

India, Bombay	Dec.	22–29	..	18
Calcutta	Dec.	5–12	..	10
Russia, St. Petersburg	Jan.	13–15	67	22

PLAGUE.

Brazil, Bahia	Feb.	1	..	Epidemic
Rio de Janeiro	Dec.	13–27	15	9
Chile, Iquique	Dec.	28	1	..
India, General	Dec.	12–19	2,449	1,788
Bombay	Dec.	22–29	..	4
Calcutta	Dec.	5–12	..	9
Rangoon	Dec.	12–19	..	..
Peru, General	Dec.	18–24	30	20
Callao	Dec.	24–Jan. 2	2	1
Lima	Dec.	24–Jan. 2	3	2

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Original Articles.

PROSTATECTOMY.*

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PROSTATECTOMY, either partial or complete, is practically the only operation performed upon the prostate gland, except in acute suppurations. It would be hard to find another organ of the body whose functions and pathological conditions are so varied yet in which the endeavors of the surgeon cover a field apparently so limited.

Yet we should not be deceived by this seeming limitation in the operative field. While the immediate procedure has always the same object—removal of all or a part of the organ, the indications for surgical intervention are many, the methods of performing it numerous and the refinements of its technique vary almost with every individual operator of note.

The pathological processes of the prostate gland which may necessitate a prostatectomy can be divided into three classes:

1. Those in which enlargement or hypertrophy of the gland is the condition giving us the symptoms to be overcome.

2. Those in which the prostate is the seat of chronic disease causing local symptoms often associated with grave psychical conditions and in chronic gonorrheal prostatitis.

3. Those in which the prostate is the site of a malignant growth.

Simple hypertrophy of the prostate is the condition which most often demands the attention of the surgeon. When this condition exists it requires intervention, not because of any inherent danger or because of symptoms due to the prostatic condition *per se*, but because of the relation of the prostate to the bladder outlet.

The urethra passes through the prostate gland, which is composed chiefly of two lateral lobes—the true lobes of the prostate. At the neck of the bladder and in the floor of the prostatic urethra lies that mass of prostatic tissue which, when it becomes enlarged, gives rise to the erroneous idea of a median lobe. Granting, however, that there is no true middle lobe of the prostate, it may be convenient to term the enlargement of this portion an enlargement of the "middle lobe," and so it is often referred to by various authors, by some indeed in ignorance of its true pathological anatomy.

Hypertrophy of the prostate consists in an overgrowth of the adenomatous portion of the gland, with more or less accompanying increase in the fibrous connective tissue, and also at times with some increase in the muscular tissue. By some authors (Young) hypertrophy of the prostate is regarded as in most cases a true adenoma, while others (Watson) take a contrary view. However that may be, it will at once be seen that either the adenomatous or the fibrous proliferation may predominate. Should the adenomatous increase be the greater the prostatic tissue becomes greater in size but less in density, *i.e.* we have here the method of formation of the larger soft prostates met with. If the connective tisue overgrowth predominates, we have formed those hypertrophied prostates which are small, firm and densely adherent to the capsule.

Whatever be the process, there can be no doubt that any portion or any number of portions of the gland may become involved. Thus the lateral lobes may become larger without any marked median overgrowth, or the reverse may be true. In most instances, however, we have a coincident and fairly uniform enlargement of all of the prostatic tissues —in other words, a condition in which a partial prostatectomy would be a palliative and not a finally curative operation.

The distinction between carcinoma and ordinary hypertrophy of the prostate gland, while made with certainty by the microscopic examination of tissue removed, is clinically not such an easy one. That is to say, while the disease is still localized to the prostate itself, the clinical symptoms which demand prostatectomy are precisely those which occur in hypertrophy and to which I shall later refer in discussing the indications for the operation.

Chronic gonorrheal prostatitis has been the last important condition of the gland to be recognized. In former years it was practically never recognized, but later studies have shown that the prostate is often the cause of the persistence of gonococci in the genital tract in those cases of urethritis which are very refractory. Not alone this, but a chronic gonorrheal inflammation of the gland often gives rise to such profound neurasthenic and psychical phenomena that the local lesion becomes of secondary importance, while the whole life of the patient is overshadowed by the systemic results of a dormant lesion.

It is not my purpose here to enter upon the symptomatology of the various forms of prostatic disease except in so far as an understanding thereof is necessary in forming a summary of the indications for the operation of prostatectomy.

In simple hypertrophy the indication for prostatectomy is such an increase in any portion of the prostate that the normal voiding of urine is greatly interfered with. A prostate which enlarges but does not prove an obstruction to the outflow of the bladder contents is not *per se* dangerous, nor should it be in any way tampered with. We know that some grade of prostatic hypertrophy is, one might say, the rule in men over fifty-five years of age, yet in most of them there are never any evil effects

*Read by title at Meeting of Southern Surgical and Gynecological Association, St. Louis, December, 1908

therefrom. It may be thought by some that in an enlarged prostate the danger of malignant degeneration is such as to render prostatectomy advisable in many more instances than it is now performed, yet the comparative rarity of prostatic carcinoma and the frequency of prostatic hypertrophy do not lead me to take this view. I make the statement as to the *comparative* rarity of prostatic carcinoma advisedly, although it must be recognized as being far more common than was thought before the routine microscopic study of prostates removed at operation was undertaken by various surgeons.

As to the degree of obstruction ot which we should allow a case of hypertrophy of the prostate to go before counseling operation opinions differ; yet as we know the process to be a progresive one and as we know what a deleterious effect upon the patient's general health long continued catheter life, even in the absence of bladder infection, has, it seems to me that operation should be much sooner considered by the physician and surgeon than it generally is. We must not lose sight of the fact that practically all cases of catheterism finally end in cystitis, and that this in many instances is but the starting point of an ascending infection which finally terminates fatally.

Those cases which do not require the use of a catheter suffer the inconvenience of frequent micturition, especially at night, and with the progress of the malady become unfitted for either work or the enjoyment of leisure. In well marked cases the patients are a burden to themselves and to all about them, unable to keep themselves either clean or comfortable and certainly to be pitied.

Furthermore, we have a much greater chance of an operative recovery in a patient still in fair health than in one afflicted with cystitis or a retrograde kidney lesion and worn out by constant suffiering.

I would choose then, as the time of election for prostatectomy in cases of hypertrophy, that period in which the patient first begins to have distress, not delaying operation until all palliative and local measures have been tried and found wanting.

Doubtless in individual instances there may be considerations which might influence us to desist from operation. Severe heart or lung lesions might render anesthesia, even local, unadvisable or impossible. Age is not a bar to prostatectomy, provided the general health of the patient is good. Some of my most brilliant results have been in men over seventy and eighty years of age.

In thus setting the indications for prostatectomy it may not be amiss to remark upon one of the operations which came into the field before radical removal of the prostate was very common—namely, the Bottini operation.

I do not practise it any more. While in a very few instances it may be advisable, I consider it hazardous and unsatisfactory. The improvements in the technique of prostatectomy and the adaptation of various operations to the needs of individual patients have rendered the operation slightly, if at all, more dangerous than the Bottini, and there has never been any question concerning the relative value of the two methods of procedure among surgeons who have had experience with both.

As I have mentioned a short while ago, the clinical differentiation between carcinoma and hypertrophy of the prostate is far from being easy. Indeed, the vast majority of prostatic carcinomata are not diagnosed before operation. A tentative diagnosis of a prostatic malignant growth is warranted where we have progressive prostatic enlargement in a man rather below the usual age for prostatic hypertrophy and in whom the local symptoms are rather more grave than would seem to be warranted by the condition found upon examination. The most conspicuous symptoms are sacral and perineal pain, which is continuous and not alone associated with micturition. The pain may also be referred along the sciatic and anterior crural nerves. Should the prostate be extremely firm or very nodular our suspicions would be still further strengthened. Perhaps the most reliable sign of a carcinomatous involvement of the prostate is an invasion toward the rectal mucosa. That is to say, in prostatic carcinomata we often note a failure of the rectal wall to slide freely over the prostate gland.

I have mentioned the presence of gonorrheal prostatitis of the chronic variety as being sometimes an indication for prostatectomy. There is no doubt that certain chronic cases of gonorrhea in which the prostate is greatly involved are incurable as long as the prostate remains. While the large majority are curable by prostatic massage and other local measures, some are resistant to every form of treatment. It is, however, a difficult mater to decide when to advise a prostatectomy. Most men whom we see with this condition are not willing to pay such a price for the cure of their condition, involving as it may and usually does interference with normal sexual life. So that, while realizing that removal of the prostate is theoretically desirable, I believe it is often improper and impracticable to advise it.

Still another prostatic condition should be noted if we wish to take into consideration all the lesions demanding prostatectomy. This is tuberculosis of the prostate. The tubercular involvement of the gland is rarely if ever an independent condition. It is practically always associated with tuberculosis of other portions of the genito-urinary tract, especially the epididymis and bladder. Before undertaking any operation whatever on a tubercular prostate we should be sure that the associated organs are not so involved that operation will not do more harm than good, and that the patient is not the subject of tuberculosis elsewhere.

A mention of tuberculosis brings to mind another very important point in the discussion of the indications for prostatectomy. It is this—the frequency with which tubercular (and at times other) lesions of the genitourinary tract higher up give us symptoms referable to the prostate. Tubercular cystitis in its incipiency, and especially tubercular nephritis and pyelitis, in which there is always infected and more or less irritating urine being voided, at times give symptoms almost entirely referred to the bladder trigone and the prostatic urethra. This is not to be wondered at, especially when we bear in mind the peculiar sensitiveness of the floor of the prostatic urethra and verumontanum. I have lately had occasion to observe a case in which a tubercular kidney condition manifested itself primarily by symptoms referable entirely to the prostatic zone. A careful cystoscopic examination should always be made.

Granting, however, that a prostatectomy is for any reason considered advisable, what method shall we adopt for its performance?

We have the choice of two approaches to the prostate—the suprapubic and the perineal route. I have never used or found need for a combined suprapubic and perineal operation. Each mode of

operation has had its strenuous advocates, yet no surgeon would be doing his patients justice in selecting the operation who does not use both methods—each in its proper place.

In simple hypertrophy I at times use the suprapubic method, at others the perineal. A careful selection of cases for each is just as important as the proper performance of the operation itself.

The suprapubic route has certainly very definite advantages. It offers a free exposure of the gland, a comparatively large working area and few anatomical difficulties. It is, therefore, the ideal mode of approach for the removal of large prostates (soft adenomatous) and for these I always employ it. It is my uniform experience that the large adenomatous prostates may be far more advantageously removed by the suprapubic than by the perineal route. There is a larger working space and we are not compelled to remove the gland piecemeal. We know also that as a general rule hemorrhage is more apt to occur after the removal of a large prostate, which leaves a deep bed with a great bleeding surface. If the bleeding is excessive it is very easily controlled by packing, as will be spoken of further on.

My technique for the suprapubic prostatectomy is as follows: After preparing and anaesthetising the patient in the usual way, a catheter is introduced into the bladder and whatever urine is present is drawn off. The bladder is then washed out with a boric acid solution until the fluid returns clear. About four ounces of boric acid or normal salt solution are then introduced and the catheter clamped to prevent its escape. The patient is then placed in the Trendelenburg position. This causes the viscera to gravitate away from the bladder. The fluid contained in the bladder is sufficient to distend it enough, and in connection with the high pelvic position to raise the peritoneum to such an extent that we have in the median line an area of the bladder not covered by peritoneum. In other words, the bladder is opened extraperitoneally. Introducing narrow retractors laterally and posteriorly the base of the bladder, the prostate, and the catheter filling the urethral orifice are well exposed. A small incision is then made through the mucous membrane on either side of, or around the orifice of the urethra, and by means of the ungloved finger the prostate is shelled out, the finger finding a natural line of cleavage between the sheath and the true capsule. While this is being done the surgeon supports the prostate by one or two fingers of the other hand placed in the rectum, and so furnishes also a guide to prevent tearing into the rectum by the decapsulating finger. It may not be possible to remove the prostate entire, but as a rule we can do so. At times we are able to preserve the prostatic urethra, at others not. I have never noticed any difference in results whether this was done or not, with the exception that I think stricture is more likely to occur where the prostatic urethra has been removed. The bed of the prostate will always show some slight oozing, and after it is possible to secure hemostasis by the use of hot douche of saline or sterile water. When, however, there is the least doubt concerning the bleeding I pack the bed of the prostate with a strip of gauze, and when possible place a purse string suture of catgut in the bladder mucosa surrounding the opening.

We have now to complete the operation by taking care of the bladder wound and supplying an efficient means of drainage for the urine. The bladder may be stitched with catgut at either extremity of the wound, if this be very large. Into the bladder I place a large firm rubber tube of at least three-quarters of an inch in diameter open at the bottom and with the sides also fenestrated. It is introduced just a little way into the bladder so that drainage is not interfered with, and it is held in place by one stitch of catgut passed through the skin, superficial fascia and sheath of the rectus. The fascial layers and the skin are then stitched with catgut and one through and through suture of catgut passed through all the layers of the wound including the walls of the bladder, which serves to hold the bladder up. Unless this deep suture is put in, the bladder may prolapse away from the tube and fail to drain properly.

The operation being completed, the patient is removed to bed and the suprapubic tube is connected with a rubber outlet tube running to a receptacle, which contains an antiseptic fluid, at the side of the bed.

The operation as I have outlined it is in all its essentials the one popularized, but not originated, by Mr. Freyer, of London. I am accustomed to say to my students that the post operative treatment should begin before operation. That is, we should see that the patient's general condition is as good as it is possible for us to have it, and especially that his kidneys are functionating well. It is to be expected that in men past middle age with a tendency to arteriosclerosis some renal deficiency should be present, and it has been my experience that after these operations scantiness of urine and uraemia are the complications that we most often are compelled to meet.

On the table the patient should be placed on a hot water bed, or very warmly wrapped in blankets and should be protected both in the operating room and in transit to and from it from every possibility of a draft. Post operative pneumonia is not an uncommon occurrence in these cases, and is often given its start by the soaking and drainage of urine and fluids about the bed clothes of the patient.

Should gauze have been placed in the prostatic bed to prevent hemorrhage, it is best to leave it in four or five days so that in its removal we do not run the risk of secondary hemorrhage, yet we must not allow our caution in this respect to go too far. If the gauze be left a very long time it has a tendency to seriously retard the healing of the suprapubic wound and to contribute to the formation of a fistula. The drainage tube should be left in for from three to five days, and its fairly early removal is called for also to hasten healing of the wound.

After removal of the suprapubic tube the urine is left to drain freely into gauze pads, while every effort is made to keep the patient as clean as possible. I do not leave a urethral catheter in these cases as it performs no useful function, and may, and does, seriously interfere with the patient's comfort. I do, however, pass a sound at the expiration of about eight days after operation, and at least once a week thereafter until healing is complete. Stricture of the urethra after suprapubic prostatectomy is most rare, but is not unknown and should be guarded against.

Permanent fistula after the suprapubic operation is in my practice unknown. The wound heals at times very rapidly and as a rule the patients should

be well in from four to six weeks. Occasionally, by reason of the metabolism of the patient and the constant exposure of the bladder, there is marked tendency to the precipitation of phosphates, which are deposited around the walls of the fistula and cause delay in healing. The condition is a difficult one to treat, but may be improved by the use of large quantities of water internally, regulation of diet, and the administration of such drugs as urotropin and sodium benzoate.

The drinking of water is to be advised regardless of this condition. It serves to keep up the kidney function and to flush out the organs, and as I have already mentioned, the use of diuretics may at times be needed, as the kidney function is the one most difficult to keep at par after these operations. Both hypodermoclysis and proctoclysis are in some instances invaluable.

The patient should be fed liberally after the first few days, should be encouraged to sit up and gotten out of bed as soon as possible, and instructed to take advantage of any chance to pass even a few drops of urine by the urethral route.

There is but one serious immediate postoperative complication with which we may have to deal after a suprapubic prostatectomy—hemorrhage. It is exceedingly rare if the technique of the operation has been carried out carefully and with attention to detail, yet it does at times occur. The treatment consists first in the local application of hot solutions to the bladder by irrigation, and rest for the patient. At times the use of ice-bags externally over the bladder region seems to have a hemostatic action. Should these simple measures fail to stop the bleeding or reduce it to a slight oozing, we must reopen the bladder and firmly pack the prostatic bed.

A perineal prostatectomy I consider the operation of choice in all small and fibrous prostates, especially those situated low down in the perineum. There are several reason for this choice of approach. In the first place, we must traverse much less space to reach the gland itself. The anatomy is somewhat complex, but when once mastered it presents, even when pathologically altered, no very grave difficulties. If the prostate be very adherent to its outer capsule, removal by the suprapubic method may be impossible, whereas by the perineal it may be accomplished.

Carcinomatous prostates should also be removed perineally. Their firm attachment to the rectal wall has already been noted, and the same reasons for this choice of operation hold good as in the small firm prostates. The perineal route also offers us the only chance of performing a radical operation for cancer of the prostate, such as the one advised by Young.

Gonorrheal, tuberculous, and sarcomatous prostates should also be removed perineally. In the first two the possible bladder infection by the two wounds in the wall of this viscus during the suprapubic procedure offers us sufficient ground for not adopting it.

The technique which I follow is that of Young. I consider it preferable to the methods of perineal prostatectomy advocated by Watson and others because it gives a much better exposure of the bladder and especially of its posterior surface, and because it enables the use of the senses of sight and touch, and not merely the latter.

For this operation the patient is put in a high lithotomy position. An inverted V incision is made in the perineum, the fat pushed back, and after the insertion of a two-branched retractor the central tendon is divided close to the bulb and the membraneous urethra exposed. This is then opened upon a guide and, the edges of the urethra being held open, a special tractor is introduced into the bladder and opened. The prostate is now firmly drawn down and the posterior surface exposed. The rectum is held out of the way by a narrow retractor and the prostate is now fully exposed. By means of lateral incisions to either side of the urethra, it is now possible by means of blunt dissection to free and remove the lateral lobes of the prostate, and at the same time allow the urethra and ejaculatory ducts to remain uninjured. It is in that latter feature that Young's technique is so much superior to other perineal prostatectomy methods, such as Proust, and although the preservation of the ducts is not always desirable or possible, they certainly do no harm if allowed to occupy their normal position. An enlarged median lobe can, by a little manipulation, be brought out through one or other of the lateral openings without in any way injuring the ejaculatory ducts, except in particularly unfavorable cases.

When the operation is completed the lateral cavities are packed lightly with gauze. Two drainage tubes are placed side by side into the bladder through one limb of the incision, and the incision closed up to the drainage tubes, while the other incision is closed entirely. These two tubes serve the purpose of continuous irrigation of the bladder with saline solution when this is considered necessary to prevent blocking or even as a routine measure. It is my practice not to take out the gauze until the third or fourth day, the tubes being left in a day or two longer if they will remain. Sounds are passed at intervals of about a week, starting ten days after the operation.

Hemorrhage after a properly performed perineal operation is rare, but when it does occur prompt and thorough packing is the only method at our command worthy of consideration.

Fistulæ are more common after the perineal than after the suprapubic operation, and the chances of an operative cure are even less. On the other hand, they are probably less objectionable to the patient than the suprapubic, though the existence of either variety of fistula is enough to produce much discomfort to the sufferer.

The technique of both these operations I have sometimes varied slightly to suit the requirements of individual cases, but I endeavor in either one to keep as close as possible to the typical procedure. Within the last few years Young has described a radical prostatectomy for carcinoma. His method involves removal of the gland, resection of the bladder wall in proximity to it and transplantation of the urethra, and he has reported two at least temporarily successful cases out of four operated upon. I myself have never performed this operation. While in the hands of an experienced man it may be at times successful, it is too grave and complicated a procedure ever to come into general use. Its mortality and difficulty seem to me to more than balance its advantages.

From the description of the cases on which this method of prostatectomy is performed it is evident that it is an operation calling for considerable skill and care to be successful. Our cases must be properly selected and thoroughly prepared. The opera-

tion must be painstaking and exact and the after treatment carried out with continual vigilance. Yet when we consider the disadvantages under which it is often performed we can well say that a prostatectomy properly done is a satisfactory operation, usually entirely successful in relieving the patient and prolonging his life.

1634 Walnut Street.

A CASE OF ACROMEGALY WITH THROMBOPHLEBITIS OF THE SUPERFICIAL VEINS.

A STUDY OF THE CARDIOVASCULAR CHANGES IN ACROMEGALY.

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This case of acromelagy is considered worthy of report because of the occurrence of thrombophlebitis of the superficial veins. In a careful search through the literature I have been unable to find a similar case recorded.

R. W., male, aged 51, Lakeside Hospital Medical No. 5685, was admitted to Lakeside Hospital May 28, 1906, on the service of Dr. E. F. Cushing, to whom I am indebted for the privilege of making this report. The patient complained of stomach trouble, swelling of the feet, and shortness of breath on exertion. The family history threw no light on the case. He had typhoid fever when eleven years of age, and rheumatism in the spring of 1905. Following his attack of rheumatism he had shortness of breath, weakness, and swelling of the feet, which persisted with some intermissions until his admission to the hospital. He had always used whiskey, beer, tea, coffee, and tobacco very freely. He had gonorrhea eighteen years previously, but had never had syphilis. On inquiry as to whether his hands and feet had become larger or his voice coarser in recent years, he thought that they had, though he was of such a low grade of intelligence that he paid little attention to these details. However, his sister, who came to visit him at the hospital and who had not seen him for ten years, said that he had changed so that she could scarcely believe he was her brother. She said his hands were very much larger, that he wore much larger shoes, and his voice was much coarser than when she had last seen him.

Fig. 1.—Showing the appearance of the patient when 28 years old.

Fig. 2.—Showing the appearance of the patient at the time of admission to hospital.

The illness for which he was admitted to the hospital began one year before with weakness and shortness of breath on exertion. He also had marked swelling of his feet. This condition continued with intervals of improvement until he was admitted to the hospital. At that time he had severe attacks of nocturnal dyspnea.

Physical Examination.—Patient was a large, heavily built man, height 5 feet 8 inches, weight 210 pounds. He stood with his feet quite wide apart, and his shoulders and head bent forward so that he looked from under his eyebrows. He answered questions readily, but his mentality was below normal. His face was massive, deeply wrinkled, especially about the forehead, his expression sorrowful, though he was quite good natured. His general musculature was quite well developed, but not in proportion to his massive size. The skin of his face was dark from exposure, and felt thick. His hair was very coarse, had a tendency to stand up, and the hair line came down low on his forehead. His head was round in shape; the external occipital protuberance stood out as a rounded prominence, the base of which was 3 c.m. in diameter and raised 2 c.m. above the surface. The superior curved lines of the occipital bone formed very prominent ridges. The glabellæ of the frontal bone were very prominent, owing no doubt to the enlarged frontal sinuses. The superciliary ridges of the frontal bone were much enlarged. The zygomatic arches were massive; the malar bones and the infraorbital portions of the superior maxilla stood out as large

prominences due probably to the enlarged cavity of the antrum. The nose was large and globular and the alæ were very thick; the hypertrophy affected chiefly the cartilages and soft parts of the nose. His mouth was large, the upper lip 1.5 c.m. thick, and the distance from the lower border of the nasal

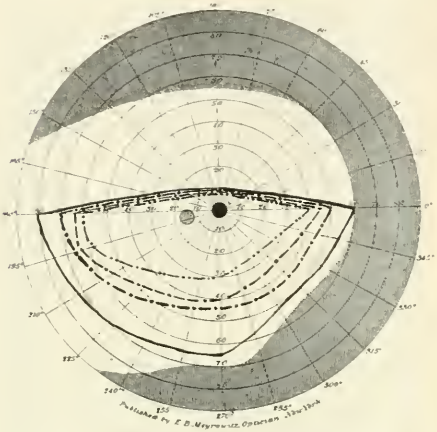

Fig. 3.—Fields of Vision in the Left Eye. Form outline, —; blue, . — . —; red, . — — . — —; green, . . — . . —

septum to the margin of the upper lip was 2.5 c.m. The lower jaw was large and projected forward so that in closing his mouth the lower teeth were in front of the upper. The teeth showed considerable decay and those in the lower jaw showed distinct spacing. The alveolar processes were 2.5 c.m. in width. The palate arch was very high, extending upward as a deep groove 2.5 c.m. wide and 1.5 c.m. deep, the deepest part being posteriorly. The tongue was dry, not coated, very large, with deep fissures on the dorsum, and the papillæ were very much hypertrophied. The tonsils were slightly enlarged, the epiglottis smaller than normal, and the vocal cords moved freely but were considerably thickened.

His speech was slow and the tone of his voice harsh and deep. His hearing was good; the lobules of his ears were very large. The circumference of his head measured 58 c.m., from the point of his chin to the hair line on his forehead 21 c.m. The examination of the eyes revealed nothing abnormal except the limitation of the visual fields (see diagrams).

His neck was large and very short. The thyroid cartilage was massive and the pomum Adami was very prominent and sharp. The thyroid gland was palpable but not enlarged. There was no general glandular enlargement.

The chest was barrel-shaped with a very marked cervicodorsal curve. The spinous processes of all the vertebræ were prominent and thickened, especially the spines of the seventh cervical and first dorsal vertebræ. The spinous processes of all the dorsal vertebræ were much lengthened. The shoulder girdle was massive.

The clavicle was long and broad, its curves accentuated, and much roughened at the site of the attachment of the muscles. The scapula was very broad and the spine, the acromion, and the coracoid process were rough, thickened, and enlarged. The costal angle was very obtuse. A broad shallow funnel-shaped depression was noticed over the lower part of the sternum. The manubrium sterni was broad and formed a sharp angle with the gladiolus. The percussion note over the upper part of the sternum was quite dull. On the left side at the costal margin in the mammary line a distinct bone deformity, the result of an old injury, projected 2.5 c.m. above the surface. The circumference of the chest was 101.5 c.m., expansion 1.5 c.m. His lungs were clear throughout to percussion and auscultation.

The point of maximum impulse of the heart was feeble, somewhat diffusely seen and felt in the fifth interspace just outside of the mammary line. The relative cardiac dullness extended to the left 14 c.m. from the midsternal line at the level of the fourth rib, and to the right 2 c.m. beyond the right sternal border at the same level. The first sound of the heart was very irregular both in force and rhythm, and at the apex could be heard a soft blowing systolic murmur, which was transmitted faintly into the axilla, but could not be heard in the back. The second sound in the aortic area was considerably accentuated. His pulse was irregular and arrhythmic, volume full, pulse rate, 66. The arteries accessible to palpation were all large and showed considerable sclerosis. The blood pressure was 170 mm. (Riva-Rocci instrument. Cook's modification, 10 c.m. band.)

The abdomen was quite pendulous. The growth of hair over its lower part was abundant but not unusually so. The spleen was not palpable. The lower border of the liver could be felt 3 c.m. below the costal border. There was no abdominal tenderness and no masses were felt. His penis and testicles were normal in size.

His hands were very large and spade-like in character, the increase in size being more marked in breadth than in length. The thenar and hypothenar eminences were very prominent and heavily padded. The skin of the palm threw itself into thick folds when the hand was closed, similarly when the fingers were extended thick folds appeared on the dorsum of the hand. The thumb was short,

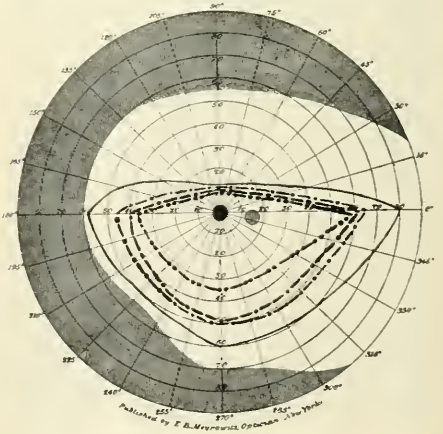

Fig. 4.—Fields of Vision in the Right Eye. Form outline, —; blue, . — . —; red, . — — . — —; green, . . — . . —

stood away from the index finger, and the dorsopalmar diameter was very long because of the thick padding of the ungual phalanx. The distal phalanges of the fingers were very thick, due to the similar padding of the palmar surface. The fingernails were large, shiny, and markedly curved, and

showed numerous linear striations. The fingers had a tendency to stand apart as though they were prevented from lying close together by the large size of the metacarphalangeal joints. When the wrist was tightly compressed a distinct flush of the hand unaccompanied by pain soon appeared, the veins being full and the arteries throbbing. This flushing was similar to that seen by the writer in a case of erythromelalgia in the same ward a few months before. The circumference of the palm of the hand was 25 c.m., of the wrist 18.5 c.m.; the length of the middle finger was 9 c.m., its greatest circumference 8 c.m. The musculature of the forearm seemed rather scanty when compared with the unusual size of the hand.

The feet showed changes similar to those described in the hands. They were very large so that he had to have his shoes made to order. The increase in size was chiefly in the breadth, the toes being short and thick with heavy padding on the

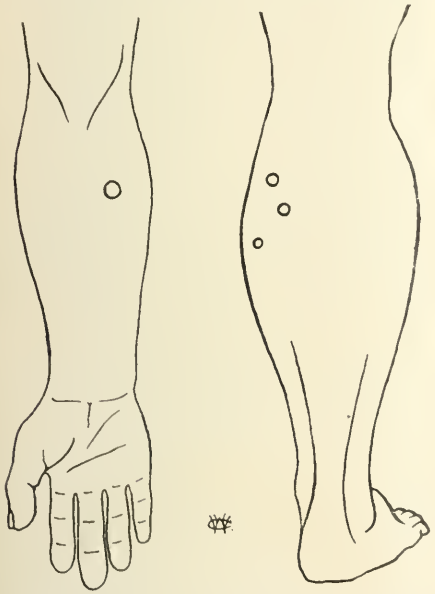

Fig. 5.—Showing the points of induration due to thrombophlebitis.

plantar surface. The great toe was extremely large. The nails showed marked trophic changes, being thick and markedly curved. When the feet were allowed to hang down with the patient sitting on the side of the bed, they rapidly showed a flushing brighter even than that described in the hands, with a similar dilatation of the veins and throbbing of the arteries. His patellar and Achilles tendon reflexes were present but sluggish. There was no disturbance in any part of the body of the sensation of touch, pain, heat, or cold. There was some edema of his shins.

His urine was scanty, highly colored, specific gravity 1024, reaction acid, albumin heavy trace, no sugar; microscopic examination showed an occasional leucocyte and epithelial cell, a few hyaline and granular casts.

The examination of the blood gave the following count: Red blood corpuscles 4,958,000, white blood corpuscles 6,800, hemaglobin (Dare) 80 per cent. The differential count of 500 leucocytes showed polymorphonuclears 51.5 per cent., small mononuclears 43.5 per cent., large mononuclears, 4.7 per cent., eosinophiles, 0.3 per cent. The red corpuscles stained well and were normal in size and shape.

With rest in bed and appropriate treatment his cardiac compensation was soon restored and his dyspnea and edema disappeared. During his entire stay in the hospital his skin was always bathed in perspiration.

The unusual feature of this case was the appearance in the middle of each forearm, eighteen days after his admission to the hospital, of small symmetrically-situated indurations. These were quite tender, 2 by 3 c.m. in size, and it could easily be determined that they were due to thrombophlebitis of the superficial veins. They soon lost their tenderness and disappeared in about ten days, leaving only a slight thickening. A few days later similar tender indurated areas appeared in each calf about midway between the knee and ankle joint. These also were definitely associated with the superficial veins. In all there were eight of these indurations due to thrombophlebitis. They were unassociated with rise of temperature or leucocytosis.

The patient died very suddenly a few days after leaving the hospital, and unfortunately an autopsy was not obtained.

Little attention has been paid by writers on the subject of acromegaly to the cardiovascular changes of this disease. In many cases hypertrophy and dilatation of the heart associated with arteriosclerosis have been described, but without comment, the writer apparently regarding the condition as a mere coincidence. Marie[1] mentioned the fact that syncope was a common cause of death in these patients and that they frequently had varicose veins.

Huchard[2] was really the first to call attention to the cardiovascular changes in acromegaly. He described three cases. In the first there were marked symptoms of angina pectoris. The second, a man 57 years old, seen fifteen years after the first signs of acromegaly developed, had cardiac hypertrophy with arrhythmia. The third case, a man 62 years of age, had all the signs of sclerosis of the heart with pronounced increase in the cardiac dullness, dilatation of the heart, and interstitial nephritis. Later his patient had breaking down of compensation, edema of the legs, and pulmonary infarction. J. B. C. Fournier[3] in 1896 in a thesis reviewed the literature of acromegaly up to that date and found twenty-five cases in which there were cardiovascular changes. Of the cases quoted by him the heart was enlarged in all except in the case described by Henrot. In this patient a man aged 35, the heart was small, the walls thin and flabby, but without any degeneration of the heart muscle. In Dallemagne's[4] case, quoted by Fournier, a man aged 47, who died from diabetic coma, the heart at autopsy weighed 885 grams. The wall of the left ventricle was 3 c.m. thick; the valves were not diseased except that the free edges of the mitral valve were slightly adherent. Histological examination showed an hypertrophy of the muscle fibers to double their normal size and a slight effacement of their striations, but without sclerosis or granular degeneration. The vessels showed thickening with yellow plaques of sclerosis and obliteration of the small branches of the arteries (endarteritis and periarteritis). In a second case recorded by Dallemagne the heart weighed 830 grams. Fournier divided the cardiac changes into two classes: (1) A simple en-

largement of the heart (cardiomegaly) without degeneration of the muscular fiber, the heart participating in the increase in size of the other organs (splanchnomegaly); (2) an hypertrophy in which there is a true sclerotic myocarditis, a cardiorenal arteriosclerosis often with enlarged liver, edema of the feet, albumin in the urine, and not infrequently angina pectoris. He attributed the arrhythmia to the direct action of the poison of acromegaly on the muscular fibers of the heart.

Klebs[6] attached a great deal of importance to the changes in the vessels. He found a great increase in the caliber of the vessels with thickening in the internal and external coats. In his patient, a man 40 years of age, the heart at autopsy weighed 550 grams; the mitral and tricuspid valves were insufficient. The vessels participated in this hypertrophy and dilatation.

The following are the measurements of the vessels, the figures noting the circumference of the vessels in millimeters: pulmonary artery outside the valves, 90; aorta outside the valves, 85; ascending aorta, 77; thoracic aorta under left clavicle, 60; intercostal arteries, 56; renal arteries, 36; lumbar arteries, 41; right iliac artery, 28; left iliac artery, 28; hypogastric artery, 18; external iliac artery, 24; femoral artery at Poupart's ligament, 20; deep femoral artery, 20; right subclavian, 34; right common carotid, 23; left common carotid, 23; right internal carotid, 26; right external carotid, 26; right vertebral artery, 14; thyroid artery, 10.

Tikomoroff[6] considered that the vascular lesions presented three stages, viz., (1) dilatation of the vessels, (2) thickening of their walls, (3) obliteration of their lumen. In some cases the vessels were transformed into fibrous cords. The thickening affected the media chiefly. In the various organs the walls of the vessels were thickened and dilated, sometimes causing hemorrhages through rupture. Furnival[7] reports a case of a man, age 58, with the usual signs of acromegaly. He was killed by a train and at autopsy the heart was found hypertrophied but no changes were noted in the valves. The kidneys showed an interstitial fibrosis. In discussing the pathological anatomy, the data for which was largely obtained from Sternberg's[8] Monograph, he says that the arteries are thickened and dilated, all the coats being affected by fibrosis, but especially the intima. These changes begin in the aorta and pulmonary artery and spread to the smaller vessels. The dilatation is probably secondary to the degeneration of the vessel walls, although Klebs maintained the contrary. The heart is generally hypertrophied and dilated, which is probably due to the changes in the blood-vessels. The kidneys are usually large and show signs of a chronic nephritis, the changes in the kidney being secondary to the cardiovascular lesions. In Hunter's[9] case, a male, 52 years of age, the heart weighed 26 ounces, showed general hypertrophy and dilatation, and the arteries at the base of the brain were very atheromatous. Claude and Moxter have also found marked arteriosclerosis.

At a meeting of the Association of American Physicians in 1897, O. T. Osborne[10] reported the clinical history and the autopsy findings in a patient who died at the age of 47 years from syncope. The heart was enormous, being 15 inches in circumference at the base of the ventricles and weighing two pounds and nine ounces. The wall of the right ventricle was three-eighths inch thick, that of the left seven-eighths inch. The valves of the heart were normal except for some slight thickening at the edges of the aortic valve. The coronary arteries were enlarged, admitting an ordinary lead pencil into their orifices. No occlusion of the heart vessels was found. In Leszynsky's[11] patient the heart was not enlarged and the arterial tension was normal, but four months later his heart action became feeble, albumin and casts appeared in the urine, and he developed a left-sided hemiplegia which was fatal. Labadie, Lagrave, and Deguy[12] have reported two cases with marked hypertrophy of the heart and arteriosclerosis. In one the heart weighed 1240 grams, and the radial artery was so sclerosed that it felt like a goose quill. Levi,[13] in a general review, gives among the symptoms of acromegaly, hypertrophy of the heart, arterial hypertension, and varicose veins. He summarizes the relation between this disease and the cardiovascular lesions as follows: The heart is hypertrophied, the aorta and pulmonary artery are the seat of thickening and dilatation; these alterations reach the ramifications of these trunks; as a result of a dilatation of the heart, the viscerae show the evidences of a stasis. Mitchell and LeCount,[14] in reporting the autopsy findings in a patient with acromegaly, whose heart weighed 450 grams and whose vessels were quite atheromatous, made an extensive review of the literature and found only eight cases, in which the condition of the heart was noted, in which enlargement was not found. Of these Hansemann found brown atrophy; Roxburgh and Coltes normal; Dallemagne atrophied (the same author reported two cases where the heart weighed 885 and 830 grams respectively); Henrot a curious atrophy of the heart and blood-vessels; Boltz, Frankel, slightly atrophied; Johnstone and Monroe, 225 grams.

The veins show changes similar to those described in the arteries. Varicose veins of the lower extremities are seen in nearly every case. It is easy then to understand the occurrence of thrombophlebitis as seen in the case here reported.

Whether the cardiovascular changes are a mere coincidence or one of the clinical features of acromegaly is the question to be decided. If the hypertrophy of the heart and the arteriosclerosis are due to the same cause as the changes in the bones, what is that cause? It is the opinion of the writer, both from a study of the clinical features of acromegaly and from the present physiological knowledge of the effects of extracts of the pituitary gland when injected into the circulation, that the cardiovascular changes should be considered as much a part of the clinical picture of acromegaly as the changes in the bones, and should be so recorded in our text books. The condition of erythromelalgia, which has been noted in acromegaly by several writers and was present in mild form in my case, is corroborative of this opinion, as Weir, Mitchell, and Spiller have shown that this condition depends upon an obliterative endarteritis of the vessels of the extremities.

In 1895 Oliver and Schäfer[15] found that injections of extracts of the pituitary caused usually a marked rise in blood pressure associated with an augmentation of the force of the heart beat. Szymonowicz[16] in 1896 in two experiments upon dogs obtained a slight fall of blood pressure and a quickening of the heart beat. In 1898 Howell[17] tested separately extracts of the anterior lobe and of the posterior lobe of the pituitary of the sheep by injection into the circulation of anesthetized dogs. He

found that extracts of the anterior lobe produced little or no perceptible change in blood pressure or heart rate. Extracts of the posterior lobe, however, in a dog with vagi intact, produced a pronounced slowing of the heart beat, together with an increase of blood pressure; while in a dog, with the vagi cut or under the influence of atropine, a prolonged rise in blood pressure was produced together with a stronger and slower heart beat. Magnus and Schäfer[18] in 1901 found that intravenous injection of saline extract of the posterior lobe is followed by a marked increase in the flow of urine. Schäfer and Herring[19] confirmed this observation and showed the striking parallelism which exists between the pituitary and the suprarenal bodies in development, structure, and functions. In each gland there are two parts, one of which, a highly vascular epithelium, yields an extract which is inactive; the other, of neuroectodermic origin, yields an extract which has a pronounced effect upon the heart and arteries. They advance the supposition that the epithelial part of each organ furnishes a secretion which passes through certain stages of formation, and that its production is merely completed by the neuroectodermic part, where the full activity of the secretion is acquired. Herring claims that there is histological evidence of the passage of this secretion into the third ventricle to mix with the cerebrospinal fluid. He claims that it is difficult to conceive that the posterior lobe of the pituitary should furnish an active secretion according to the usual views held of its structure. Cramer[20] has shown that strong extracts of the pituitary body produce within one or two hours a distinct dilatation of the pupil of the enucleated frogs' eye, but visible only after twelve or more hours with dilute extracts. The action of a solution of adrenalin on the pupil is more rapid but not so lasting.

Various theories have been advanced as to the essential cause of acromegaly. The majority of observers believe that the disease is associated with some alteration in the function of the pituitary body of which Rolleston[21] suggests three forms of modifications, viz., (1) suppression, a condition of incompetency of the pituitary analogous to myxedema or Addison's disease. Such incompetency would imply either an atrophy of the pituitary gland, which is not in accordance with the post-mortem findings, the reverse being the case, or else destruction by tumor; (2) hypersecretion, due to the excessive activity; this view is born out of observations of simple hypertrophy of the hypophysis. The administration of pituitary extract would be expected to aggravate the symptoms. However, I think that the action of the pituitary extract like that of the parathyroids can not always be depended upon, as its active principle may be destroyed in the preparation. (3) Perverted function due to heterogenous transformation of the structure of the pituitary body.

The pathological changes in the gland point quite strongly to the hypersecretion theory. Hypertrophy of the prehypophysis with increased vascularity and increase of the chromophile cells, or adenomata are the most frequent lesions. Brooks[22] found the latter condition at autopsy in his three cases. Atrophy of the gland has never been reported except in the single instance of Mossé and Daunic,[23] and only very exceptionally has it been stated as normal in size. Many observers have found sarcomata of the gland, but, as Brooks points out, these were probably adenomata, as it is difficult to distinguish the two conditions. In fact in his first case he diagnosed the condition of the pituitary as a sarcoma, until with further study and comparison with his other cases of the disease, he came to the conclusion that the growth was an adenoma. Further the long course of the disease, in many cases twenty or twenty-five years is not consistent with sarcoma, nor have metastases been described in any of the cases. The increased secretion of the prehypophysis in acromegaly is claimed by Brooks to act as a stimulus to the overgrowth of the connective tissue cells leading to changes in the vessels, overgrowth of bones, and enlargement of the viscera.

The condition of arteriosclerosis with hypertrophy of the heart can be explained on the theory of hypersecretion of the pituitary. As stated above the action of extracts of the posterior lobe of the pituitary on blood pressure is analogous to that of extracts of the suprarenal gland. Josué, Erb, Fischer, Klotz, and others, have shown that arteriosclerosis of the aorta extending even to the peripheral vessels can be produced in rabbits by injections of adrenalin. If the supposition of Herring is correct that the anterior or epithelial portion of the pituitary body furnishes the secretion, the production of which is merely completed by the posterior part, where its full activity is acquired, then hyperplasia or adenomata of the anterior lobe, such as is found in acromegaly, would increase the secretion to be activated by the posterior lobe and passed on into the third ventricle. The increased secretion would cause a continued rise in blood-pressure which would eventually produce arteriosclerosis with subsequent hypertrophy of the heart.

General Conclusions.—Enlargement of the heart, either simple or associated with a myocarditis, is the condition usually found in acromegaly. Sclerosis of the arteries and degenerative lesions affecting the walls of the veins, with dilatation and subsequent obliteration of their lumen, are constantly present. These changes in the heart and vessels should be considered as much a part of the clinical picture as the changes in the bones, and they are probably due to the prolonged hypertension of the vessels, the result of hypersecretion of the pituitary body.

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FREE SUPPURATIVE PERITONITIS.*

COMMENTS ON RECENT DISCUSSIONS.

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In looking over the discussions on free suppurative peritonitis recently held before two of the foremost medical societies, the American Medical Association and the American Surgical Association, in their 1908 meetings, various recollections were brought to mind of incidents in my own experience. The opinions expressed, some in agreement, others at variance with those I had formed, naturally recalled the pros and cons of conclusions I had reached. The importance of the subject prompts me to add this contribution to the already voluminous literature on the subject, for this literature will be many times more voluminous before the questions under discussion will be settled. Evidently surgery is "yet in the making," and these discussions show the manner in which it is being made.

The discussions mentioned do not lay much stress on the first great division of opinion, the question as to whether the treatment of septic peritonitis should be operative or not. Naturally in a discussion entirely among surgeons this question would not have prominence, as it is generally conceded that the most successful treatment is operative. Yet many, especially in the ranks of the internists and exceptionally among the surgeons, take the opposite stand. Even in these discussions a surgeon puts himself on record[1] that "cases of general peritonitis should be left alone—there was no use of operating when too late, etc." He reports, "of the last 34 cases of general diffuse peritonitis 21 have been saved by this course," a mortality of 35 per cent. The only virtue I can see in this treatment is that his courage in carrying out his convictions furnishes us with the death rate in these cases when not operated upon. By what process of reasoning he holds to his opinion in the face of a 5 per cent. mortality by the Murphy method is not quite clear. He could hardly plead a different class of cases, as he is just as indefinite in his classification as Murphy, including every grade of the affection in one class variously designated as "general peritonitis," or "general diffuse peritonitis" which agrees with the similarly vague "general free suppurative" or the "general diffuse variety" of Murphy. To quote from the discussion as reported, "He thought that a combination of the Ochsner method with the Murphy drop irrigation * * * seemed to give the best grounds for hope. * * * All such patients should be put in the Fowler position and be starved until they were tided over," in which direction he does not say, but the results show that it is likely to be in either.

So much for the question as to whether operation is in order or not. Even the few facts mentioned here speak for themselves, operation is indicated, though as to every rule there are exceptions. But let us view the subject from another point of view. Are the results published by Murphy to be uniformly expected in all series of cases if Murphy's plan of treatment is carried out? "Dr. Murphy in closing said positively that every case of general perforative peritonitis if managed correctly should recover."[2] From quite an extensive experience with this condition I should say that I can not agree with this conclusion, yet Murphy presents facts from which his deductions seem reasonable, and if the latter are not correct there must be reason for it. In mentioning Dr. Murphy's work in this field I most earnestly join in the universal praise and commendation that has been extended to him, yet I am sorry that there is one weak point, and that is that he, as well as most others, makes no distinction as to the different grades or state of progress of the affection. He says "as expressing the extent of the process, the terms now in use are very much at variance." He speaks of the terms "free," "diffuse," "spreading," "general," as being used by different writers without uniform meaning, and then ignores distinctions as to extent entirely, differentiating only the "free peritonitis" as a whole from the circumscribed variety, which latter is not under discussion in his paper or here.

Peritonitides have various degrees of severity due to various causes and for statistical purposes, or purposes on which prognosis may be based, they may well be divided into classes of various degrees of determinable severity. The most available primary classification as applied to prognosis should be based on the extent of surface involvement, because, other things being equal, this is the most important element in the determination of the gravity of the condition. That is, it is the most important obvious element, which may be determined with a fair degree of accuracy, often even before and always at the time of operation. While "the impression as to the extent of involvement, gained at the time of operation, may be erroneous," it should nevertheless be sufficiently good to permit of the division of the condition into three varieties with distinctly different outlooks regarding prognosis.

Murphy's only classification "according to the condition of the peritoneum and the nature of the exudate * * * as diffuse septic and diffuse suppurative" is a distinction that can not be made until the course of the affection is observed and bacteriological examination made, and can not be applied as a preoperative indication or for classification from a prognostic point of view, nor does he present it as such or mention it in relation to his results. His differentiation as well as many other elements influencing the prognosis, such as location of perforation, resistance of patient, length of time from onset of infection, are to be taken into consideration and as far as available should be applied

*Read at a metting of the East Side Physicians' Association.

as further influencing the prognosis in the respective subdivisions based on the extent of involvement. Were this latter brought out in Dr. Murphy's statistics it would most probably be found that the bulk of his cases would be included in the first two classes of the three I shall describe.

As the classification of peritonitides according to the extent of the process has been so confusing, the three divisions are designated as 1st, 2d and 3d grades in addition to the descriptive terms of each, and I would rather use the grade numbers than the terms in referring to them. The condition in general I would call free suppurative peritonitis, "free" to distinguish it from circumscribed, and "suppurative" in contradistinction to serous. The term "suppurative" is better than "septic," because all are more or less septic and the degree of septicity is not apparent at once and therefore the term cannot be properly applied until after bacteriological examination or the course of the affection determines its character in that regard.

I have included under free suppurative peritonitis those cases in which a distinctly purulent exudate was found unlimited by adhesions and free in the peritoneal cavity. Cases with clear or turbid serum exudates about the local inflammatory focus are not considered. With few exceptions perforation has been present in these cases, but that the presence of perforation is not essential in the causation of the condition is borne out by the fact that in four of this series in which no perforation was noted, the colon bacillus was found in the abdominal exudate. This is confirmatory of the observation of most competent authorities that septic infection may be carried through the unbroken tissues when their normal resistance to bacterial invasion is reduced by inflammation.

The first grade, or local free suppurative variety, should include those where perforation of a viscus, or rupture of a preexisting abscess, or spread of the sepsis through the inflamed tissues has caused a noncircumscribed purulent peritonitic exudate in the region of the infection, which, in case it be appendiceal, might extend into the pelvis and possibly the left iliac region. This class should have no greater mortality, in fact a smaller mortality, than the circumscribed abscess cases, and if it be more fatal in the hands of some it is due to meddlesome and unnecessarily complicated treatment, as is well brought out by Dr. Murphy in his reference to prolonged anesthesia, washing the abdomen, voluminous and irritating drainage, etc.

The second grade, or the diffuse free suppurative variety, would include a similar condition except that a greater extent of peritoneal surface is involved, the purulent exudate occupying the pelvis and the abdomen below the level of the umbilicus, with one or both flanks. In this variety the prognosis is not so favorable yet these cases should, as a rule, recover.

The third grade, or the general free suppurative variety, would refer to those in which practically the whole peritoneal cavity is involved, the purulent exudate extending to the upper limits of the abdomen, involving the regions about the liver, stomach and spleen, as well as both flanks and pelvis. When I say "practically the whole peritoneal cavity," I do not mean that there need be a universal involvement. This can only be determined postmortem. But for practical purposes incident to our object, the classification as applied to prognosis, it is sufficiently definite to call a peritonitis "general" when the purulent exudate is found to occupy the greater cavity from the pelvis to its upper regions. This unfortunate condition is usually the result of undue delay, but not always, as it is sometimes found within 24 hours of the onset of symptoms of peritoneal infection.

In this third variety the mortality is high in spite of any sort of treatment, and I doubt therefore whether Dr. Murphy had many of these in his reported series. That seven had to be reoperated upon for secondary local abscess, and 6 for postoperative mechanical ileus, is hardly a criterion of the severity of the cases. Secondary local abscess may occur in cases of any degree of severity. My series includes two in the second grade and none in the third or severe grade. Mechanical ileus is a complication that occurs even in aseptic intraperitoneal work, and while it is to be expected oftener after peritonitis, it does not necessarily indicate the severity of the process. It was the cause of death in one of my cases classed in the third grade, though I have had it occur in clean and local abscess cases. The only other clue Murphy gives whereby to judge the gravity of his cases is the length of time after their first symptoms of perforation which he gives as from 3 to 40 hours, mostly from 22 to 30 hours, and which therefore would not be likely to include many of the bad class. In answer to the question as to how many of the cases were operated after 4 or 5 days after onset of the general peritonitis, and in how many cases death appeared to be imminent, Dr. Murphy said that he did not have any 4 or 5 days old and trusted he never would have. In how many death appeared to be imminent he did not say.

While time is not the only element in determining the gravity of a case, it is a very important one, and unfortunately comes into consideration more frequently than the surgeons would like to have it. Dr. Murphy lays stress on this point, and in fact assigns much of the credit for his good results to the family physicians who recognized the condition in time for early interventon, and well may he compliment them for a series of 50 cases with an average of 26 hours' duration.

The classification presented above is not intended as a sharp division even in reference to extent of involvement, for there can be no sharply defined lines, and the classes must more or less merge into each other at their points of division. Yet it is sufficiently definite to serve its purpose and would prove of great advantage if considered in reports on mortality. Neither is this classification presented as any sort of a systematic division in relation to the various causes and conditions that influence the result in these cases. Such causes and conditions are too many and various to be considered here. It is merely intended as a ready classification according to condition evident either previous to or immediately on operation, and as a basis on which to figure the mortality, so that such results as reported by Dr. Murphy and conclusions such as expressed by him, "every case of general perforative peritonitis if managed correctly should recover," be applied where they belong, to certain classes of these cases, and not to "general free suppurative" peritonitis as a whole.

Dr. Murphy's conclusions are drawn from his experience with a total of 51 cases of free suppurative peritonitis, unclassified as to severity, and arising from various causes, operated by him within five years of May, 1908, when his paper was read before

the American Surgical Association. Of these 51 cases, 42 were of appendiceal origin. The mortality in the whole series was but two, both appendiceal.

The criticisms and conclusions in this paper are based on a series of 66 cases of free suppurative peritonitis, all that occurred in about 220 appendicitis cases operated by myself within the past three and one-half years, that is, since July, 1905, when my last paper on this subject was presented. This series includes every case that came under my care during this period and submitted to operation. The great bulk were in my service at the Beth Israel Hospital, and the records are at the disposal of anyone sufficiently interested to see them. In no case was operation refused on account of dubious outlook or on any such plea as "discredit to surgery," a frequent convenient excuse for omitting to operate a bad case.

Of the total of 66 free suppurative cases of all grades, 10 died, a mortality of 15 per cent., though how unjust and misleading it is to charge up this death rate to free suppurative peritonitis in general is shown by the statistics of this same series of cases when divided into three classes according to their degree of severity as indicated by the extent of involvement of the peritoneum.

There were of the first grade, or local free suppurative, 20 cases with no mortality. Of the second grade, or diffuse free suppurative, 27 with one death, or a mortality of less than 4 per cent. Of the third grade, or general free suppurative, 19 cases with 9 deaths, a mortality of 47 per cent.

While the first grade has practically no mortality, and the second a very low one, the third has a high death rate in spite of any sort of treatment, because in many of this class, besides the usual difficulties and dangers that may be overcome by operative treatment, complications have already developed that are beyond relief through drainage of the abdomen, though they be due primarily to infection from that source. It will be interesting to note Dr. Murphy's further experience and see if the probabilities of averages will come true; his cases averaged 22 to 30 hours' duration, and he has not had any of more than 40 hours, and hopes he never will have, a desire that we all share, but in the realization of which we have not been so fortunate.

In 1900, Dr. G. R. Fowler reported 12 successive cases with no mortality which he attributed to the mode of treatment he then advocated, and especially to what we now call the Fowler position. In 1904, by the time the series reached 100, he and Dr. R. S. Fowler reported a mortality of 33 per cent.

The results of operation will improve as the proportion of bad cases diminishes, which will take place as the laity lose their prejudice against operation and the general practitioner learns to recognize the condition as soon as it occurs.

It is peculiar how cases will run. My series begins with 12 consecutive recoveries, then one death and again 12 recoveries, making 25 cases with but one death, a fair number on which to have based a report of a 4 per cent. mortality. But this was evidently due to coincidence, as the results, good or bad, of any small series are likely to be. The average proportion of bad ones must come in sooner or later, and they did in my series in this wise: the 26th and 27th died. Then there were 15 recoveries up to case 43, which died. Then 3 recoveries followed by 2 deaths, 1 recovery by 1 death, 4 recoveries by 1 death, 3 recoveries by 1 death, 1 recovery by 1 death, leaving the last 5, which were recoveries.

In the latter part of 1906, about the time Dr. Murphy read his former paper in which he surprised the profession by reporting thirty-six cases of "general suppurative peritonitis" with one death, I was making the record above mentioned on the first twenty-five cases of this series. My plan of treatment was similar in all its essentials to that then presented by him, and had been in use for a couple of years in my service at the Beth Israel Hospital. I had been using as little anesthetic as possible, been making operation as brief as possible, had discarded flushing of the cavity, extensive incisions and voluminous drainage, especially of gauze, and had been leaving only small openings for rubber tissue drains, all of which was discussed in a paper published in 1906,[3] which covered a series of cases operated up to June, 1905. Proctoclysis was given by frequently repeated small rectal installations in place of the continuous infusion which I now prefer. The results were so excellent that I wished to add my testimony to his eloquent plea for simplicity in the operative treatment of this condition. But the paper I began to write did not materialize at that time and I now have the opportunity of reporting a much larger number of cases, with a higher mortality when considered as a class, but no higher when the character of the cases is taken into consideration.

I have attempted to gather from recent literature the mortality rate of various surgeons within the past few years since the new plan of treatment has been generally accepted. In 1906 I find Gibbon[4] and Ross[5] each reporting 8 cases with mortality of 37 per cent.; Robson[6] 6 cases with 17 per cent.; Morton[7] 20 cases with 35 per cent., though he divides his cases in the manner I advocate, but only into two classes, diffuse and general, there being 14 of the former with 2 deaths and 6 of the latter with 5 deaths. In 1907 Moynihan[8] reports 19 cases with 10 per cent. mortality, Douglas[9?] mentions no number but reports a mortality of 50 per cent. and says Mayo admits the same. In 1908 McGuire[10] reports 24 cases with 25 per cent. mortality, Katzenberg[11] 27 cases with 7 per cent., though he uses flushing of the cavity but no wiping. R. H. Fowler[12] reports 69 cases in the service of Drs. Curtis and Gibson at the St. Luke's Hospital in the nine and one-half years previous to 1908. He calls them cases in which the entire greater sac was involved, yet his description only "excludes from this series all lesions which might possibly have been interpreted as spreading processes, by which is meant an inflammation located in one quadrant or half of the abdominal cavity." This would exclude the first grade of my classification and include the second and third. The whole series gave a 69 per cent. mortality. The 25 cases of 1905, 1906, and 1907 gave 50 per cent. mortality. The treatment included flushing, multiple incisions, and rubber tube drains. Eisendrath[13] gives the results by twelve surgeons "obtained at the large American and European hospitals." They comprise 12 series, ranging each from 13 to 65 cases and give mortalities of from 17 to 80 per cent., averaging 50 per cent.

Eisendrath also reports 34 cases from the Michael Reese Hospital, occurring during the past nine years of which the general mortality was 41 per cent. But he also recognizes the injustice of lumping all cases in one class and subdivides them into

three grades of severity, basing his division on the duration of the affection. In 26 of the cases where this was noted, of 10 operated upon within the first 24 hours, the mortality was 1 or 10 per cent.; of 10 operated upon within 48 hours, mortality was 2 or 20 per cent.; and of 6 operated upon on the third day the mortality was 2 or 33 per cent. Korte, one of the surgeons quoted by Eisendrath, also makes a like distinction, reporting 27 cases operated upon within the first 48 hours with a mortality of 18 per cent., and 30 operated upon on the third day with a mortality of 36 per cent. This attempt at classification is a step out of the general maze, but hardly in the right direction, as the classification based on the extent of involvement is preferable for reasons already mentioned.

The manner of treatment brought out quite some differences of opinion. Drainage came in for a good deal of discussion. The ultraprogressive enthusiasts who wash out the pus and close the abdomen, sometimes with oxygen gas, don't seem to have been represented. Those present seemed to agree on drainage, but differed considerably on the best manner of securing it. One preferred gauze to tubes. One placed the patient on the side to secure better drainage. Most agreed on the advantages of the Fowler position, though one reversed the position to the Trendelenburg and obtained good results, in two cases with persistent vomiting.

The claims for the efficacy of the Fowler position are based on the theory that gravity will bring the intraabdominal fluids down to the pelvis, where the anatomical structure and physiological action of the peritoneum are much less favorable to absorption, and from where they can be drained more easily, as the incision is usually in the lower abdomen. This is correct, but even in the prone position the same will happen, the exudate will find its way into the pelvis. The appendix lies as a rule on the elevation formed by the psoas muscle as it crosses the brim of the pelvis. This region, in the prone position, is about three inches higher than the most dependent portion of the pelvis and four inches above the bottom of the flank.[14] There must be some other reason besides gravitation why the fluid invariably finds its way first to the pelvis, for if gravity were the only element causing its spread it would just as likely flow down the other side of the "divide" and involve the right flank first, especially if the perforation would take place in the distal end of an upturned appendix. I do not recall to have observed this in any case, and if it does happen it is exceptional. It must be remembered that the peritoneal cavity is not to be compared to an empty vessel in which fluid would immediately find the lowest portion. On the contrary, it is a cavity only in the sense that the anatomical structure of its walls differs from that of its contents. It is filled with its viscera and has no empty space at all, and fluid exuded among its organs is under the tension of the intravisceral pressure, and the position and migration of the fluid depend not nearly so much on gravity as on other forces. Intravisceral tension may be sufficient to oppose gravity for a time, though eventually it will probably be overcome by the latter. Peristalsis may act likewise. The folds and attachments of the mesentery and of the mesocolon, forming ridges and gutters within the anatomical peritoneal cavity, also serve to deviate the advancing line of invading fluid from the direction it would otherwise take.

As a rule, the cases in which we operate have not been in the Fowler position previous to operation, yet what are the conditions we find? In a very recent case, due to perforation of the appendix, the fluid, though free, will be found in the region of the perforation only. In one somewhat more advanced it will be found spreading downward into the pelvis. At a later stage the pelvis will be full of fluid which will be found spreading up into the left iliac region. We do not find it spreading upward above the iliac regions or into the flanks unless the pelvis is involved first. If the primary infection always took place on the pelvic declivity of the "divide" we might ascribe to gravity alone this tendency of the fluid to invade the pelvis. But it undoubtedly takes place higher up in some cases where gravity unopposed would carry the fluid into the flank unless the body were elevated to an angle of over 51°. This amount of elevation would be necessary to bring the bottom of the flank on a level with the "divide," and 60° or more would be required to drain the flank properly by gravity.[14] This exaggerated Fowler position is hardly used, yet the patients drain and get well—they even get well in the prone position which I used for a time experimentally. I do not mean to minimize the importance of the Fowler position, for there can be no doubt that bringing the pelvis to a comparatively lower level favors gravitation of the fluid, makes the patient more comfortable, and is therefore a beneficial measure, but to place too much reliance upon it may result in neglect of other necessary measures, especially those directed toward securing efficient drainage. There is another reason why the Fowler position is beneficial, which I called attention to some years ago, but have not seen noted since. The more upright the position of the body the more the weight of the intestines forces them into the pelvis. This effect of gravity on the intestines in an open abdomen is seen and taken advantage of by every surgeon in the use of the Trendelenburg position in pelvic work. The weight of the intestines thus helps to displace any fluid that may accumulate in the pelvis and force it in the only direction in which it is not opposed, out through the drainage opening.

The tendency of the intestines is to adapt themselves to and fill in all the available space within the abdominal walls. The expansive effect of their contained gases distends these elastic viscera to the extent permitted by the limits of the cavity containing them. When a portion of the cavity's space is occupied by fluid this expansive effect acting against the fluid will tend to displace it if it have an outlet through which it may be displaced. The result is that there is a continuous expulsive pressure on any fluid in the cavity, and there being an outlet, be it in the direction of gravity or otherwise, the fluid will be forced out through it. Other factors that assist in this expulsive intraabdominal force are the excursions of the diaphragm with every respiration, that add a sort of pumping effect; contractions of the abdominal muscles, as in coughing, straining or moving, act similarly; the Fowler position assists by adding the weight of the intestines as mentioned above.

This expulsive force of the intestines explains why an intraabdominal abscess or a collection of fluid in any part of the abdominal cavity will drain upward through the anterior abdominal wall almost as well as through a dependent lumbar or pelvic opening, if proper means to permit of drainage are used; why large and multiple incisions and bulky

gauze packings are not necessary for satisfactory drainage of the abdomen, as they may be in other regions of the body; and one reason why an extensive diffuse peritonitis may be drained through a very small incision situated almost anywhere within its area. It explains why in cases of circumscribed abscess, be it appendicular, perinephritic, pelvic, or any other within range of the effects of the distensible hollow viscera, a large cavity may become almost obliterated within a very short time after the pressure of its own accumulation is released by incision, though in this class of circumscribed abscess cases there are other factors, such as adhesions and rigidity of the walls of old abscesses, that retard and delay those effects.

In operative interference the primary object is to give an outlet to the confined septic fluid, and the secondary but just as important one is the establishment of satisfactory drainage to release such of the remaining fluid as will not be absorbed, as well as such as may be newly formed, and so obviate reaccumulation. The incision provides for the first requisite, and for reasons stated it need not be extensive. If removal of an offending organ, or reparatory work on damaged viscera, require a larger incision, it should be closed again to within the small limits necessary for abdominal drainage.

The manner of drainage is a very important item. An ideal drainage tract in the abdomen would be an opening that should retain its patency so long as there is anything to drain through it, and toward this object any measures used should be directed. The claim is put forth by many, especially those who advocate closure of the abdomen, that drainage of the peritoneum is useless because it does not drain. This observation is often true, and why drainage does not drain, as frequently employed, will be evident from further remarks. If used on the lines of known physical principles and with an appreciation of the difficulties to be overcome, abdominal drainage can be made satisfactory, sufficiently satisfactory to obtain the object sought, the provision of a sort of safety valve for those cases, indistinguishable at the time of operation, that will require it, while those whose subsequent course proves that they don't require it will not suffer any harm by its use.

The natural tendency of peritoneum covered viscera is to circumscribe any local irritant or infection by the formation of adhesions about it and so wall it off from the general peritoneal cavity. For various reasons this process is not efficient or does not take place soon enough in some cases, with the result that the infection spreads and produces a diffuse or general peritonitis. But even in a diffuse infection the tendency to spreading is overcome by release of the purulent accumulation through incision. The bulk of the fluid is discharged and the protective adhesive inflammation now has a chance to get in its good work and localize what remains of the infectious material which usually gravitates into the pelvis when that region is involved. Were no means used to secure the patency of the opening this adhesive interviscera inflammation would shut off the infectious material from the external opening and possibly result in reaccumulation. The requisites therefore are to overcome this tendency of adhesion in the line of the drainage tract and to prevent closing of the abdominal opening.

For reasons already gone into, all that is necessary to secure abdominal drainage is an outlet from the region to be drained to the external surface. To restate the reasons briefly, they are that the distension of the hollow viscera and the pumping effect of the movements of respiration, etc., furnish the *vis a tergo* which forces the fluids out. But the outlet must remain patent and therefore some means must be used to prevent adhesions along the drainage tract. The ideal method of accomplishing this would be the interposition of some non-irritating substance that would keep the viscera from coming into contact along the desired tract, and at the same time would not become adherent to the viscera. What answers these requirements more nearly than anything I know of its guttapercha tissue; it is non-irritating, soft and flexible, and does not adhere to the serous surfaces. Folded into a strip from one quarter to three quarters of an inch wide, and of six to twelve layers in thickness to give it body, or wrapped about a strip of gauze, making the familiar "cigarette drain," it is the most satisfactory abdominal drain I know of. In the "cigarette" the effect of the gauze is to give body and consistency to the drain and not, as usually understood, to drain by reason of its capillary action.

Tubes of rubber or glass are often used with advantage, but it is an oft repeated observation that they do not drain through their lumen. The openings, terminal and lateral, become choked up by omentum or exudate or by the visceral walls, and when they do drain under these conditions the drainage takes place about the outer surface of the tube, in the same manner as when a strip of guttapercha tissue or a cigarette drain is used. The tissue strip, therefore, acts just as efficiently and without the disadvantages incident to tubes. A tube implies a rigid body likely to cause pressure necrosis on the delicate viscera, whereas a strip of tissue is pliable and will adapt itself to its environment. If the tube be of rubber its chemical structure is irritating to the tender serous membranes, and if of glass it is likely to be broken. In either case if perforated it may injure the viscera on withdrawal by pulling on the parts engaged in the perforations.

Gauze has been used, and is yet by many, on the theory that by reason of its capillarity it will soak up the fluid from the cavity and discharge it into the dressings. What it actually does is to excite a plastic exudate from the serous surface with which it comes in contact, which exudate works into its mesh and glues it firmly to the peritoneal surface. Then the fluid which it soaks up, in place of proceeding to the dressings, stagnates on the gauze by reason of its viscidity, chokes its capillarity and causes a condition that would be ideal if the object were to plug the opening. These qualities of gauze are rightly taken advantage of for the control of hemorrhage, and its action under these conditions is a good illustration of why it will not act as a drain under conditions that are essentially similar. I do not know of any more efficient obstruction to drainage when the amount of discharge is not large or when the size of the drainage tract is within reasonable limits. When the discharge is abundant and the opening large the abscess will drain in spite of the gauze as its volume and tension will force it past the obstruction in the same manner that such a packing would fail to control a free hemorrhage. Gauze would probably drain if the fluid to be acted on were water but where we have to deal with a more or less viscid fluid with a fair amount of solid residue in suspension to choke

the mesh, gauze drainage is a delusion and a snare. It is unsatisfactory because it does not drain; harmful because when used in small openings it obstructs drainage, and to leave large openings conduces to postoperative hernia; harmful also because the irritation of its presence results in more extensive adhesions, and because the gut by its agglutination to the gauze may be injured or displaced in its removal. It is uncalled for because all the objects sought through its use may be attained much more satisfactorily, and without the disadvantages mentioned, by the use of guttapercha tissue as described.

There are many more items of interest in the discussion I have attempted to review, but to consider more of them at the present time would make this paper too lengthy. I will close with brief reference to the main points in the method of treatment employed in my hospital service. There are no hard-and-fast rules; each case is treated on its merits. The usual procedure is as follows:

Anesthesia is begun after all preliminaries are attended to and the surgeon stands ready to make the incision. As little as practicable of the anesthetic is given. Local anesthesia is occasionally used. Incision is median for appendical cases. The operator proceeds with the idea of getting through as quickly as possible.

Excision of the appendix, or repair of other offending organ, ignoring the presence of exudate which is left to run out or to be absorbed by pads used in the course of the operation.

Exploration for fluid by two fingers passed along the anterior parietes into the pelvis, which at the same time serve as a guide for the introduction of the drain. Rinse hand and explore the left flank and drain if necessary (the right has been explored in removing the appendix). If sufficiently suspicious, likewise explore both right and left hypochondriac regions. All this exploration and placing of drains is done in a moment.

Drains should be of guttapercha tissue, either in folded strips or wrapped around a loose core of gauze.

Suture abdominal wall, preferably in layers if the case is not desperate, leaving only a small drain outlet. Drain the parietal wound.

Lavage of stomach while patient is coming out from the anesthesia.

Fowler position, moderate, if not uncomfortable, or if not contraindicated for other reasons.

Murphy rectal infusion. Stimulants hypodermically only as necessary. Opiates only if urgently called for. Calomel, in fractional doses, with saline on second day, followed by an enema if necessary.

Drains shortened or removed on the second or third day, or allowed to remain one or two weeks or longer according to conditions.

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DANGER SIGNALS IN INFLAMMATION OF THE EAR.*

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THE formidable disturbances which we have in mind in connection with aural inflammation, occur almost exclusively in the suppurative form of otitis. Occasionally grave complications, including mastoid abscess and even brain lesions, are reported as accompanying nonsuppurative inflammation of the ear. It is my opinion that, in almost if not quite all of these cases, pus has really been present in the tympanic cavity, and has merely escaped observation. However this may be, the practical point worth remembering is that serious complications may develop in inflammations, where, at least, there is no history of a discharge.

The great preponderance of our ill-fated cases, however, are discharging ears, and the process consists of a suppurative inflammation affecting the middle ear. It is possible for the trouble to begin in the external ear, but no serious results will follow unless the middle ear has become involved. Disease of the internal ear can easily infect the cranial cavity, but inflammations of the internal ear are secondary to middle-ear inflammations.

The one invariable antecedent, therefore, is inflammation of the middle ear, of a suppurative character, which in all but a few instances will manifest itself by a discharge appearing at the external meatus.

A suppurative ear is very generally considered by the laity as only a trifling matter, and I fear that not even the medical profession entertain a view of its seriousness that is justified by a bare contemplation of the statistics.

To cite a few examples: Of 40,073 autopsies made from 1873 to 1894 at the Vienna General Hospital, Gruber found that aural suppuration was responsible for the death in 232 cases, or one out of every 173. A record of 9,000 consecutive autopsies at Guy's Hospital, London, showed 57 deaths as due to suppuration of the ear, which is a still higher proportion, viz., 1 to 158.

The frequency of intracranial complications in ear disease can be gathered from the New York Eye and Ear Hospital reports. Out of 65,000 cases of ear disease of all kinds treated at this hospital, 10,323 had discharging ears. Of this number it appears that severe intracranial complications occurred in 218, or 1 in every 88 cases. In a review of 12,744 cases of suppuration seen at the Manhattan Eye and Ear Hospital, Harris found that 60 of the patients suffered from meningitis, 23 from sinus thrombosis, and 7 had abscess of the brain.

Other serious troubles besides intracranial diseases may occur as a result of inflammation in the organ of hearing. The facial nerve as it traverses the tympanic cavity is covered by a very thin wall which may be eroded in the course of an inflammatory process. In some cases this wall is even lacking in places, easily exposing the nerve to injury. The result of such an accident is a disfiguring facial paralysis, which may or may not disappear, depending upon the nature of the lesion causing it.

The carotid artery and the bulb of the jugular vein are both at places dangerously close to the tympanic cavity and instances are not wanting of

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fatal accidents resulting from involvement of these vital structures.

An extension of the middle-ear inflammation inward to the labyrinth is necessarily a matter of the most serious import, for even if the trouble should proceed no farther, involvement of the cochlea and semicircular canals will produce a profound deafness and a vertigo sometimes so severe as to incapacitate the individual. Furthermore when there is a suppurative inflammation in this part of the auditory organ, the chance of infection of the intracranial contents is always imminent. Fortunately the internal ear is quite resistant to infection, so that it is only seldom we have this complication to fear.

It is especially in a backward direction that the inflammatory process is inclined to travel, attacking the mastoid antrum and the accessory cells situated in the mastoid apophysis. As the brain complications of middle-ear suppuration seldom occur except through the intervention of a preceding mastoiditis, the latter must naturally be regarded from this standpoint as a formidable complication. With the occurrence of mastoiditis the "danger line" is passed and from now on a watchful eye must be kept upon every symptom in order that no danger signal shall be overlooked. Involvement of the mastoid greatly increases the area of inflamed territory which is in relation with the intracranial contents.

The roof of the antrum is continuous with the roof of the tympanic cavity, the whole consisting of a very thin fragile plate of bone, forming a part of the floor upon which rests the temporal lobe of the brain. The posterior wall of the antrum, besides, is in relation with the sigmoid sinus and the cerebellum, so that we have here an additional danger point, through which infections might be carried to these structures. One of the serious features of mastoid involvement is that the focus of infection has now arrived at a locality where drainage conditions are peculiarly unfavorable. The pus imprisoned in the labyrinth of cells contained within the mastoid process has no outlet except through the antrum, which is the very uppermost cell communicating with the tympanum by way of a little channel called the aditus. Sometimes this passage becomes blocked by thickened secretion, so that the purulent contents can find no exit except by breaking through one of the cell walls.

Unfortunately for the patient, the wall which separates the antrum from the cranial viscera, is much thinner than the cortex or outer wall of the mastoid so that a rupture inward is more easily effected than one outward. Sometimes, indeed, as a result of faulty development the roof of the antrum or of the tympanum may actually be defective in places, leaving more or less wide openings in the bone, which form inviting gateways of infection.

In children the petrosquamous suture is probably an important way of infection. It is filled with soft tissues through which pass numerous veins connecting the middle ear with the cerebral structure.

Intracranial complication may occur with either acute or chronic suppuration of the ear, but with considerable greater frequency with the latter than the former. Chronic recurrent suppuration is to be regarded with the greatest suspicion, for it is especially in acute exacerbations of an old chronic discharge that the most frequent complications arise.

The intracranial complications against which we have to be on our guard are: (1) Pachymeningitis, with or without an epidural abscess. (2) Leptomeningitis, serous or purulent. (3) Abscess of cerebrum or cerebellum. (4) Sinus thrombosis.

Pachymeningitis, with a collection of pus on the surface of the brain, is one of the commonest, but fortunately the least fatal of the complications with which we have to deal. It occurs generally as a result of the direct inward extension of the suppurative process in the adjacent bone. The meningitis is usually localized and it is due to the fact that adhesions form between the membrane and the bone that the pus does not extend over a wider area.

Diffuse leptomeningitis, especially the purulent form, is the most dreaded of all the intracranial complications which can arise. In the textbooks it is, in fact, generally considered as hopeless and its development is considered by many surgeons as contraindicating operative interference. This pessimistic view has been modified by the report of a few undoubted cases in which recovery has taken place. I have recently in my own practice had such a case. The diagnosis, clear enough from the clinical course, was still further confirmed by a lumbar puncture, revealing pus in the spinal fluid. In this case I trephined the mastoid and opened the lateral sinus. The latter was found free of clot, but the mastoid was found diseased, and I think the cure may be attributed in a great measure to the complete eradication in this case of the focus of infection.

Brain abscess is a complication which with but the rarest exception will have a fatal termination if left to itself. The most frequent seat of the abscess is in the temporal lobe, in close proximity to the middle ear. Sometimes it is deeply situated and inaccessible at the time of operation.

Sinus thrombosis. A large venous channel carrying waste blood from the brain courses immediately in the rear of the mastoid process to continue downward into the jugular vein and thence directly to the right chamber of the heart. Suppurative disease involving the bone in this locality, not infrequently extends to this vein producing an infective thrombosis. Portions of the clot when detached and thrown into the circulation give rise to metastatic abscesses in all parts of the body. Surgical measures often prove successful in this complication, but a favorable outcome is gravely imperiled by waiting until septic phenomena have arisen.

Symptomatology.—It is foreign to the purpose of this paper to enter into a detailed discussion of the semiology of the complications of middle-ear inflammation. Fine points in the examination of the ear upon which the specialist depends very much in coming to a final conclusion will be avoided. Only general clinical symptoms and tests which are at the command of the general practitioner will be dwelt upon. These may not be sufficient for a differential diagnosis, but they constitute all that is needed; important danger signals which show at least that serious trouble is ahead, which prompt and intelligent action may successfully circumvent. Too much stress cannot be laid upon early recognition of these troubles.

When delirium, coma, paralysis, etc., have developed, a lesion of the brain may be easily diagnosed. But diagnosis at this stage is no credit to the physician and is probably too late to be of service to the patient. It is the discerning watchfulness for the early symptoms that counts, and this duty falls most often upon the general practitioner.

Let us then briefly consider the most important danger signals and their significance.

Pain.—Earache is an almost invariable symptom of acute inflammation of the middle ear, especially when suppuration takes place. In uncomplicated cases, the pain ceases promptly upon a rupture of the drum, which gives free outlet to the secretions. Continuance of the earache, therefore, after the discharge has set in is an unfavorable omen and leads us to suspect trouble.

When the mastoid cells are involved the pain is usually quite severe and is felt always just back of the ear and generally in the temporal region. There is often severe pain extending over the entire half of the head corresponding to the ear inflamed. A distinctive feature of the headache of mastoiditis is the tendency to become intensified during the night, so that the patient is unable to sleep unless quieted by opiates.

Excruciating cephalalgia occurring night and day suggests meningitis. The pains are then often of a paroxysmal character, augmented by motions of the body, and associated with points of tenderness over the scalp.

The capital symptom of acute mastoiditis is pain elicited upon pressure over the mastoid process of the temporal bone. A slight tenderness is sometimes noticed in the mastoid tip due to hyperemia of the mastoid cells, but it soon disappears if the process stops short of suppuration. Persistent tenderness, however, over any part of the mastoid process is a symptom full of significance.

One should be careful, however, not to confuse with mastoid tenderness that which is due to inflammation of the external ear, and which manifests itself only when the auricle is moved. To distinguish from this, make direct vertical pressure over the mastoid, avoiding contact with the auricle.

Swelling.—It is a common error to consider swelling over the mastoid as the index of what is going on beneath; to think, for example, that we are safe so long as no swelling exists and that a large fluctuating swelling is an alarming symptom calling for immediate operation. On the contrary, the most dangerous cases are those unattended with any external swelling. When the cortex of the bone is very thick, no swelling will take place, and the chances are accordingly increased of the pus being forced toward the cranial cavity. The safer cases are those in which, the cells being superficially placed, the pus has ruptured externally, producing a swelling in the subcutaneous tissues.

Fever.—The temperature should be frequently taken in cases of acute otitis media. We expect a moderate rise when the mastoid becomes involved, but in the chronic cases there may be little or none. An elevation to 104° F. or more should at once excite suspicion of a possible intracranial complication. The type of fever differs according to the character of the cerebral disease. In brain abscess it is constantly low; in meningitis a high temperature prevails, while in septic thrombosis a characteristic remittence is observed.

In the last-mentioned disease this remittent type of fever is a very important danger signal, for at times, especially in children, it may be actually the only symptom present.

As a rule severe rigors and chills will be associated. After a chill the temperature suddenly rises to 104° F. or more when it just as suddenly drops to normal or below. Again in a few hours, there may be another chill and the temperature behaves as before.

The Pulse.—The pulse in brain abscess is slow; in meningitis it is rapid, in sinus thrombosis it is accelerated, small, and very weak.

Otorrhea.—As stated above, the continuance of pain after discharge has set in is a bad sign; we may also say that sudden cessation of the discharge with continuance or increase of pain is a danger signal of the highest importance. It points to a blockage of secretions and imprisonment of the pus in the mastoid cells, or even perhaps that the pus has found an outlet upon the surface of the brain.

A very abundant discharge—more than one would expect ordinarily from the cavity of the ear—suggests that the mastoid cells are taking part in the suppuration. A sudden flow of pus from an ear that has been discharging normally is significant and leads us to suspect that an epidural abscess has broken through the roof of the tympanum.

It must not be forgotten that intracranial complications may occur, even when, from the scantiness of the discharge, we would say that there was very little otitis. This seems to be peculiarly the case with meningitis. Sometimes no history at all of discharge is obtainable, which is true of a case which I had an opportunity to observe recently.

Deafness.—The hearing is compromised in all cases; a very high degree of deafness should be regarded as an unfavorable sign. Complete deafness indicates an involvement of the labyrinth which is a grave complication, rendering meningitis imminent.

Vomiting.—The occurrence of vomiting in association with febrile symptoms due to a middle-ear inflammation, is a symptom of the most serious significance. If it be of the so-called projectile type, and if we can eliminate other causes, as some digestive disturbance, we may regard it as surely an indication of a cerebral complication.

Vertigo.—Severe vertigo and a general unsteadiness of gait should excite suspicion. This symptom may occur from trouble in the labyrinth; but it also is an important symptom of a cerebellar lesion.

Mental Symptoms.—Of course the development of any mental symptoms will be interpreted as pointing to something wrong in the cranial cavity. It is important, therefore, to be on the lookout for any, as even an apparently unimportant change in disposition, an unnatural moroseness, restlessness, flightiness, somnolence, or slowness of cerebration under the circumstances is extremely significant. When a true delirium, coma, or aphasia develops we can of course have no doubt of what is signified.

Among other symptoms we should mention nystagmus, ptosis, and paralysis of the eye muscle, dysphagia, yawning, and inequality of the pupils. Torticollis points of course to meningitis; but sometimes the patient complains merely of a stiffness of the neck.

A thick indurated cord running along the front of the sternocleidomastoid muscle is a sign of thrombosis of the jugular vein. Whenever there is marked edema extending beyond the region of the mastoid and into the neck, especially if involving the eyelids, we have strong additional evidence of thrombosis of the cerebral sinuses.

Disturbances of speech or vision may also occur, and when they do they may give valuable clues to the seat of the trouble. It is of course well understood that none of these symptoms, occurring separately will be sufficient as a basis for a diagnosis. It is only when they are considered with other symptoms that conclusions can be safely drawn.

Intense cephalalgia may come from a number of causes, and might have no connection with a coexisting suppuration of the ear. But if the headache has the characteristics we noted above, and if at the same time the patient has a persistent high temperature, vomiting, and delirium, we would certainly feel justified in attributing the headache to an intracranial disturbance and most likely a meningitis; if we observe in addition an inequality of the pupils, if the patient exhibits an intolerance of light, and has torticollis, and if we find Kernig's symptom present, the diagnosis may be made with reasonable positiveness; if, finally, we tap the spine and find pus, the diagnosis is confirmed beyond doubt.

Again chills with remittent fever, in connection with a suppurating ear, strongly suggest thrombosis. But it may be due of course to a mere coincidental association of malarial fever; if we have at the same time, however, typical projectile vomiting, vertigo, and cephalalgia, the probabilities are all in favor of an intracranial cause of the symptoms rather than of their being due to a simple malaria.

In closing let me warn against a too hasty diagnosis of intracranial complications in young children, upon the occurrence of symptoms which in adults would be conclusive. It is well known that in young children a simple suppuration of the ear may be accompanied by symptoms of meningeal irritation of a very alarming character, without the intervention of an actual brain lesion.

But even here we must be on our guard, for the reverse may also happen; it is especially in children that sinus thrombosis may occur, running an almost symptomless course, and with no characteristic indication whatever of any intracranial trouble.

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PARAMYOCLONUS MULTIPLEX (FRIEDREICH).*

REPORT OF A CASE, WITH BRIEF DESCRIPTION FROM OPPENHEIM.

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This disease was first described by Friedreich in 1881. The observations made later by others are only partly similar to the original ones of Friedreich. The disease is characterized by clonic muscular contractions, occurring mostly in the body and limbs, rarely in the facial muscles. The contractions are short, sharp, lightning-like, unsystematized; they may occur symmetrically on both sides of the body, do not occur synchronously or rythmically, may be disseminated or localized, and may involve a single muscle or a whole muscle group. Active movements are not, as a rule, hindered, and have a restful, spasm-stilling influence; the opposite is true of the emotions. The twitchings are lessened if the attention is diverted, and disappear completely during sleep. The tendon phenomena are greatly increased. The motor phenomena of irritability are generally the only symptoms noticed. All other functions are normal, even the mechanical and electrical excitability of the muscles. (Oppenheim: Diseases of the Nervous System [Mayer], 1904.)

*Case presented before the Fort Wayne Medical Society, October 6, 1908; paper read before the Twelfth Councilor District Medical Society, October 27, 1908.

This is a rare disease. Gowers collected fifty-two cases in 1895, of which only thirteen were considered true cases. (Langdon: Reference Handbook of the Medical Sciences, 1903.) Mayer, in Oppenheim's Diseases of the Nervous System, 1904, stated that nineteen cases had been described in the American literature, but none had ever been reported from the British Isles.

Case.—Patient, Miss B., age 23, American born. First seen by me at her home February 11, 1908, in the absence of her attending physician. Patient in bed, having very rapid clonic spasms of the muscles of the body, arms, and thighs. The contractions numbered about 100 a minute, involved principally whole groups of muscles of the shoulder and pelvic girdles, and any single contraction could easily be imitated. This seizure had lasted about two hours and almost subsided when I tried to obtain the ankle clonus reflex. Getting her attention in any other way would lessen the severity of the attack. The muscles of the face, hands, and legs, were not involved, but the head, arms, and legs were thrown about in bed owing to the violent body movements. The knee jerk and other body reflexes were increased, but the corneal and pupillary reflexes were normal. The patient was conscious at my visit, and gave a good history of her case.

Previous History.—Had the usual diseases of childhood, otherwise, with exception of having a tapeworm removed when about eight years of age, her history was negative, until the fall of 1906, when she had typhoid fever lasting about eight weeks, which ended with an uneventful recovery. Six months after having had typhoid fever she began to have these attacks, lasting from a few minutes up to an hour or more, the attacks varying in number from ten or twelve a day to one in a week or so. On having the first attack she was awakened in the night with these violent convulsive seizures, but has not since had such an attack during sleep.

These spasms come on without warning very often, but have been preceded by mental excitement. Sometimes she has a few quick, sharp contractions of one or more of the affected muscles before the seizure begins.

Her first series of attacks were quite frequent and severe, compelling her to remain in bed for about two weeks. They gradually became less in number and milder, and she was comparatively free of them in about two months. They returned again, with the usual severity, in September of 1907, subsiding in about six weeks. She had a number of attacks in February and March of the present year, after which she was not bothered much until July, when she had a number of spasms, which have almost ceased since September. During the intervals between the times when she has so many severe attacks, she is not entirely free, but has an occasional mild seizure.

Family History.—Father died from typhoid fever; other history negative. Mother at one time had an attack of nervous prostration, and says she is somewhat nervous at the present time. The patient was the third child of a family of four children. An older brother is living, in good health, while two sisters died in infancy, causes of their deaths unknown.

Personal History.—Commenced menstruating at fourteen years; has a scanty discharge every twenty-eight days, lasting about two days. Never had any skin disease with the exception of slight interstitial eczema behind the ears. Appetite fair. Sleep is

good when the patient is well. Bowels were constipated, but normal since taking thyroid extract.

Examinations made with assistance of Dr. A. L. Kane.—Patient, five feet tall, weighing 97 pounds. Temperature, 98.4°; pulse, 100; respiration, 18; blood-pressure, 110 and 80; hemaglobin, 60 per cent; reds, 4,000,000; whites, 14,000; polymorphonuclear, 59 per cent; large lymphocytes, 9 per cent; transition, 2 per cent; small lymphocytes, 29 per cent., end eosinopiles, 1 per cent. Skin and deep tendon reflexes are plus. Reaction of muscles to electrical formula normal. No areas of anesthesia or hyperesthesia; pain and temperature senses normal.

Examination of Eye by Dr. Bulson.—Pupillary reflexes normal, no inversion of the color fields except that there was a contraction of the white field in the left eye, and the green came very close to the red. No importance could be attached to this in the absence of other stigmata of hysteria.

Urinary Examination.—S. G. 1015, slightly acid, no sugar, no albumin. Microscopic examination negative.

Physical examination of the chest and abdomen negative; on inspection fascicular tremors of the affected muscles are noticed at times. Once the patient had a few clonic spasms of the body muscles after tapping the ligamentum patellæ. While electrical tests of the muscles were being made she thought an attack was coming on, but it did not.

She has been under my care since the first of September, 1908. As to treatment she has had thyroid extract, 5 grains, and arsenious acid, 1/100 grain, three times a day. Up to October 24, 1908, she had two mild seizures. She has gained seven pounds in weight, the bowels are regular, and there has been a general improvement in her condition.

TREATMENT OF AMŒBIC INFECTION.

By M. B. SAUNDERS, M.D.,

WACO, TEXAS.

The object of this communication is to bring to the notice of those who have cases of amœbic dysentery to treat a drug, which in the hands of some is considered very valuable indeed, while others have derived very little, if any, good from its use. I shall try to give a satisfactory reason for this failure, and show why it should be used in all cases, at least in conjunction with other treatment.

The drug is *Chaparro amargoso; Castela nicholsoni*, Hook. Synonyms: Amargoso, Chaparro bush, Goat bush. Part employed: Bark of stem. Habitat: Texas and Northern Mexico.

The U. S. Dispensatory (19th Ed.) has the following: "*Castela;* Castela Nicholsoni, Hook. This plant is reported to have antiseptic properties, probably due to a resinous principle discovered by J. L. Putegnat, and named by him Amargosin."

As is well known, amœbic infections of the intestines are very resistant to treatment and prone to relapses after either long or short intervals of time. The cause of this, I think all will admit, is our inability to get our medicinal agent in contact with all the amœbæ. By irrigations we are powerless to kill any amœbæ lying deep in the submucous coat. "We also have to take into consideration that many amœbæ are so imbedded in mucus, even when lying superficially in the intestine, that the solutions will not affect them." (Craig, in "International Clinics," 1905.) Also that amœbæ are found at times in other localities of the body; the well known tropical abscess of the liver is by far the most common secondary focus, but they have also been found in the abdomen, lung, pleural and pericardial cavities, etc.

In order to reach these deeply seated amœbæ the most logical method is systemic treatment, and in the few cases that have come my way, some twenty in number, I have gotten good results from the administration of Chaparro Amargoso. My favorite was the administration of the fluid extract, because of its convenience, in dram doses every three or four hours. Yet I have had cases that did not yield to this, but responded to infusion of the bark and stems. This is the way the natives use it. Some also include the bark of the root; in other words, making an infusion of the whole plant. This is a bitter mixture, but it is as good medicinally as it is bad in taste for amœbic troubles. The infusion is drunk freely three times a day before meals, the treatment usually lasting from three to twelve months. This not only checks the dysentery, but will cause small hepatic abscesses to become sterile, and under continued use I should look for their disappearance. Large abscesses are, of course, to be treated surgically.

Dr. Edward Randall, Professor of Therapeutics in the University of Texas, in answer to a query, said: ". . . . It is by no means a specific. I still not infrequently give it in dram doses every three or four hours, and sometimes get very excellent results."

The reason why we do not always get good results is to my mind well given by Dr. Allen J. Smith, Professor of Pathology at the University of Pennsylvania, formerly of the University of Texas, in answer to a similar letter of inquiry: "I have seen numerous cases rapidly improve and become well and remain well after use of the drug—best, apparently, when given in infusions of the plant. But I have also seen cases or been told of cases where its administration was of no avail, and not even productive of temporary benefit. I have not had any such in my own experience, but good men have told me of the failure, and as you know my personal eperience in the treatment of such cases has necessarily been a limited one. I think the explanation of the failure in such instances lies in one of two lines—either (and this I have had reason to suspect) the medicine was a poor preparation or was given improperly, and that in some cases the amœbæ were of little importance in the dysentery, the disease being more likely a bacillary dysentery, with the amœbæ either accidentally associated, or if of any pathogenic significance, only of minor importance. Those cases which it does suit, seem to yield as fully and readily as does malaria to quinine. I personally would employ it, in the infusion preferably, in all cases of dysentery when the amœbæ are found. If I did not quickly see a good result I would conclude that the case is not a typical amebic form, and would at once employ other measures."

The resinous principle discovered by J. L. Putegnat, of Brownsville, Texas, and named by him Amargosin, has not been fully investigated; and our ability to go into the open market and get the drug of known therapeutic activity has been unsatisfactory with me.

I hope this brief paper may stimulate those who have to deal with this important and dangerous disease to take the matter up with some responsible pharmaceutical house to furnish them a preparation of the drug which is not inert, but pharmacologically active and up to the standard, so that they may thoroughly test its virtues on this one of the most dreaded scourges of some tropical countries.

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PSYCHOTHERAPEUTICS AND RELIGION.

The wonderful growth of Eddyism has been viewed differently by men of the two professions into whose practice it cuts equally. The medical man is aghast at the absurdity of its teachings in regard to physical science and at the fact that so many people enjoying freedom outside of the State hospitals can be found to accept them as true or even as reasonable; he recognizes the great therapeutic power of suggestion through which its healers effect their cures, but reprobates the fatal conceit of these healers in attempting to influence in the same way a dangerous organic disease such as diphtheria. Some clergymen, on the other hand, while condemning the heresy of the new cult, not unnaturally attribute its rapid growth to its therapeutic pretensions and successes, and so there has arisen a new school among churchmen proclaiming that the church, if it would not fall, must minister to the bodies as well as the souls of men, that while the gates of hell cannot prevail against it the ways of Eddy may well do so. Hence the appearance of the Emmanuel movement so called. How far the latter is an improvement on Christian Science and how far its existence is justified by the needs of man are discussed by Dr. Henry Rutgers Marshall in an article with the above title in the *Hibbert Journal* for January. If a little error is better than a great deal, then Worcesterism is a distinct improvement over Eddyism, for the latter embraces in its therapeutic realm every ill to which flesh is heir, while the former treats only "functional" disorders. The *modus operandi* is the same in both, but the practitioners of the newer school are more intelligent or more honest and admit frankly, indeed insist, that their weapon is simply and wholly suggestion. In so far they are in accord with physicians who, consciously and unconsciously, daily employ this powerful remedy. The Emmanuel worker differs from the physician only in the kind of suggestion which he uses; he resorts largely to prayer, which is no doubt a very powerful and to many minds most palatable form—a sort of elegant proprietary suggestion, much more pleasant and, through the mystery attached to its secret composition, at times a more effective form than the somewhat crude extemporaneous suggestion of the ordinary physician.

Dr. Marshall explains away the so-called power of the mind over the body by the hypothesis of "parallelism" held by many, if not most, of the psychologists of the present day. It is assumed that, whenever we experience any powerful mental sensation, a clear thought or emotion, or exert a determined choice, there occurs at the same time a movement of special activity in some part of the physical nervous system; that is, that with every change in the psychic system (consciousness) there is a coincident change in the activities within the nervous system. "We note in a patient a certain morbid state of mind A, which under our hypothesis is necessarily accompanied by a morbid nerve condition α. When we make a suggestion to the patient the state of mind A is replaced by the state of mind B, and coincidently of necessity the nerve condition α gives place to a certain new nerve condition β, a fact which is usually overlooked. This new nerve condition β may be one that tends to yield a less morbid nerve condition than α, and may thus bring into existence a normal nerve condition γ, which is evidenced by the appearance of a corresponding happier mental condition C." The same thing occurs, of course, when the patient makes the suggestion to himself. Religion, therefore, according to Dr. Marshall, has no essential connection with psychotherapy. The only reason for combining the two is that, as one can hardly doubt, many persons now cured more or less permanently by the Emmanuel workers or the Christian Science healers would not be relieved were they persuaded that there was nothing mysterious or miraculous in the mode of treatment employed.

Are then those who accept this explanation of psychotherapy justified in countenancing what they regard as deception for the sake of relieving suffering? Dr. Marshall says no. "Those who believe that relief from pain is of the highest significance in this world would urge us to avoid the awakening of the intellect if this awakening means the continuance of human suffering. There are those, however, with whom the author of this paper allies himself, who feel that other ends are more important than the hedonistic, and that the greatest nobility of character cannot be gained until men are willing calmly to face the facts of life as they comprehend them; that in the long run it will be better for the race to risk the continuance of some suffering among weaklings whom the arts of magic can alone relieve, rather than to curtail the development of clear thinking among the common people."

WHAT IS TYPHOID FEVER?

This is a much more difficult question to answer than it would have seemed to be ten years ago. Then the presence of *Bacillus typhosus* established the diagnosis. But with the development of the Widal test it began to be evident that the classical symptoms and clinical course of typhoid fever might be present without the specific bacillus. Then the discovery was made of paratyphoid fever with symptoms similar to those of typhoid, but as a rule milder, and with its own specific bacillus, or rather two bacilli. Then other cases were found in which the same clinical appearances were present

but without either the typhoid or the paratyphoid bacillus. Finally, as Warren Coleman wrote in *American Medicine* some six or seven years ago, it became necessary to abandon the idea of the specificity of typhoid fever in order to avoid hopeless confusion, and "to broaden the scope of the etiology of typhoid fever to include . . . . *Bacillus fecalis alkaligenus (?), Bacillus typhosus, Bacillus paratyphosus,* and certain members of the paracolon group (betaparatyphoids)." This list has since been gradually lengthened, and now contains *B. enteritidis, B. psittacosis,* and *B. coli* in addition to those before mentioned. The part taken by the last-named organism in the production of clinical typhoid fever is discussed by Warren Coleman and T. W. Hastings in the *American Journal of the Medical Sciences* for February, and the fact of such production is shown beyond question. A number of cases are reported and the literature of the agglutination reactions for *B. coli* is reviewed at some length.

The fact of this nonspecificity of clinical typhoid fever being established, the question arises: what is typhoid fever; is it a disease with definite clinical symptoms and course, but with a variety of bacterial causes, or is it the only one of such clinically identical infections associated with the presence of the typhoid bacillus? Coleman and Hastings favor the clinical classification, and rightly, for bacteriological classification would necessitate the employment of a separate term for each form of infection. It would be a simple matter to qualify the term bacteriologically whenever it might seem to be advisable, as we do now in the case of pneumonia. Moreover a bacteriological classification would necessitate the grouping of clinically distinct diseases, for not all infections, with the colon bacillus for example, pursue a typhoid-like course.

It will be interesting, in the light of the new views regarding the specificity of typhoid fever, to observe the effect of preventive inoculations. Will they protect only against the typhoid of the Eberth bacillus, or will they fortify against the attacks of all the bacilli of that group—the *Typhaceæ,* as Loeffler suggests that they be called? A group agglutination sometimes occurs, so that the Widal test may be positive even when *B. typhosus* is not present, but this is not invariable, and it would not be safe to argue from this as to the efficacy of antityphoid vaccination. At all events the inoculations seem to protect against what appears to be the most serious of the clinical typhoid infections.

THE RIGHTS AND DUTIES OF A TRAINED NURSE.

The feeling is universal that the moral plane and professional ideals of the trained nurse are similar to those of the physician. Doubts of the correctness of this conception, however, might be occasioned not infrequently by the experience of physicians in this city at the present day when they have occasion to seek the services of trained nurses from some of the more important registries. The physician who asks for a nurse is frequently obliged to undergo a crossexamination as to the circumstances of his case before one can be secured. The majority of nurses in the registries connected with the large training schools of this city are on record as being unwilling to accept employment in cases which do not come up to their requirements. For instance, Miss A. is registered against night work; Miss B. against contagious cases; Miss X. against patients where there are children in the family; Miss Y. against nervous diseases. An appeal came recently from a physician in a neighboring town to send a trained nurse to care for his very sick child. The request was refused at two of the registries in this city connected with the large training schools, although at one of them at least there was a long list of unemployed nurses. The reason given for refusal was that the nurses did not wish to leave the city just before Christmas.

It may be said with some justice that the law of supply and demand should apply in the case of the services of trained nurses as well as of those of clerks or laborers or of the sale of commodities in general, but among the nursing profession itself there will be a majority to repudiate indignantly the applicability of such a law to their case. They assert and believe that the trained nurse's duty is first of all to be of service in the world of suffering, and secondly to consult her own convenience. At a recent meeting of trained nurses, graduates and students, speeches by training school superintendents and other women high in the councils of the profession showed the prevailing sentiment to be that the time was past for them to solicit favors from the medical profession. The two professions should meet on an equal basis and confer for their mutual benefit. On the same occasion, however, one woman, a teacher of nurses and of nursing, appealed with single-hearted earnestness to student nurses to keep in mind this thought: not how much they could get out of the profession of nursing the sick, but rather how much they could put into it. To give the best of themselves, with the simple old-fashioned idea of making the world a little better. What a contrast!

At a large hostelry in this city used by graduate nurses exclusively there has been a dearth of work and some real privation for many months past. Yet perforce must the physician often go to graduates of rural training schools, undergraduates, and untrained nurses, while scores of our most highly trained nurses remain idle. It would seem to the physician that they refuse his cases at times on unwarranted or trifling grounds. It might be well would physicians make their feeling upon this matter known to nurses generally with the possible result that the best equipped women among the latter may not be led away from the high ideals of their profession even at the risk of occasional personal inconvenience.

A GOVERNMENTAL STUDY OF CHILDREN.

In a special message to Congress on Monday of this week, President Roosevelt urged the enactment of legislation to bring the laws and practices in re-

gard to the case of dependent children in all federal territory into harmony, and especially recommended the establishment of a federal Children's Bureau. A bill to that effect was introduced in the House by Mr. Herbert Parsons on December 15. This bill provides for the establishment in the Department of the Interior of a bureau to be known as the Children's Bureau. The bureau is to be under the direction of a chief, to be appointed by the President, by and with the advice and consent of the Senate. The bureau is to investigate and report upon all matters pertaining to the welfare of children and child life, and especially to investigate the questions of infant mortality, the birth rate, physical degeneracy, orphanage, juvenile delinquency, and juvenile courts, desertion and illegitimacy, dangerous occupations, accidents and diseases of children of the working classes, employment, legislation affecting children in the several States and Territories, and such other facts as have a bearing upon the health, efficiency, character, and training of children. The bill further provides for an assistant chief, to be appointed by the Secretary of the Interior, and also for a complete staff of clerks, copyists, typewriters, etc., at definite salaries. It is also ordered that the chief shall, from time to time, publish the results of the investigations conducted by the bureau.

This bill seems to be in accord with the views of the President who says, with perhaps a little overemphasis: "It is not only discreditable to us as a people that there is now no recognized and authoritative source of information upon these subjects relating to child life, but in the absence of such information as should be supplied by the federal government many abuses have gone unchecked; for public sentiment, with its great corrective power, can only be aroused by full knowledge of the facts."

If the bill is to be passed, we think it could profitably be amended in a few particulars. For instance, it might be well to provide that the chief should be a man with some training and experience in child-study and that among his assistants should be included an anthropologist, a criminologist, a psychologist, and a sociologist. The appointees in new departments, and long established departments as well, are too often men of no special training to fit them for the position, and so, even if they are men of good intentions and not mere political hacks, much valuable time is lost while they are learning the duties of their new positions and familiarizing themselves with the details of the work. This is especially important in the case of a new bureau in which there is not already a staff competent to carry on the routine work while the chief is learning what to do and how to go about it. It is much better to start right than to depend upon future legislation to remedy defects which experience in the conduct of the bureau will show to exist; and it is especially important to ensure the appointment of a thoroughly competent chief, for upon his efficiency, technical knowledge, and executive ability will depend in great measure, if not entirely, the success or failure of the new undertaking.

Autoserotherapy (?) in Serofibrinous Pleurisy.

Two Italian physicians, Gilbert and Fede, have lately reported an original method of treating pleurisy with effusion, consisting in the subcutaneous injection of a small amount of the fluid obtained from the pleural cavity by means of a small aspirating syringe. This procedure usually led to the resorption of the fluid in the pleural cavity, though the aspiration and the subcutaneous injection had to be repeated several times in some of the cases. In the *Berliner klinische Wochenschrift* for January 18, 1909, Schnutgen reports his experience with this method. He treated in this fashion fifteen consecutive cases of "wet pleurisy" aspirating one or two centimeters of the fluid and injecting it into the subcutaneous tissue by simply withdrawing the needle from the pleural cavity and directing it under the skin, which method saved the necessity of making more than one puncture in the skin. In a few cases a single injection of the fluid was sufficient to start the resorption of the exudate, in others such injection had to be repeated several times. The effect of the injection upon the rapidity of absorption could be well estimated by the increase in the daily amount of urine excreted by the patients, which took place shortly after the injections. Schnutgen tried a similar procedure in other conditions characterized by the appearance of fluid in the serous cavities, namely in cases of ascites, of hydrothorax with ascites, and of hemorrhagic and purulent pleuritis, but met with no results comparable to those obtained in cases of pleurisy with serofibrinous effusion. The results obtained are of course very interesting though more work is required before the disappearance of the effusion may be surely attributed to the simple procedure recommended by the Italian physicians. Moreover, the procedure can have little more than an abstract interest, since the operation for removal of a few centimeters of the fluid is no less serious than that for the removal of the greater part of the effusion. One may also legitimately question the part taken by the injected fluid. It is well known that aspiration of a portion of a pleural effusion may inaugurate a process of absorption, and it is possible that the removal of even the small amount taken away by Schnutgen might so alter the intrapleural tension as to start the absorption process, wholly apart from any action of the fluid injected into the tissues of the chest wall.

Legislation for the Prevention of Blindness.

That from twenty-five to forty per cent. of the blindness in Illinois could have been prevented by simple and safe remedies applied at birth is one of the potent arguments to be used to secure legislative action. The Illinois Commission to inquire into the condition of the blind is preparing to go before the Legislature with a request for cooperation, proper authority, and legal means to save the eyes of babies. At the same time, the Commission will ask the Assembly for new laws providing more adequate protection, education, and care for the blind who already are wards of the State. The State Commission has presented an exhaustive report, embodying the various bills, first to prevent blindness in the new-born, thereby stopping the rapid increase in the number of blind; the enlargement of the State School at Jacksonville; the rejuvena-

tion of the Illinois Industrial Home for the Blind at Chicago; to care for the aged blind; to create a State Commission for the Blind; and to appropriate one thousand dollars for a State Census of the Blind. Dr. William H. Wilder has written that portion of the report relating to the prevention of blindness. According to the census of 1900, he finds there were in Illinois 3,767 blind persons. Comparing this number with those of former decades, he says that in 1870 there were 41 blind to every one hundred thousand of population; in 1880 the number was 85 to every one hundred thousand; in 1890, 74 to every one hundred thousand; and in 1900, it was 78. Thirty-five per cent. of the blind reported in 1900 were blind before the age of twenty. In considering the prevention of blindness, Dr. Wilder classifies cases under three heads: First, those that are absolutely incurable or non-preventable, such as atrophy or wasting of the optic nerve, tumors of the eye, congenital blindness. Second, those which might possibly be prevented, such as injuries, inflammation of the deeper structures. Third, those caused by infectious inflammations of the conjunctiva, all of which could be prevented by proper treatment. What is needed is the enforcement of a law requiring better training of midwives and their registration. They should be compelled to report every birth and every case of this disease as soon as it develops, and also be trained in the use of prophylactic measures against ophthalmia neonatorum.

News of the Week.

Shorter Medical Course.—Representatives of twenty-four colleges of New York State conferred with Dr. Draper, State Commissioner of Education, on February 9, regarding a change from the present rule of Board of Regents requiring a seven year course for the combined A.B. and M.D. degrees, or the B.S. and M.D. degrees. A number of colleges have petitioned for a reduction of the time to six years, and it is thought that the regents will act favorably upon this suggestion at a future meeting.

Spitters Arrested.—The Board of Health officials of this city, finding that the public was utterly indifferent to, and the police lax in enforcing, the ordinance against spitting in public places, sent out a general order to the policemen connected with the Department last week, with the result that two hundred men were arrested on the elevated and subway stations in a single day. The majority were taken to police courts where they were fined sums varying from fifty cents to three dollars.

New York City Deaths.—During the week ending February 6, there were thirty-nine deaths less than for the corresponding week of last year. Of the total ninety-five were due to heart disease, eighty to pulmonary tuberculosis, thirty-eight to violence, and four to typhoid fever.

Death Rate in Chicago.—For the week ending February 6 the death rate in Chicago was 13.88, which is a considerable reduction from that of last year. The total number of deaths was 592, as against 747 for the same week last year.

Scarlet Fever Epidemic.—During the last few weeks there has been an epidemic of scarlet fever on the receiving ship *Hancock* at the Brooklyn Navy Yard. Eleven cases have developed, but it is thought that the prompt measures taken will prevent further spread of the disease.

Against Marriage of the Sick.—A bill has been introduced into the Pennsylvania Legislature forbidding the marriage of persons suffering from pulmonary tuberculosis, epilepsy, insanity, imbecility, idiocy, or other hereditary disease.

Ventilation of Theaters.—Eighteen five-cent theaters in Chicago have been ordered to install adequate systems of ventilation. Prosecutions will be started against those failing to comply. Investigations are also being made as to the ventilation of suburban trains entering Chicago, and data for suits are being collected. The Department of Health has already begun suits against some of the steam and elevated railroads, and intends to push the matter vigorously until some adequate means of ventilation is provided.

New Ambulance Service.—The National Volunteer Emergency Service, of which Major-Gen. James E. Pilcher is director, has decided to undertake work in the field left open by the withdrawal of the Roosevelt Hospital ambulances on March 1. The Emergency Service proposes to open ten first-aid stations in drug stores on the West Side between Twenty-fifth and 125th streets. Each station will be equipped with an army litter, an emergency bag, blankets, pillows, a hot water bag, a poncho (in case of rain) and a lantern. Attached to each station, within easy call, will be surgeons, two druggists, two trained nurses, and twelve citizens, or laymen. When patients treated by this service require hospital care they will usually be taken to the Red Cross Hospital, unless they prefer another. The Emergency Service already has four such stations in operation in Manhattan, one in Brooklyn, one in Elmhurst, and one in Hoboken.

Presbyterian Hospital to Move.—The managers of the Presbyterian Hospital have taken title to the block bounded by Sixty-seventh and Sixty-eighth streets, Avenue A and the East River, and it is proposed to move the hospital to this location where it will be closer to the centers of population. This site was the selection of the late Dr. Andrew J. McCosh. Work on the new buildings will probably begin about May, 1910, and the hospital when completed will occupy a bluff fifty feet above the river. The sale of the old property on Madison avenue is expected to make a considerable addition to the building fund, which already includes a gift of $1,000,000, made last October by Mr. John S. Kennedy. The new site is said to have cost about $500,000. The Presbyterian Hospital was opened on May 10, 1872. During the year ending September 30, 1908, 43,220 persons were treated at the hospital, and of the 3,536 patients who occupied beds 65 per cent. were free patients. The ambulance district covered by the hospital extends from Fifty-ninth to Ninety-sixth street, east of Central Park to the river. During the last year the ambulances responded to 3,479 calls.

Chicago-Winfield Tuberculosis Sanatorium.—This new sanatorium was opened February 7. The ground and buildings were presented by Charles A. Stonehill to the Baron Hirsch Woman's Club, the Jewish Consumptive Relief Society, and Willing Workers. Several cottages, each accommodating ten patients, are to be built soon. The endowment amounts to about $12,000 a year at the present time. The chief of the staff is Dr. Theodore E. Sachs.

Theater Benefit to Hospital.—As a result of a theater benefit given recently, the National Emergency Hospital received $250.

Gifts to Charities.—The Homeopathic Hospital and Maternity of Yonkers, N. Y., receives $20,000 by the will of the late Mrs. E. S. Cochran of that city.

By the will of the late Mary Lewis of Philadelphia a bequest of $10,000 is made to the Episcopal Hospital and bequests of $5,000 each to the Polyclinic Hospital, the Hospital of the Woman's Medical College, and of $2,000 each to the Seaside Home for Invalid Women, the Home for Consumptives, the West Philadelphia Hospital for Women, and the Kensington Hospital for Women.

Medical Inspection in Public Schools.—In his annual report to the Board of Education, City Superintendent Maxwell urges the establishment of a department of hygiene, which would take over from the Department of Health the examination of school children except in cases of contagious diseases. Such a department could advise parents in regard to the health of children, and might even invoke the law upon the neglectful. The report states that medical examination thus far has shown a large number of children suffering from malnutrition as a result of bad or insufficient food, and urges the establishment in the schools of facilities whereby pupils may obtain wholesome food at cost price.

School Inspection in Chicago.—Medical Inspectors of the Schools examined 11,372 school children during the week ended February 6, and excluded 446 from attendance on account of contagious diseases. The chief causes of exclusion were as follows: Diphtheria 8, contacts 8; scarlet fever 17, contacts 8; measles 8, contacts 13; whooping cough 2, contacts 1; chickenpox 45, contacts 33; mumps 42, contacts 11; tuberculosis 1; tonsillitis, 77; pediculosis, 47; scabies, 31; impetigo contagiosa, 41; ringworm, 29; conjunctivitis, 21

American School Hygiene Association.—The third meeting of this association is to be held in Chicago February 22-25. On February 23 the president, Dr. Henry P. Wolcott, chairman of the Massachusetts State Board of Health, will deliver his annual address.

Medical Society of the County of Kings.—At the annual meeting of this society held June 21, 1909, the following officers were elected: *President,* Dr. Joshua M. Van Cott; *Vice-President,* Dr. John C. MacEvitt; *Secretary,* Dr. Henry G. Webster; *Associate Secretary,* Dr. William A. Jewett; *Treasurer,* Dr. John R. Stivers; *Associate Treasurer,* Dr. Henry M. Mills; *Directing Librarian,* Dr. James P. Warbasse; *Censors,* Drs. Ralph H. Pomeroy, Russell S. Fowler, Albert M. Juddy, J. Richard Nevin, and Warren S. Simmons; *Trustee,* Dr. Onslow A. Gordon.

Alumni of the College of Physicians and Surgeons.—To celebrate the fiftieth anniversary of the founding of their association, the Alumni of the College of Physicians and Surgeons, New York, will meet at a dinner to be given at Sherry's on March 2, at seven o'clock. Prof. Samuel W. Lambert, Dean of the College and President of the Association, will preside, and among the speakers will be Dr. Nicholas Murray Butler, President of Columbia University; Mr. Seth Low, Trustee and former President of the University; Dr. H. A. Christian, Dean of the Harvard Medical School; the Rev. Dr. Richards of the Brick Presbyterian Church, New York, and Prof. John G. Curtis, of the College of Physicians and Surgeons. An attempt will be made to seat College and Hospital graduates according to the date of graduation. Tickets for the dinner may be obtained on or before February 26 by addressing Mr. E. T. Boag, College of Physicians and Surgeons, 437 West 59th Street, New York.

The Physicians' Mutual Aid Association of this city has been declared by the attorney-general of the State to be guilty of violation of the insurance law in having made a personal loan to its treasurer.

Centenarian Dies.—Julian Terrian of Belleville, Ontario, said to be the oldest man in the Dominion of Canada, died on February 12 in his 111th year.

Obituary Notes.—Dr. Adolph von Düring of New York died on February 10 from blood poisoning following an injury to his finger in the course of an operation. Dr. von Düring, who was born in Germany in 1853, was graduated from the medical department of New York University in 1885.

Dr. John T. Fritts of Plainfield, N. J., died at his home on February 8, aged 63 years. He was graduated from Bellevue Medical College in 1866, and had practised in Plainfield since 1878, up to a few years ago. He was a member of the American Medical Association.

Dr. Charles H. Roberts of New York died on February 11, aged 88 years. Dr. Roberts was graduated from the Albany Medical College in 1846, but had practised very little, devoting most of his time to locating Western lands and speculating in real estate.

Dr. Brenno Bribach of Carondelet, Mo., died on January 29, aged 63 years. Dr. Bribach was a native of Germany, where he received his early education. Coming to this country in 1868, he entered the Missouri Medical College. He was a member of the American Medical Association and the St. Louis Medical Society.

Dr. Edward H. McCabe, at Dagsbror, Sussex County, Delaware, on February 6, at the age of 67 years. He was a graduate from the Long Island Medical College Hospital in the class of 1874.

Dr. John Campbell died at Philadelphia on February 4 at the age of 81 years. He was born at Washington, Pa., and entered Washington and Jefferson College in 1843 and was graduated in 1847. He practised medicine in Tranquility, O., until the breaking out of the Civil War, when, in association with Capt. John T. Wilson, he recruited Company E of the 70th Regiment of Ohio, and was commissioned first lieutenant, later becoming captain of Company I of the same regiment, and serving from October 1, 1861, to November 4, 1864. He abandoned the practice of medicine in 1885 to become medical referee in the Pension Bureau in Washington, D. C., under President Cleveland. In 1889 he became a district inspector of the Equitable Life Assurance Society of the United States, with offices in Philadelphia, holding this position until the time of his death.

Dr. C. P. Gerrish of South Berwick, Maine, died on February 2 of cancer of the stomach, aged 79 years. He was graduated from Bowdoin Medical College in 1853, and had practised in South Berwick for forty-one years.

Dr. Julian A. Buel of Franklin, Mich., died at his home on February 4, aged 69 years. He was a graduate of the University of Michigan, and had been in active practice for forty-three years.

Correspondence.

THE EVIL OF FOOD PRESERVATIVES.

To the Editor of the Medical Record:

Sir:—The recent convening of the American Association for the Promotion of Purity in Food Products in New York City is an epoch-making event in the history of pure food in this country. The sole aim of this association is the protection of the public by the abolition of chemical preservatives in food products. The results of the meeting were momentous and will be far-reaching in their effects. A platform was adopted declaring that chemicals are absolutely unnecessary in the preparation of any food products, that the only excuse for their use is to adulterate foods and conceal inferiority in raw products and inadequacy of the process of manufacture; that chemically prepared foods are injurious to health, and that the legitimate element of the trade does not care to bear the stigma of putting out chemically treated foods, even though some of those men entrusted with the enforcement of the law should be able so to interpret it as to allow the use of chemicals.

In addition, the following resolution was adopted and sent to President Roosevelt:

"Whereas, Opinion of leading scientists in both Europe and America is divided upon the subject of artificial preservatives in prepared foods, there being great weight of opinion on both sides of the controversy, thus leaving the question of their injuriousness or otherwise still in doubt; and,

"Whereas, As practical manufacturers, we know that artificial preservatives of any kind are unnecessary to the successful commercial preparation of good, sound, raw materials, under proper sanitary conditions, thus making it both possible and reasonable to give the consuming public rather than the reactionary manufacturing interests the benefit of that doubt; and,

"Whereas, The use of artificial preservatives makes possible and invites the employment of inferior and waste materials often unfit for human consumption, and careless methods and unsanitary conditions in food preparations; and,

"Whereas, We believe that not only will the reputation and standing of the great American food producing industry be jeopardized, but that the interest of all the people will be sacrificed by any action on the part of the Government that permits the continued use of any artificial preservatives in any food product. Now, therefore, be it

"Resolved, That we are opposed to any ruling under the National Food and Drugs Act of June, 1906, that permits the use of artificial preservatives in foods, or that in any way departs from either the letter or the spirit of that law. Be it further

"Resolved, That these resolutions be transmitted by telegraph to the President of the United States, as expressive of the sentiment of this association."

Some day the people of this country will take hold of the food interests and compel the adulterating manufacturers and the politicians to cease juggling with the health and life of the community.

It is no wonder that there is some confusion in the public mind when experts disagree as to the quantity of poison allowable to a manufacturer. "Business interests," of course, must be considered first before the health of the nation, and if it is possible for the human stomach to take in embalming chemicals and live—that is all that is demanded. Now the question of benzoate of soda will not be settled finally until it is settled by the people. As long as there are any experts who claim that preservatives in food are injurious (and there are many both in America and Europe), we should be on the safe side and abolish them, especially as there can be no argument adduced for their use when so many manufacturers of food products carry on their great factories without them.

Why, then, the public asks, all this struggle on the part of some food manufacturers for the legal privilege of using preservatives? The answer to this question is the whole point of the food fight and leaves no doubt as to the motives and principles of the men who use preservatives. Without benzoate of soda and similar chemicals their products would not keep sufficiently, for the reason that they are put up under unsanitary conditions or are inferior cannery waste which would not be marketable but for artificial preservatives. The factories where no chemical preservative is used are the safe ones to patronize, not only because the consumer should not voluntarily put poison into his system, but because the materials used, fruits, meats, poultry, and vegetables, are pure, whole, sweet, untainted, and wholesome. Those factories whose output is chemically preserved are at least open to suspicion, and it is positively known that some of them use these artificial substances to render attractive and palatable inferior raw material, often too offensive in character even to think about. Everyone versed in food matters knows that expensive factories are built for the purpose of utilizing garbage carted away by the ton from the floors of canning factories, and marked "for use when wanted." Such refuse consists of tomato skins and cores, apple parings, worm-eaten and decayed portions cut from fruit, all swept up and sold. Such filth, which in the individual house would be tossed into the swill pail, is used to make catsup, soup, apple butter, jam, and mince meat. The adulterers who place this output on the market very naturally know that, were chemical preservatives forbidden, their business could not be maintained for twenty-four hours. Manufacturers of pure food suffer in the eyes of the public because the consumer does not know in most cases how to discriminate between the innocent and the guilty, and to be on the safe side has spells of refusing to buy all canned products. Nothing is more sanitary, beautiful, clean, and wholesome, however, than the factories which are putting up pure food, guiltless of preservatives.

Although the worst evil is the spoiled materials covered up by the use of benzoate of soda, the chemicals themselves are more than doubtful. It may be possible for robust young men, pre-examined and found sound, to absorb small quantities of this for a few months and not suffer serious injury—such constitutions might throw off disease in any form—but that delicate children and old people, and those with stomach, liver, or kidney disorders, persons weak and impoverished, would be so fortunate is extremely unlikely. Even small quantities of poison continually administered to the system make for cumulative harm, and an eight-course dinner might easily contain poisons whose combination would be most harmful. Even if some chemists discredit the idea that small quantities of preservatives are vitally harmful, they scarcely could maintain that they are beneficial. Therefore, it would seem unnecessary and very unwise to introduce these deliberately into the human system.

Benzoate of soda has been compared with salt as no more poisonous, but aside from the absurdity of such a proposition, it at least cannot be tasted, and nature rebels at overdoses of salt and sugar. The referee board in its wisdom has decided that an individual may eat one-half gram per day of benzoate of soda and live; how is each individual—compelled to consume what he can get, in this hurried and complicated civilization—to ascertain when he has absorbed his one-half gram of poison?

That the first-class food manufacturers are unanimous in their theory and practice of not using preservatives, and are willing to forget that they are business competitors and join hands in the fight against adulteration, notwithstanding this finding of the referee board, is an unanswerable argument. When President Roosevelt realizes the position of these manufacturers who have proven their contention by their own experience he will doubtless realize the benefit to the American people in sustaining Dr. Wiley in his unflinching opposition to food preservatives. In its fight against adulterated food products the American Association for the Promotion of Purity in Food Products is waging a battle for eighty millions of people in this country, every one of whom is innocently exposed to the dangers that lurk in chemically treated foods.

Paul Pierce,
Editor *National Food Magazine*

New York

HYDROTHERAPY.

To the Editor of the Medical Record:

Sir—It is a rather strange fact that in America the physiological methods of curing disease, and especially hydrotherapy, are hardly ever employed at all. Evidently there have been no results worth mentioning otherwise those methods would without doubt have forced their way into medical practice in this country.

But why have these results been so poor? I cannot, here, enter into all details of this matter, but would like to call attention to the fact that the technique of these

methods is wrong in many cases and that, for instance, hydrotherapy as it is practised here hardly deserves this name at all. Of course, as Winternitz remarked once, one can practise hydrotherapy with a pail of water and a rag, but fortunately the technical side of hydrotherapy is well developed and we can very easily adapt our methods to the individual circumstances. But it cannot be too often repeated that the bath attendant should only obey orders and never act upon his own ideas, no matter how experienced and thorough he might be. But although we have here very few carefully trained bath attendants, the choice of methods is usually left to them. This is a grave mistake, which bears its own punishment and which is one cause why hydrotherapy has made little headway in this country. The bath attendant is not so much interested in the welfare of the patient as the physician; he naturally seeks to spare himself trouble, and so gives the same treatment to every patient. That is why hydrotherapy in America consists chiefly in putting the patient into a hot-box for some time and in pouring more or less cold water over him afterwards.

In a recently published paper a physician recommends the treatment of the insane in the following way: The patient should be put in a hot-box for 15 minutes, then a shampoo with warm water and soap is to be given, and finally comes a shower bath at a temperature of from 102° to 105° F. The patient would really have to be quite insane to allow himself to be treated that way. But it shows that his bath attendant was formerly attendant in a Turkish bath and is trying his thus acquired knowledge on the poor patients. But this certainly cannot be called hydrotherapy. The method of treatment has, naturally, to meet the special indications and to be closely adapted to the condition of the patient, and ought therefore to be prescribed only by the physician, although of course it must be carried out by a thoroughly trained attendant.

Hydrotherapy is here almost exclusively used in treating rheumatism, acute infectious diseases, and insanity, and yet the efficacy of this method in a number of other forms of disease is acknowledged. Unfortunately the technical means employed here are inadequate. Half-baths, packs (wet and dry), dripsheets, and many other methods which are of the greatest effect are practically unknown. The systematic use of hot baths has hardly been suggested. There are some very good books which give ample and thorough instructions on the technique of hydrotherapy. Two of them are published in America: Baruch's "Hydrotherapy," and Kellog's "Rational Hydrotherapy." A careful study of such books would go far to place the practice of hydrotherapy on a higher plane than that it now occupies.

H. E. Wolf, M.D.
55 West Ninety-fifth Street, New York.

CARBOLIC ACID IN ERYSIPELAS.

To the Editor of the Medical Record:

Sir:—The article by Dr. Aspinwall Judd on the treatment of erysipelas by means of carbolic acid and alcohol, which appears in the Medical Record issue of February 13, should be read by the profession with no little interest. The method employed by him to combat the ill effects and spread of erysipelas I have used for at least twenty-five years, and, as Dr. Judd says, the only toxic manifestation due to its use in the treatment of such cases I have noticed is a dark color given the urine. This phenomena can be obviated by a sparing use of the acid in cases where large surfaces are involved.

Alcohol in moderate quantity, internally, promptly overcomes any clouding of the urine, it is given upon the hypothesis that if alcohol applied locally lessens the effect of the carbolic acid, it naturally would have the same tendency so to influence the secreting surface of the kidneys due to its coming in contact with such structures. I have not had a case in years that did not yield promptly upon the application of carbolic acid, and it is a marvelous fact that the erysipelatous patient responds so promptly to this medicament. Its use usually prevents the formation of blisters containing exuded matter. I have become so thoroughly convinced of the virtue of carbolic locally applied in cases of erysipelas that I use it right along in a routine way, of course being scrupulously careful to watch the urine. When there is an extensive area to be treated I use it very sparingly and sometimes diluted by the addition of glycerine, which, with carbolic acid, makes a good admixture.

Chicago. C. S. Eldridge, M.D.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RADIUM INSTITUTE—RADIUM IN SURGERY—TISSUE ANTISEPTICS AND ANIMAL INFECTIONS—SALICYLATES AS RETENTIVES OF URIC ACID—OBITUARY.

London, Jan. 29, 1909.

You will be interested to learn that a Radium Institute is about to be established in London. The week has abounded in flying rumors on the subject—some of them incompatible with others. The fact that emerges is that the new scientific institution will shortly be set up. The initiative is ascribed largely to the King, who has displayed much interest in the project. So much, indeed, that some anticipated a royal charter, but there is no confirmation of any reports as to that. The financial foundation has been rendered possible by the enlightened liberality of Sir Ernest Cassel and Lord Iveagh. Sir J. Ramsay and other eminent scientific authorities have agreed to serve on the committee or council, on which also the profession will be strongly represented. Sir F. Treves will probably be the first chairman.

On Tuesday Sir Frederick went to his old school of the London Hospital and delivered a lecture on "Radium in Surgery." Of course, the students turned up in large number to hear what future was anticipated by the lecturer for the new remedy. He told them at the outset that it was necessary to exercise great caution in speaking of its potentialities. Great expectations were aroused by the introduction of *x*-rays, the Finsen light, and the high-frequency current. But they had not revolutionized surgery. The lecturer proceded to consider the diseases which radium can cure, its mode of action, and the lines on which investigation of its capabilities will probably be continued. He referred to cases he had himself seen in the Paris Institute, mentioning angiomata, which had been cured, one being a solid mass deeply seated. He thought it safe to say that there was a relation between the amount of radium used and the good it did. It would therefore not be unsound to draw the conclusion that if enough radium were available the surgeon could carry out practically what he wished so far as growths of a certain type were concerned. It would cure certain forms of eczema and rodent ulcers of many years' standing in which the tissues had become adherent to the bone and in which the Finsen light and *x*-rays had failed. Here the question arose whether these cures are permanent. No great time had elapsed since the introduction of the method, but he had seen a case in which epithelioma had been apparently cured two years previously. The cost was a serious question. If radium should become only "worth its weight in gold," that would be exceedingly cheap, but there seemed at present no prospect of such a fall in price. The lecturer next referred to the different characteristics of the α, β, and γ rays which radium gives out. If we represent the penetrating power of the α rays as 1, that of the β rays would be 100, and that of the γ rays, which would pass easily through an inch of steel, would be 10,000. The qualities of the cathode rays in a vacuum tube corresponded to the β rays; the *x*-rays and the γ rays of radium had the same characteristics, and as *x*-rays were dependent on the cathode rays so the γ and β rays were inseparable.

In the application of radium in surgery the main factor was extent of surface. A little radium spread over a wide surface was much more powerful than a great deal applied in a tube. It could be used on cloth or silk or anything that could be varnished.

The emanation which radium gives off renders anybody that is brought near it radioactive. We have no method of inducing radioactivity except from the emanation, and the lecturer considered it not improbable that the future of radium in surgery lay in the emanation. Whether it would be of use in diseases of the lungs to inhale a vapor which is capable of depositing on the air passages a radioactive substance could only be looked at as surmise.

Having referred to some of the experiments that have been made and would have to be supplemented and verified, he asserted that one of his own patients had been treated with a subcutaneous injection of a solution of the emanation over a part of the abdomen, with astonishing effects. He observed particularly that the scar left by the injection and the pigmentation of the skin were different from anything he had ever seen. Concerning future investigations, he thought it was very essential to ascertain the range of radium rays

and the effect of the emanation on bacteria and their products. Other lines of investigation were the effect of radium in large amounts, the effect of inhalation of the emanation, and the effect of injecting a solution of the emanation. Most of the radium in use was obtained from Joachimsthal, where a large spa is being erected for the public to drink radioactive water, but that, said the lecturer, proved nothing. The public would drink anything and this spa was no evidence that radioactive water had any effect.

Professor Cushny has brought before the Therapeutical Section of the Royal Medical Society the subject of tissue antiseptics with reference to animal infections. The organisms of specific fevers have acquired such a resistant power to influences injurious to their growth that the germicides tried have proved more poisonous to the host than to the parasite. But a greater measure of success has been obtained in diseases due to animal organisms, *e.g.* syphilis, malaria, sleeping sickness. This Professor Cushny attributed to the parasite being younger and so not having acquired perfect adaptation to the surroundings and consequently being less resistant to our drugs. Probably, too, it produced no toxin and so provoked no antitoxin. He had endeavored to determine the resistance of the trypanosome of sleeping sickness to arsenic, antimony, and bismuth. In all three an amount of 1 in 200,000 banished the parasite. Thus one milligramme of antimony destroyed the parasites in a 200 gram rat.

Arsenic acted more slowly. Bismuth did irreparable damage to the host. But the parasites were not all absolutely destroyed. They returned as often as they were banished at longer or shorter intervals. Finally, a race of antimony-resistant or arsenic-resistant trypanosomes was produced, which, retaining this quality, could be propagated from rat to rat. The arsenic-resistant trypanosomes, however, were still susceptible to antimony and bismuth and vice versa. Professor Cushny said possibly this might indicate a use for old-fashioned polypharmacy. If a patient were treated with all the drugs at once few parasites would survive. The trypanosome from a rat, resistant to one drug, injected into a mouse became nonresistant again to that drug. Dr. Burton Brown, who was in the chair, remarked that the way in which quinine lost its power in chronic cases of malaria might find an explanation in Professor Cushny's investigations.

A paper was then read by Dr. Alex. Haig on "Salicylates as Retentives of Uric Acid." He asserted that while large doses acted as solvents of uric acid small doses were really retentives. He contended that this was proved by the diminution in number of certain granules in the blood, accompanied by a quickening of the circulation in the capillaries. This "capillary reflex," he maintained, was an accurate measure of the amount of uric acid in the blood and he showed an instrument designed to signalize the time of this reflex, and charts he had obtained by it. These views were controverted by Drs. Luff and Cameron. The former thought it was not possible to form any estimate of the amount of uric acid in the blood from the appearances referred to. He had searched Dr. Haig's writings in vain for an account of a single estimation of the amount of acid. He went on to deny that we have any proof whatever that uric acid is a poison or that it is the cause of the numerous symptoms so constantly ascribed to it. Dr. H. C. Cameron said that apart from the question whether or not the time of the capillary reflex was influenced by the amount of uric acid in the blood there were so many varying factors which did certainly most profoundly influence it—*e.g.* temperature, posture, emotion, digestion, etc.—that he could not consider the results obtained as trustworthy.

The death occurred on Monday, 25th, suddenly of Thomas Joseph Patrick Hartigan, F.R.C.S., pathologist and surgeon in charge of the light department at the Skin Hospital and dermatologist to the Alexandra Hospital. He took the College Fellowship in 1899 and for several years devoted much attention to investigating the effects of radium. He designed a new radium applicator.

Other deaths this week are Mr. Washington L. Winterbotham, consulting medical officer of the Bridgewater Infirmary, at the age of 71.

Dr. George Ellis died in Dublin on the 27th inst. in his hundredth year. He graduated M.B., T.C.D., in 1834 and retired from practice some forty years ago.

Mr. George Eastes died suddenly on the 23d inst., aged 67. He was widely known as treasurer and president of the Metropolitan Branch of the B. M. Association and as taking a very active interest in all questions affecting the welfare of the profession. As a practitioner he devoted great attention to anesthetics, held hospital appointments for their administration for fourteen or fifteen years, and was treasurer of the Society of Anesthetists. He had served as president of the Harveian Society, when his address was on "Evolution in Treatment, 1831 to 1895." He also wrote a "Memoir of Harvey," 1871. He took M.B. Lond., 1866, F.R.C.S., 1868, having been a Guy's student, and afterward spent some time in Paris. He contributed papers to several societies of which he was a member, as well as articles to the journals. In fact, he was for several years an active member of the staff of a medical journal, in which position, as in many others, he gained the good-will of all with whom he came into contact.

Progress of Medical Science.

Boston Medical and Surgical Journal, February 4, 1909.

Osmic Acid Injections for the Relief of Trifacial Neuralgia.—H. H. German divides cases of trifacial neuralgia into three classes: (1) Neuralgia as a symptom of some general disease, as anemia, neuritis, etc.; here we generally have a definite neuritis. (2) Reflex intermittent pain due to a definite local cause, as sinus disease, carious teeth, etc., and (3) true epileptiform neuralgia, for which no definite cause can be assigned. It is to the last named class that he calls attention and summarizes the histories of eleven personal cases. He concludes that osmic acid injections will relieve trifacial neuralgia for a longer or shorter period of time. Relief from pain is not always immediate, but follows in a few days after injection. The latter may be followed by a certain amount of tissue necrosis at the needle point. The acid is little if any better than other peripheral injections. It is best used in a 2 per cent. solution in a glass syringe with a platinum needle and is to be employed only on purely sensory nerves, as its use on mixed nerves is followed by motor paralysis.

Internal Concealed Hemorrhage.—J. R. Torbert presents a general paper. He considers this form of bleeding a comparatively rare complication of pregnancy. Unless diagnosticated early it has a serious prognosis. It generally occurs in the last two months of pregnancy, although it may occur as early as the seventh month. The diagnosis is made by careful examination of both the mother and the fetus within the uterus. The author urges the importance of an examination of all pregnant women in the last months of pregnancy and the keeping of a close watch on both the maternal and fetal pulse during the progress of labor. Palpation is important in making a diagnosis, as the uterus is much increased in size and becomes of a board-like consistency. The appearance of acute anemia with manifestations of shock in a patient in the later months of pregnancy should always suggest the possibility of concealed internal hemorrhage. Early diagnosis is essential in offering a favorable prognosis to the mother; that to the child is bad.

New York Medical Journal, February 6, 1909.

Observations on Prophylactic Inoculation Against Typhoid Fever.—H. Shoemaker briefly reviews the literature of the subject and gives his experience with a small number of inoculations. He finds that the evidence of bacteriolytic and bactericidal activity higher than the normal and the presence of agglutin can be obtained from the serum of those who have been inoculated. He also believes that the results of inoculation on soldiers of the English army confirm the laboratory findings. In his own investigations the author estimates the effects produced in the blood stream by dosage upon (1) a negative and positive phase, (2) stimulus or opsonins, (3) bactericidal substances, (4) bacteriolytic substances, and (5) agglutination. With reference to the preparation of a vaccine, he says that every worker with bacterial vaccines who wishes to arrive safely and expeditiously at a vaccine which retains the greatest immunizing power should first carefully ascertain the least degree of heat which is necessary to kill the strain.

Epiploitis Following the Radical Cure of Hernia.—The patient of C. G. Cumston was a man of twenty-

four years, operated on for a right-sided inguinal hernia in March, 1906. The contents of the sac were composed entirely of omentum, a large mass of which was resected, kangaroo tendon being used for ligature. The day following the operation, which, by the way, was easy and rapidly executed, the patient complained of abdominal pain, while the abdomen was distended. On account of the distension respiration was somewhat difficult, although unaccompanied by pain. The next day the patient was extremely restless, but there was no elevation of the temperature. The bowels moved with an enema, but the distension still continued. This condition of affairs remained about the same until the eighth day following the operation, when the temperature went up 2° C., and at the same time there was an increase in the symptoms already mentioned. The abdomen became still more distended and was painful on percussion. The tongue was dry, the patient most restless. By palpation a tumefaction was detected in the right hypochondrium, extending from the costal border above, down to the iliac fossa on the same side, and was principally marked under the cicatrix of the hernia incision. The latter was in perfect condition and the stitches were removed on this day. The tumefaction was elongated in shape, with its long axis running vertically from above downward, and it appeared to be in direct contact with the abdominal wall. It felt resistant, apparently immovable, and all over its extent dullness was elicited by percussion. This mass was painful, the pain being increased by both palpation and percussion. The abdomen was still distended and constipation was extremely difficult to overcome in spite of high enemata. The temperature was 40° C., and the patient had an abdominal facies. The diagnosis of epiploitis was made. Ice bags were placed upon the abdomen and a pill containing 2 centigrammes of colloid silver was given four times daily. At the end of twelve days the temperature had reached normal and, after this time, remained so. The bowels began to work naturally, the pain diminished, and the swelling also, so that in seven weeks after the operation the patient was discharged cured.

The Physiological Action of Strong Cocaine-Adrenalin Solutions.—J. Leshure presents the following conclusions: (1) To induce a maximum degree of local anesthesia and ischemia, with a minimum of general drug absorption, it is necessary to use solutions of high density, which do not readily enter the larger blood and lymphatic streams. (2) The diluting effect of the mucous membrane secretions must be borne in mind and cotton wound applicators should be frequently changed, and freshly charged with the cocaine-adrenalin solution. (3) Before beginning to operate one should carefully test every part of the field with a probe to determine whether the anesthesia is complete. It is difficult to anesthetize when bleeding has once begun, and the patient will greatly appreciate the extra effort made to spare him needless pain.

Journal of the American Medical Association, February 6, 1909.

Suture of Heart Wounds.—G. T. Vaughan gives a historical sketch of the operative surgery of the heart and reports a case of successful suturing of a wound, one-third of an inch in length, opening into the right ventricle. Two rows of silk sutures were used and two bleeding points caught up and ligated with catgut. The pericardium was closed with a continuous catgut suture without drainage. He tabulates and analyzes the reported cases, and summarizes his conclusions substantially as follows: 1. There is no question as to the propriety of operation, since 35 per cent. of the patients recover, as compared with 15 per cent. (according to Holmes and Fisher, 1881) of recoveries after non-operative treatment of heart wounds—a gain of 20 per cent. 2. The mortality is practically the same as that of twelve years ago, when the operation was first attempted, and it behooves the surgeon to study the matter and seek for some improvement. 3. The two chief causes of death are hemorrhage and inflammation of the pleura or pericardium. Probably nearly everything possible has been done to prevent hemorrhage, but since more than half the patients who survive over twenty-four hours become infected there is room for great improvement in this respect. 4. To prevent this, besides the observance of strict asepsis, the question of opening the pleura and the drainage of the pleura and pericardium must be considered of the greatest importance. 5. As a rule, therefore, the pericardium and pleura should not be drained. The article is illustrated.

Sanitation in the Philippines.—W. E. Musgrave describes the insanitary conditions existing there before the American occupation; an insufficient and most unsatisfactory water supply derived from a dam drawing from a water shed inhabited by 20,000 people and half as many animals, a general absence of sewers, unclean market places, and a daily meeting with patients with smallpox, leprosy, etc., on the public street. Now, after ten years, a fine new sewer and water system has just been completed for the city and the enforcement of public health measures has developed a vast improvement in the personal hygiene of the natives. At present certain of the elementary essentials have become almost fashionable fads; the drinking of safe waters and the eating of safe foods has become a strict rule in all homes worthy of the name. He also credits to the influence of the board of health the modification in American costume which has contributed so largely to the success in living there. A compulsory vaccination law has made the entire civilized population protected from smallpox. Typhoid is comparatively rare, cholera epidemics have been reduced to small proportions, and parasitic diseases have been largely decreased in the capital. The segregation of lepers is almost complete. Musgrave says that ten years of American control have made of Manila one of the cleanest, healthiest, and most attractive cities under our flag.

Salt Solution Injections in Sciatica.—The use of injections of salt solutions in sciatica is discussed by D'Orsay Hecht, who reports the results of such measures in his hands. He reviews the literature of alcoholic injections in these cases and concludes that they are unsuited. The method employed is to inject into the sciatic nerve at one or more points in its course after it leaves the great sacrosciatic foramen, a considerable quantity of salt solution, and he gives the technique in detail. He has not met with any accidents in his employment of this method and the results have been surprisingly good in controlling pain. His concluding comments are as follows: "(1) The deep infiltrating perineural injections palliate the pain of sciatica. (2) The acute, subacute, and chronic types of sciatica lend themselves to this treatment, and whereas the number of injections required varies, immediate notable relief is afforded by the first injection in nearly all cases. (3) The treatment is most indicated and effective in the nonsymptomatic cases, but is also of value in the symptomatic variety. (4) Normal salt solution of varying temperature and quantity, or the betaeucain solution of Lange, is to be preferred to other anesthetic or mordant solutions. Alcohol is harmful and contraindicated. (5) The sciatic nerve may be reached deep in the ischiotrochanteric hollow (its peroneal branch lower down at the capitellum fibulæ), but it is more surely and safely reached directly after its emergence from the notch. (6) The point for puncture and penetration to the nerve is best determined by drawing a line between the posteroexternal border of the great trochanter and the sacrococcygeal joint at the junction of the inner third and outer two-thirds of this line is the spine of the ischium. A thumb's breadth to the outer side of this spine lies the sciatic nerve. Cadaver experiment and clinical experience lead me to endorse this landmark above all others. (7) The method requires a syringe (preferably metal) with a capacity for from 30 to 60 c.c. or more, a needle of desirable length (8 to 12 cm.) directly attachable to the syringe. (8) Accidents of any consequence almost never occur. Unpleasant effects and complications are few and insignificant. (9) The prognosis in the sense of a cure is good if the facts suffice—namely, that in the large number of cases observed for from one to four years many patients have been entirely free from pain during that long interval. Improvement is common. Recurrences are not the rule, and failures are the exceptions."

Deaf-Mutism.—M. M. Stapler gives as the probable mechanism of the production of deaf-mutism by obstruction of the Eustachian tubes (when it is not due to actual destructive labyrinthitis), the fixation of the stapes in the oval window by inward acting pressure on the tympanic membrane. This amounts to a dislocation of the stapes; the stapedius muscle being subjected to extreme tension, becomes paralyzed and the result is deafness, which, occurring in young children, causes deaf-mutism. The reason why we have not

been giving hearing to such deaf-mutes heretofore is that we could not pull the stapes outward and thus reduce the dislocation. Neither inflation nor suction with Politzer's bag will effect this reduction, nor will pulling or punching the tympanic membrane be of any avail. Nature often spontaneously clears the tubes and, as there is considerable freedom of movement in the ossicular chain between the malleus and the incus, the appearances may be apparently normal, the tympanic membrane and the malleus being in their proper positions, but the stapes remain immovable and the tonus of the stapedius still is lost. It has been repeatedly demonstrated, he says, that, when the stapes is put in the right position in these cases, hearing will be restored, and he illustrates a device intended to release the stapes and give hearing in such patients as have not had the stapes bound too strongly by inflammatory adhesions. Several cases are reported in which this apparatus was used with the result of improving the condition of deaf-mutes of the type referred to.

The Lancet, January 30, 1909.

A Typhoid Carrier Successfully Treated by the Inoculation of Typhoid Vaccine.—The essential points of the case treated by S. T. Irwin and T. Houston are as follows: The patient was a maid of twenty-six years, who seven years ago had typhoid fever for seven weeks. On her recovery she resumed her work, but always was easily tired, had frequent headaches, and her stomach was easily disturbed. In the seven years following the fever six people living in the different houses with her fell ill with the fever. It was suspected that she was a "carrier" and she was placed under observation. It was found that the urine contained typhoid bacilli in pure culture and enormous numbers. None was found in the feces. The blood gave a distinct but incomplete Widal reaction. She had a range of temperature from 98° to 100° F. For five weeks she was treated with tonics, urinary antiseptics, and rest, but with no change in her condition. A vaccine was now prepared from the typhoid which had been isolated from the urine. It was injected with the usual precautions. Following the first two inoculations the patient lost a little in weight, had a higher range of temperature, general malaise, and headache, but in the course of three months she returned to a condition of perfect health, while all bacilli disappeared from the urine. The authors call attention to the important fact that chronic typhoid carriers may pass bacilli in their urine and feces only at intervals.

The Parasite of Kala Azar and Allied Organisms.—This illustrated paper by W. S. Patton is of special interest to the bacteriologist. Kala Azar is an East Indian term for the "black death," a fever supposed by some to have a malarial origin and by others to be allied to beriberi. The view that its parasite is a hematozoon cannot be longer entertained. The human system harbors two allies of this parasite and all three are but stages in the life histories of flagellates. The Kala Azar parasite is certainly not a sporozoon, for it remains throughout its life cycle, as far as we know it, a typical flagellate. In its preflagellate stage it may be indistinguishable from a harmless species. This fact is of importance, for in spite of other data the two closely allied human forms, the parasites of infantile splenomegaly and oriental sore, are still regarded as identical with the parasite of Kala Azar.

British Medical Journal, January 23 *and* 30, 1909.

Pyelitis of Pregnancy Treated with Coli-vaccines.—The patient of H. T. Hicks was a young woman of 20 years at the fifth month of her second pregnancy. Symptoms had begun three weeks before admission to hospital, consisting of pain, fever, general malaise, etc., which steadily increased. The urine contained pus, and examination showed a pure culture of the *B. coli*. A vaccine was prepared in the usual way and as symptoms did not improve 10 c.c. of this serum were injected with gradual relief of all symptoms so that in six weeks she was able to leave the hospital. Readmission was necessary in three weeks owing to a return of symptoms, and in due time she was normally delivered. Four days later the urine was clear and had so remained up to the time the case was reported (three weeks). Constipation plays an important factor in the infection of the renal pelvis by the *Bacillus coli*. While the pyuria may persist until the end of pregnancy the virulence of the organisms seems to diminish as soon as the acute stage is over. For mild cases the author finds rest, milk diet, open bowels and potassium iodide and urotropin sufficient; for moderate cases the same routine plus a coli vaccine; in severe cases if the foregoing does not meet the indications the uterus should be emptied. It is not advisable to drain the pelvis of the kidney through the loin because the patients do not stand the shock of the operation very well and moreover if the kidney is itself infected there will be many small foci which cannot be effectively dealt with. By far the best method of securing free drainage is to relieve the pressure of the uterus upon the ureter in the usual way.

Acute Inversion of the Uterus.—A. W. Holthusen reports the case of a primipara of 31 years, who was delivered by forceps under chloroform anesthesia. Uterine action was sluggish, and one hour after delivery the inverted organ with placenta attached was extruded from the vulva. The placenta was easily peeled off and the organ replaced, but if the hand was withdrawn from the cavity it immediately reinverted. Under ergot and strychnine the uterus finally began to contract, bimanual pressure being constantly made. The umbilical cord in this case was only 13½ inches long and it was coiled once around the child's body, thus reducing its practical length to about 6 inches. There was much shock immediately after the original inversion. In all about 2 pints of blood were lost. Recovery was without incident. The author says that when the child was delivered by forceps the fundus was pulled on inadvertently owing to the short cord. After delivery the placenta and its site were further introverted into the cavity of the relaxed uterus by the weight of the child's body exerting traction on the cord. When the uterus did contract the introverted placental site acted physiologically as a foreign body. The uterus then relaxed again and consequently an ordinary post-partum bleeding occurred from the relaxed placental site both before and after its reposition inside the body.

An Experiment in the Treatment of Epilepsy.—D. Goyder refers to a collection of epileptics in a workhouse for whom sodium bromide was ordered to be used as salt in their food, all sodium chloride being carefully kept out. The effect was distinctly satisfactory. It was noted that when the patients came under the full influence of the drug they became listless, stupid, and drowsy, and that then the daily quantity of the bromide used as salt should be diminished one-half, but not altogether stopped. These drowsy symptoms would soon pass off and the patient was again fit for work. The bromide was given in this way not alone at meals, but bread containing it was specially baked for the patients. The author thinks that we do not give large enough doses of bromide in our ordinary treatment of the disease. If eruptions come out we can care for them by cleanliness and appropriate applications.

The Treatment of Pernicious Anemia.—Byrom Bramwell gives notes on one case, his patient being a woman of 54 years. She was placed on five-drop doses of Fowler's solution, gradually but very slowly increased. Her maximum dose was 10 drops. In four months her red cells rose from half a million per c.c. to over four million, hemoglobin from 15 per cent. to 65 per cent., and white cells from three thousand to seven thousand per c.c. She had no dental caries or glossitis and there had been no oral sepsis. The author is inclined to doubt the relative importance of the last-named factor in the production of the disease. The glossitis from which many cases of pernicious anemia suffer is a consequence, rather than a cause, of both being due to the same toxin, whatever it may be, which causes the malady.

Some Reflections Regarding the Free Use of Bacteriological Cultures for the Destruction of Rats and Mice.—J. Danysz refers to the possible danger to human life from the broadcasting of its various microbic cultures for killing rats and mice with a view to stamping out the plague. Actual figures from France show that during the last ten years hundreds of liters of virus for destroying field mice have been distributed each week and that more than a million of people have been concerned in the handling of it. Yet no appreciable case of disease from it has occurred in either man or the domestic animals. The author notes the following points: (1) mice die after having eaten meat and show the bacillus paralyphus B. in the blood, while these organisms could not be found in the meat itself; (2) small and large quantities of food containing this organism have been eaten by human beings without apparent ill effects, and (3) the above organism is found in healthy human blood. He concludes (1) that the microbes of the Salmonella group are extremely widespread in nature, and (2) that if they are frequently found in cases of poisoning through food it is far from being

proved that they are the active agents in these occurrences.

Surgical Treatment of Excessive Axillary Sweating.—F. J. Porter refers to the discomfort of this condition in hot climates and instances the case of an army surgeon who contracted septicemia and had to have made an extensive excision of his axillary glands. Owing to sinuses, it was necessary to remove considerable of the skin and on recovery he found an absence of sweating, and examination showed that all of the hair-bearing skin of the axilla had been removed and along with it the large sweat glands. The comfort to the surgeon was so great that he had a similar operation done under cocaine and adrenalin on the other axilla. The reporter says that the operation is simple, painless, and does not require opening the axilla, and is free from risk. If the suturing is carefully done, the wound heals primarily and the arm may be used in a week.

Treatment of Inoperable Cancer by Hypochlorites.—J. E. Becker reports three cases. The treatment consisted in the injection of a solution of the hypochlorites of potassium and sodium. Five grammes of KOH and four of NaOH were dissolved in a liter of distilled water and passed through washed chlorine gas. Of this solution one and a half to two c.c. were injected daily for a variable period, usually under the skin or over the deltoid muscle or over the great trochanter, so that the solution might enter the system at a site in the general neighborhood of the lymphatic glands. The growth itself and the skin over it were carefully avoided, so also was the use of alcohol during the treatment. An all-glass syringe was used with a platinum needle, ordinary aseptic precautions being taken. Local pain for from two to five minutes followed the injection. No reaction was noted. In the author's cases, one of a pelvic mass found on laparotomy, a second of neck glands following removal of a mammary cancer and the third a carcinoma of the male breast followed by recurrence in the sternum. Good results followed the treatment above described and all the patients were able to resume their respective occupations and are now alive and well. The respective periods since treatment are now forty-four, twenty-one, and nine months.

Treatment of Cancer with Cocaine.—R. M. Gilchrist summarizes the histories of fourteen cases. In every case the general constitutional condition of the patient was very much impaired, even if only for a time. The author says that for the relief of pain cocaine stands unrivalled, for while it eases or takes away the pain, it produces none of the objectionable conditions of opiates. In every case of uterine cancer in which hemorrhage was a prominent symptom, the administration of cocaine was followed by immediate benefit. The author goes so far as to say that he considers cocaine a valuable diagnostic agent, for in case of a doubtful growth he would consider the absence of improvement following cocaine evidence of nonmalignancy. The remedy has been given both internally and externally. The author cannot say whether the remedy has any power over or effect on the embryonic epithelial cell of malignancy whereby a malignant is converted into a benign tissue, or whether benefit arises from the powerful stimulus of the drug. Cancer patients will stand large doses of this remedy.

The Calcium Salts in Various Morbid Conditions.—A. P. Luff gives personal experiences with the calcium salts in the lymphatic type of headache, chillblains, boils, urticaria, facial flushing, aneurysm, hemoglobinuria, edema of the feet on exertion, and various dermatoses. The lactate is the salt most easily taken and is more easily absorbed into the blood than the chloride. The adult dose is fifteen grains, which may be taken in chloroform water with a bit of capsicum tincture added, and it should be given one hour before meals. Constipation commonly follows its use, but as saline purgatives precipitate calcium salts, it is advisable to use some such laxative as senna. Of 121 cases of the various abnormalities above mentioned, 78 per cent. were cured and 9 per cent. considerably improved, while 13 per cent. received no benefit. No bad symptoms followed the remedy in any case. In three cases symptoms suggestive of commencing thrombosis followed the use of the lactate and were presumably caused by it, as they rapidly subsided on its discontinuance.

The Use of Alkalies in Practical Medicine.—Eustace Smith describes the usual effects of the alkalis on the different organs and enumerates various clinical conditions in which they are of benefit. Concerning their action on the stomach, he notes that their long continued use is rarely of service in ordinary flatulent dyspepsia, for, although they are very useful in the early stages, there comes a time when their continued administration ceases to be beneficial. Their chief value consists in their power of reducing an acute or subacute catarrh of mucous membrane. When this has been done and the stomach lining is left flabby and relaxed, a different remedy is required. For all the usual purposes we have the potassium and sodium salts and for many purposes the heavy carbonate of magnesia and carbonate of calcium. In addition to their value in derangements of digestion alkalis are serviceable in the treatment of urinary acidity and the passage of sand or gravel. If bicarbonate of sodium is used for a long time it should be combined with a little salt, for the latter not only aids metabolism, but also increases the vitality and resistance power of the red cells. Too long continuance even of this mild alkali will cause depression. This salt in large doses will sometimes quickly relieve urinary suppression. The alkaline preparations are of use in bronchitis with their viscid secretions. The liquor potassæ is an excellent remedy for this condition. In suppurating finger ends, after the escape of pus by incision or otherwise the bicarbonate of sodium on lint under oiled silk causes the pain and suppuration to disappear with remarkable quickness. It is thought that the effect is due to its local influence in raising the alkalinity of the blood, which has been found to be greatly reduced in cases of febrile reaction set up by bacteriological intoxications.

Münchener medizinische Wochenschrift, January 19, 1908.

Chronic Eczema of Infants.—Feer says that real chronic eczema of infants is a constitutional disease and must be differentiated from various forms of dermatitis that likewise affect infants. The etiology of such eczema depends upon two factors, congenital predisposition and feeding. Two forms must be distinguished, one of them the weeping eczema of the head, the other the disseminated dry eczema. The first usually attacks well-nourished children with a pasty complexion. In addition to the hairy parts of the scalp, the regions of the ears, nose, and cheeks may be affected by the eruption. Hands and arms may likewise show the same lesions. Overfeeding and chronic constipation are the usual concomitants of this, the seborrhoic form of eczema. Improvement and cure usually follow the change from pure milk diet to mixed diet at the end of the first year. The second variety of eczema occurs almost exclusively in artificially fed children. Such children are weak, pale, and thin. The eruption is not as strikingly evident as in the first form, and consists of scattered patches of dry, scaly infiltrated lesions that may be found over the whole body. While local treatment of these forms of disease must be used in every case to make the children comfortable, the cure depends not upon this treatment, but upon changes in the diet of the children. Reduction of milk is the principal point of managing these cases, and carbohydrate food must be given to make up the deficiency in the foodstuffs. After the fourth month of age this is very easy, as the child can be fed on various cereal preparations and also given fruit juice. In later months the albumin of eggs must be avoided, as it is as badly borne as the milk proteids. Whey mixtures may be used in cases where the child is too young to take any other food but some form of milk. The whey may be modified with sugar and cereal gruel, a diet with which Finkelstein had great success in the treatment of eczematous children. Feer concludes his article with the report of a number of cases treated according to the methods outlined above.

Ophthalmoreaction and Prognosis in Pregnancy.—Martin has followed a number of cases of tuberculosis in pregnant women and has studied the relation between the appearance of the ophthalmoreaction and the final fate of the patients. He concludes that in cases of tubercular infection the appearance of the ophthalmic reaction to tuberculin is a favorable sign, the conjunctival injection showing that the body possesses immune bodies acting against the infecting organisms or their toxins. In such cases it is not necessary to interrupt the pregnancy. Negative outcome of the ophthalmoreaction is of very unfavorable prognosis, and in such cases the local lesion and the general symptoms usually progress quite rapidly during the pregnancy. After pregnancy is ended, cure or marked improvement of the tuberculosis may take place, if the interruption has been effected early enough. That such result will always follow induced abortion cannot, of course, always be expected. Total extirpation of the uterus is a justifiable operation in such cases, so that the woman may be protected from another pregnancy during the long convalescence for tuberculous disease.

Deutsche medizinische Wochenschrift, Jan. 14 and 21, 1908.

Resection of Middle Portion of Stomach for Ulcer.—Riedel says that the interest of surgeons has heretofore been turned to ulcers of the pyloric part of the stomach because of the stenosis which such ulcers occasion. However, ulcers of other portions of the stomach are no less important and are almost as frequent, the middle portion of the organ being very frequently affected. These ulcers usually lead to great destruction of the gastric walls even though superficially they appear to be very small. The ulcers of the middle portion of the stomach are situated to the left of the median line of the body and accordingly the pain occasioned by them is felt under the left costal arch and frequently in the back on the left side. As vomiting of blood takes place only in one-half of cases of gastric ulcer, such pain with loss of flesh and strength is often the only symptom of ulcer; in some cases the loss of flesh may not be at all noticed. The diagnosis is assured if a tumor mass develops under the left costal arch; such mass is usually due to the formation of a large ulcer of the anterior stomach wall, which usually becomes adherent to or perforates the left lobe of the liver and occasionally the anterior abdominal wall. Left-sided pain is also present in ulcers involving the mucosa alone; such ulcers may be cured by dietetic ulcer cures, but a chronic thickened ulcer can hardly be affected in this way. However, in every case of ulcer medical treatment should be tried before surgical interference is attempted. Simple excision of ulcer, followed by suture, has been followed with as little good effect as the establishment of a communication between the pylorus and the cardiac part of the stomach anteriorly to the ulcers of the posterior wall. Gastroenterostomy but seldom leads to good results; often it is quite impossible to carry it out because the cardiac portion of the stomach is too much destroyed by the ulcer. It must, however, be performed if the ulcer has spread from the middle portion of the stomach to the pylorus, or if separate ulcers exist at the pylorus or in the duodenum. The best treatment for ulcers in the middle of the stomach consists in the removal of the middle portion of the stomach, together with the ulcer. The result is a stomach that is somewhat shortened in the longitudinal direction, but is otherwise of normal contour and functionates in the usual manner. The prognosis of this operation is favorable, if extreme emaciation or serious disease of the heart and lungs have not complicated the gastric disease. Riedel reports a number of illustrative cases and goes into details in reference to the technique of the procedure and the after-treatment of patients.

Diagnosis and Treatment of Inoperable Carcinoma of the Stomach.—Kuttner says that a most important point in the early diagnosis of stomach carcinoma is always to be on the lookout for the condition whenever stomach symptoms persist for which no other plausible explanation can be given, even if the patient is of youthful age. Occasionally a sudden hemorrhage is the first sign of existing malignant disease of the stomach, the blood being either vomited or passed in the stools. Much oftener, however, the disease begins insidiously with general dyspeptic symptoms, though malignant neoplasm but rarely follows a prolonged disease of the stomach characterized by atrophy of the glandular apparatus. Diminution of appetite is another important symptom of carcinoma, meat being especially distasteful to the patient. The existence of general disposition to the development of the disease—that is, advanced age—must always make the physician on his guard for the probable presence of cancer of the stomach, but age by itself should not be given too high a valuation in differential diagnosis. Family history of cancer must always be given some consideration, though malignant disease is frequent enough without any such history. Trauma plays hardly any rôle in the development of disease. A history of a chronic gastric ulcer is a most important point, speaking for the possible development of malignant disease in scar tissues. Obstinate and intense pruritus has been frequently observed by Kuttner in the early stages of cancer, a symptom that is hardly ever mentioned in text-books. Occasionally a most important symptom is found in the swelling of left supraclavicular lymph nodes; swelling of the umbilical glands usually occurs in late stages of the disease. In addition to obstinate dyspepsia, retching of foul smelling gas, and vomiting of "coffee-ground" material form most important symptoms of the disease. Pain is usually absent and if present has no diagnostic significance whatever. The most important symptom is the appearance of a tumor mass. This may, however, appear only in very late stages or be very hard to recognize because of meteorism or rigidity of the abdominal walls on palpation. If the latter condition is present the patient may be directed to depress the abdominal walls with his own hands as proposed by Skutsch. The appearance of visible peristalsis in the normal or the opposed direction is a very valuable sign of a pyloric tumor. So far as changes in the acidity of the gastric juice and the presence of ferments or of lactic acid are concerned, these symptoms are only suggestive of malignant disease, but may occur in many other conditions. Of great assistance in the diagnosis is the examination of feces or of stomach contents for blood, but the presence of blood in these cases must not be interpreted without much careful study. Often a small amount of blood may be found after the introduction of a stomach tube and this is of a diagnostic significance except in alcoholics or patients suffering from advanced liver cirrhosis, in whom bleeding from the mucosa of the esophagus or of the stomach is quite frequent on very slight provocation. Examination of feces for occult blood must only be carried out after the patient has been on a meat-free diet for a couple of days. Often a nonmalignant tumor may give rise to slight bleeding. The presence of pus, blood, or mucus on examination in the morning before food has been given speaks for cancer; the washings in such cases should be always examined for particles of tumor tissue. The presence of albumin in the stomach contents after the administration of a nonalbuminous test meal should also be looked upon as a symptom of cancer, the secretion of the tumor being rich in proteid. Left-sided pleurisy is an important symptom of carcinoma of the lesser curvature. Immediately after the diagnosis of cancer of the stomach has been made, the advisability of operation must be considered before any other treatment is decided upon. There is no doubt that without a radical operation the prognosis of cancer of the stomach is hopeless, in spite of the claims of many new methods of treatment recently introduced. The treatment of inoperable cancer can only be symptomatic and a most important part of it is the regulation of the diet. No general rules can be given, but in every case the attempt should be made to select such food as will lead to the least possible disturbance because of the insufficiency of the glandular secretions of the motor function of the organ. As an appetizer condurango bark in various combinations with hydrochloric acid and resorcin is quite useful. The presence of foul gas or of food remains indicates very careful lavage with a soft stomach tube, very weak antiseptic solutions being used. Hemorrhage should be treated by stopping all food by mouth and the application of an ice bag to the epigastrium, and the administration of morphine. Constipation is best dealt with by the administration of enemata and of vegetable laxatives. Saline laxatives must be avoided. Diarrhea may be treated in the usual fashion, but frequently lavage is the best means of stopping it.

Infusoria in Stomach Contents.—Cohnheim says that he has found infusoria in the mucopurulent contents of the stomach evacuated early in the day before any food is given; the material was obtained with the use of a warmed stomach tube and the contents were caught in a warmed Petri dish. Six cases were those of carcinoma of the stomach or of the esophagus, while previous to this series of cases Cohnheim found like parasites in six other cases of malignant disease of the upper alimentary canal. The appearance of infusoria, however, is not limited to such disease, as similar findings have been reported in a few cases of benign affections of the stomach, and Cohnheim himself has found infusoria in a case of achylia gastrica. It is probable, however, that such cases are very rare, and the finding of infusoria in the stomach contents speaks very strongly for the existence of an ulcerating carcinoma of the esophagus or of the stomach. The appearance of living infusoria in the feces speaks for the existence of a gastritis of some nature. But all infusoria have no pathogenic character whatever; they simply accompany certain pathogenic conditions in the alimentary canal.

Xanthoma in Icterus.—Posner reports the case of a woman of thirty-seven in whom a general xanthomatosis of the skin developed in the course of a jaundice due to a cirrhosis of the liver. The affection began with a xanthelasma of the eyelids and then spread over the body; it was quite symmetrical in distribution and was especially prominent in the parts of the skin exposed to pressure. A scar

of an old laparotomy wound showed the peculiar pigmentation very well. Each new crop was accompanied by intense pruritus. After reaching a certain stage the well-developed lesions remained for some time without any changes. The treatment by means of mineral waters and baths was quite without any effect, though the patient tried many different watering places.

Acquired Diverticula of the Large Intestine.—Franke says that false diverticula of the bowel are not at all rare, and have a clinical significance as well as pathological interest. They may be found anywhere in the course of the intestines, but are most frequently situated in the sigmoid flexure; their size varies from microscopic dimensions to small pouches the size of a hazel or a walnut, and they may occur singly or in large numbers. The mesenterial side of the intestine is the more frequent site of these pouches, the neighborhood of a large vein being usually affected. Elderly persons have been most frequently found to possess these anomalous structures and in them they form very dangerous affections. The walls of the diverticula may become very thin from pressure of the intestinal contents, and perforation into the peritoneal cavity may occur. Acute inflammation may result in gangrene of the diverticula and the formation of circumscribed abscesses about them. Most frequently, however, there takes place a chronic inflammation of these structures with the formation of abundant connective tissue which on external examination shows a mass and may simulate malignant tumor of the sigmoid. Stenosis of the intestine often results and the feature of malignant disease are still further imitated; frequently regressive changes take place, and it is probable that the few reported cases of the disappearance of supposed intestinal carcinomata may have been such cases. Often the chronic inflammation leads to adhesions to the neighboring organs and symptoms may be referred to these organs and not to the original site of the disease; frequently a fistula results from such adhesions, the bladder being broken into. The clinical symptoms that accompany the various affections of the diverticula are those of any intestinal inflammation accompanied or unaccompanied by peritonitis, as the case may be. The greatest difficulty is offered in the differential diagnosis of some affection of a diverticulum with the formaton of a mass from a malignant tumor. The most important symptom in the latter case is the appearance of blood in the feces in microscopic quantities at first and later in larger quantities; such bleeding is much more rare in case of benign affections of the diverticula. Beyond this, later stages of malignant disease bring with them distinctive picture, but in the early stages exploratory operations are often called for so that the nature of the trouble may be learned. Beyond medical conservative treatment, which in many cases may bring very great improvement in symptoms, surgical treatment offers most in dealing with affections of the diverticulæ. In most cases resection of a portion of the intestine, in other simple colostomy is indicated.

French and Italian Journals.

Case of Myomectomy in Pregnancy.—Vincenzo Valdgni says that the prognosis of myomectomy in pregnancy improves with time, and knowledge. It differs with the nature of the fibroid, whether pedunculated or sessile, since the uterine muscle is less stimulated to contraction by the removal of a small pedunculated growth than when it is necessary to enucleate a tumor that is deeply implanted in the muscle. Cases of this complication of pregnancy are rare. In most cases the termination of pregnancy can be avoided. The indication for removal is obstruction to the delivery of the child by the size or position of the growth. In some cases with the growth of the uterus the tumor is carried upward out of the way, or at the time of labor the uterine contractions push it upward. We must consider the relative risks of abortion as a result of the presence of the tumor, and of abortion as a result of operation for the relief of the condition. The frequency of abortion in fibroids complicating pregnancy is variously estimated at from nine to thirty-six per cent. The frequency of abortion after myomectomy is eleven per cent. according to the statistics of the author. Hence it would seem that abortion is more likely to occur when the fibroma is left in place than when it is removed. The life of the mother must be considered as well as the risk of abortion. The technique of removal is the same as in other conditions of myoma. The uterus should not be drawn out of the pelvis nor traction made upon it. In the author's case the tumor occupied the right horn of the uterus, and was the size of a hen's egg. The indication for removal in this case was extreme pain and threatened abortion. The operation was done at the fourth month of pregnancy, and delivery occurred normally at the end of nine months, with a living child.—*La Ginecologia*, October 15, 1908.

Diagnosis and Treatment of Atonic Gastrectasia.—Paul Carnot advocates in the treatment of atonic gastrectasia measures that are simple as well as practical. He places the patient at the time of digestion in a position in which the pyloric portion of the stomach will be dependent, and thus the food will not collect in the dependent portion and stagnate, as would be the case in the sitting or standing position, but will tend to pass out of the pylorus as soon as it is digested, and thus fermentation will not occur. For this purpose, after the patient has eaten, he is instructed to lie down for two or more hours on the right side; this position causes the pylorus to assume the lowest position, and the food passes quickly out of the stomach when digestion has taken place. To facilitate this form of treatment he instructs the patient to eat his heaviest meal at night, and to lie down after it. He also limits the diet to articles that will be as far as possible digested rather in the intestine than the stomach; this will avoid overfilling it with material that must be digested in the stomach. A stomach treated in this way soon begins to function better and the patient's nutrition becomes better. Later on more albuminoids are given, when the stomach acts better. It is found that a stomach treated in this way becomes less liable to stretching from the weight of the food, and thus eventually a cure is effected without the patient being obliged to give up a fairly active life. In some cases it is necessary to begin the treatment with rest in bed for some weeks.—*La Presse Médicale*, October 28, 1908.

Operative Indications in Biliary Lithiasis.—E. Quénu says that it is recognized among surgeons that operation is not justified in all cases of biliary lithiasis; in some cases it is not only indicated but urgently demanded. In many cases the symptoms are so slight as not to have been noticed by the patient, and yet stones are found in the gall-bladder at autopsy. A large number of examples of lithiasis are compatible with nearly normal health. Even the *x*-rays do not aid much in diagnosis. The uncertainty of diagnosis demands reserve in operation. There are several arguments for early operation in the absence of severe complications; the benignity and simplicity of operation, the possibility of preventing the invasion of the large bile ducts by infectious complications, the prevention of the undoubted predisposition to cancer that lithiasis causes. Danger begins with the migration of the calculi. Some authors claim that it is best to avoid all complications and suffering by removal as soon as diagnosis is made. On the other hand, many patients after a single attack of colic return to a condition of latency. The author believes that operation should be justified by complications, accidents, or the exaggeration of pain. Acute cholecystitis is believed by Körte to be an absolute indication for operation. In a grave crisis operation may be urgent. When infection has become generalized, kidneys are affected, and there is pulmonary congestion and endocarditis surgical interference is contraindicated. In milder attacks we should seek to control the inflammation by cold and rest. In chronic cholecystitis there may be continual pain and tenderness on pressure, bad digestion, emaciation, and bad general health. Here we should operate for the comfort of the patient. Hydrops is only a relative indication for operation. Chronic empyema is an absolute indication. Hepatic colic of ordinary type does not necessitate operation, but when there is cholecystitis it is demanded. In either cases leave treatment to the physician. In obstruction of the cystic duct by a calculus that grows slowly a spontaneous cure is rare, even by ulceration. Early operation gives the best results, and delay gains nothing.—*Revue de Chirurgie.*

Twenty Cesarean Sections at the Lariboisière.—E. Bonnaire reports twenty cases of cesarean section occurring in one thousand labors at the Lariboisière in his service. He believes that a defect in physical culture in the earliest years has much to do with the occurrence of contracted pelvis. Cesarean section was never done by the author when there was any other recourse to save mother and child. In one case the dying mother was operated on to save the life of the child, which lived ten weeks. Another was done for obstruction of the pelvic canal by inoperable cancer. The eighteen other operations were conservative. In four there was an absolute indication for the operation. Obstruction by cancer, cyst, cicatricial atresia, adnexial tumor, or malformation of the pelvis necessitated delivery by this method.—*La Presse Médicale.*

Book Reviews.

American National Red Cross Textbook on First Aid and Relief Columns. A manual of instruction how to prevent accidents and what to do for injuries and emergencies. By Major Charles Lynch, Medical Corps, United States Army. Prepared for and endorsed by the American National Red Cross. With 74 illustrations. Philadelphia: P. Blakiston's Son & Co., 1908.

This little work on first aid is calculated to be very useful. It is clearly written by one who understands the requirements of the case, and it should appeal to a very large number of readers. There are a dozen chapters in the book, dealing with the following subjects: Anatomy and physiology; germs and microorganisms; first aid materials; general directions for rendering first aid; shock; common accidents and injuries; common emergencies; occupation accidents and injuries; injuries and emergencies of indoor and outdoor sports; transportation of wounded, injured, and sick; organizations for first aid instruction; and first aid contests. The volume concludes with a list of references and an index.

A Dictionary of Medical Treatment. For Students and Junior Practitioners. By Arthur Latham, M.A., M.D., Oxon., M.A. Cantab., F.R.C.P. Lond.; Physician and Lecturer on Medicine at St. George's Hospital; Senior Assistant Physician to the Brompton Hospital for Consumption and Diseases of the Chest; Advisory Physician to the Throat Hospital, Golden Square; Advisory Physician to the York Road Lying-in Hospital. Philadelphia: P. Blakiston's Son & Co., 1908.

The object of this little book is to supply beginners with an outline of treatment which is at present in vogue. The author realizes that this crystallization of methods leads to a dogmatic style, but in a work of this size and scope such a drawback is unavoidable. The subject matter is arranged alphabetically, thus making it an excellent ready reference book. It is printed on thin paper and bound with a flexible cover, and is of such size as to make it easily portable. The author has seen fit to include only medical subjects, wisely leaving surgical diseases to other treatises. Throughout a conservative attitude is taken, and some of the newer methods are ignored, probably due to lack of space and the author's lack of belief in their use as being other than problematical. He advocates tuberculin in minute doses, 1/20000 mgm. to 1/5000 mgm. His technique in the Nauheim baths is inaccurate, but safe. His advice is not confined to medicine, but deals largely with hygiene, general management, and physical aids, such as the modern therapeutist advocates. As a whole, it is a satisfactory compend of the methods of to-day.

The Popes and Science. The History of the Papal Relations to Science During the Middle Ages and Down to Our Own Time. By James J. Walsh, M.D., Ph.D., LL.D., Professor of the History of Medicine and of Nervous Diseases at Fordham University School of Medicine; Professor of Physiological Psychology at St. Francis Xavier's and Cathedral Colleges, New York, and Lecturer on Biology at the Catholic Summer School of America. New York: Fordham University Press, 1908.

The author of this most readable and astonishing book was led to write it by the discovery that the general belief that the Popes and the Church had always been inimical to science was not borne out by the facts of history. The Galileo incident he admits, and says there is no doubt that this scientist was prosecuted (he does not say persecuted) by the Roman inquisition on account of his astronomical teachings, and he concedes that it was a deplorable mistake. It was, however, more because of the way in which Galileo urged his truths than because of the truths themselves that he was condemned, and Dr. Walsh quotes Cardinal Newman, who said that this very case proved that the Church did not set itself against scientific progress, for this was the "one stock argument" of those who would have us believe the contrary. As a result of his studies in medical and ecclesiastical history the author found, he says, that the supposed Papal opposition to science was practically all based on an exaggeration of this one incident, and that, as a matter of history, the Popes were as liberal patrons of science as of art.

The limits of a review notice do not permit us to follow Dr. Walsh's masterly presentation of the Papal side of the controversy, and we can only indicate a few of the points that he appears to prove beyond the power of contradiction. In the matter of dissection he shows by documentary evidence that not only did the Church not forbid dissection, under proper restrictions, but even granted anatomical privileges when the civil authorities refused them. Chemistry also—not alchemy—received the support rather than the opposition of the ecclesiastical authorities. The Popes fostered schools of science and medicine, no less than four of which were in the Papal dominions, and two of them—Rome and Bologna—were during several centuries the greatest medical schools of the world. Pope Innocent III was the father of municipal hospitals, and the Church founded and maintained many of the greatest and most complete general and special hospitals of the time. All these facts are proved by quotations from non-Catholic historians, and writers on medical history especially, and also by transcripts of papal bulls and decrees.

The book is more or less controversial in tone, but this could hardly have been avoided since its object was to refute the statements of those who maintained the opposition of the Church and of the Popes to science. But while the author is vigorous in his denunciation of what he holds to be false statements, he is not bitter or unfair, and his writing is happily free from all taint of the odium theologicum. Entirely apart from controversy, the book is in itself most interesting and readable, and constitutes an original and exceedingly valuable contribution to the history of medicine.

Aids to Ophthalmology. By N. Bishop Harman, M.A., M.B., Cantab. F.R.C.S. (Eng.), Ophthalmic Surgeon to the Belgrave Hospital for Children; Chief Clinical Assistant, Royal London Ophthalmic Hospital, Moorfields; etc. Fourth Edition. New York: William Wood & Company, 1908.

In the present revision this book has been enlarged by about seventy pages and forty new illustrations. The sections which show the most change are those on External Diseases, Refraction, Squint and Muscular Disorders. There are new chapters on the Examination of the Eye, Diseases of the Orbit, Diseases of the Sclera, Amblyopia and other symptoms of Focal Disease, and on the Eye Conditions of School Children. The work was originally written by Mr. Jonathan Hutchinson, Jr., and under the new editor it will doubtless continue to enjoy the popularity which it has so well earned.

Traitement de la Tuberculose par la Paratoxine, basé sur l'action antitoxique du foie. Par E. Gerard, Professeur de Pharmacie et de Pharmacologie; et G. Lemoine, Professor de Clinique Médicale à Université de Lille. Paris: Vigot Frères, 1907.

The authors here give their results and beliefs in the use of paratoxine. This substance is a mixture of cholesterin and biliary extract with petroleum ether boiling at 113° F. This forms a mixture of the above ingredients in which can be found lecithine, oily bodies, and a nitrogenous body. The method of administering is usually hyperdermic and the experimenters claim that it may be given with distinct benefit to the tuberculous patient.

Cataract Extraction. By H. Herbert, F.R.C.S.; Late Lieutenant-Colonel, I.M.S.; Professor of Ophthalmic Medicine and Surgery, Grant Medical College, and in charge of the Sir Cowasjee Jehangir Ophthalmic Hospital, Bombay. New York: William Wood & Company, 1908.

Those familiar with the first book on the extraction of cataract by Colonel Herbert are acquainted with the ability and fairness of the author. The present volume is one of 391 pages, is well printed, and sufficiently well illustrated. The operations for the extraction of cataract are described in great detail. The different forms of operable cataract, the preparation of the patient, the selection, sterilization, and use of instruments, and each step of the various operations are very minutely described. The difficulties that are met with in regard to the position of the eye, whether prominent or deep, the condition of the conjunctival sac, whether normal or reduced by cicatricial contraction, are discussed. The various forms of the incision are described and passed upon. The difficulties in making the incision, in performing iridectomy, in making the capsulotomy, expressing the lens substance, removing the cortex, and in performing the toilet of the wound are carefully described. The dressing and after-treatment are given full mention.

The accidents attending and following operations are enumerated and described in full. The value of various procedures in dealing with these complications is discussed. In fact, the work is a complete consideration of the question of cataract extraction treated exhaustively by one of large experience and recognized ability. There is much of the personal element in the volume, but this is not expressed to the detriment of authors whose opinions are entitled to respect and careful consideration. Those who operate on cataract cannot but be greatly benefited by reading this very excellent treatise.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held January 21, 1909.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

Cancer of the Breast.—Dr. W. L. RODMAN of Philadelphia presented this paper. He said that he was of the opinion that the arguments of those who saw nothing in carcinoma but a germ disease were, to say the least, inconclusive. Where the disease was strictly local, an early diagnosis made operative cure not only possible but highly probable; on the other hand, a tardy recognition of mammary carcinoma could not be atoned for by the most brilliant operative procedure. The transition from a local and easily operable condition to a general disseminated and inoperable one might take place quickly. Cancer began as an undue proliferation of the epithelial cells of the mamma and continued to be a strictly local neoplasm if operated upon before metastases had occurred in the neighboring or distant lymphatic glands and viscera. Early operation would cure 80 per cent. of all cases without glandular involvement, but it could also be demonstrated that infection of even the nearest lymph nodes, the axillary, permitted of permanent results in only 25 per cent. of such cases. If the laity could be taught that mammary growths were usually malignant and should be treated as such until proved to be otherwise, the operative results would be far better than they are at present. If the disease were as painful at first as it was later, more would seek aid early. Dr. Rodman had encountered only one case in which sarcoma and carcinoma were undoubtedly present in the same specimen. In 232 cases operated upon at Johns Hopkins Hospital, out of 64, where there was undemonstrable glandular involvement, 51, or 80 per cent., were free from recurrence at the end of three years. Of 110 cases with demonstrable axillary involvement, only 24.5 per cent. were free from recurrences at the expiration of three years. Of 236 cases with palpable axillary involvement before operation, operated upon in the Massachusetts General Hospital during the decennium 1894 to 1904, only 12 per cent. were cured by operation. Of 117 cases operated upon in the same hospital where no glands were felt in the axilla, 29 per cent. were cured. The experience at these and other hospitals had demonstrated forcibly that where axillary involvement was so great as to make resection of the axillary vein necessary, the operation had not given a single cure. It was never safe to assume that enlarged axillary glands did not exist; a thorough dissection of the axilla was just as important as the removal of the breast itself. According to the statistics of the Massachusetts General Hospital, 45 per cent. of the cases with adhesions of the growth to neighboring structures, especially the skin and pectoral walls, 11 per cent. passed the three-year limit without recurrences. Of 194 cases without adhesions to the chest walls, there were 41 successful cases, or 21 per cent. Of 262 cases with adherent skin, only 42, or 16 per cent., were cured by operation. In 71 cases in which the skin was not adherent, 37 per cent. were cured. Consequently, this complication was of great importance. Out of 40 cases with palpable neck involvement, two were found to be free from carcinomatous involvement and were well three years after the operation. The remainder, or 38 cases, were fatal. Of 40 operative cases at the Johns Hopkins Hospital, with positive involvement of the neck and axilla, 3, or 7.5 per cent. were cured. Involvement of the neck might occur early in the history of cancerous growths located in the upper hemisphere of the breast, as a chain of lymphatics passed over the clavicle and did not connect with the axilla at all. Ulceration of the skin was a grave prognostic sign. Of 316 cases without ulceration, 31 per cent. recovered. Of 31 patients operated upon after ulceration had occurred, Wunderli reported that but two were living at the end of three years. In cancer of the breast the duration rarely exceeded thirty-six months after the inception of the growth. The more abundant the cellular and the less pronounced the fibrous element, the greater would be its deadliness. Cancer *en cuirasse* was invariably fatal, and was not amenable to any operative procedure. The prognosis for Paget's disease was not good, even if an operation was performed. Women in whom cancer attacked both breasts succumbed quickly. The question as to how long a patient must go without recurrence before she could be considered cured was open to difference of opinion. Dr. Rodman thought that the period should be extended to five years. In the decennium from 1870 to 1880 the best operators only claimed 9.5 per cent. of cures. From 1880 to 1890, S. W. Gross of Philadelphia and Sir William Banks of England claimed 21.5 and 21 per cent. of cures, respectively. From 1890 to 1900 the rate of cures was increased; Dr. William T. Bull had had 26.6 per cent. of cures. F. S. Dennis reported a series of cases in 1891 with less than 1 per cent. mortality, 5 per cent. local recurrences, and 45 per cent. passed the three-year limit; in 1905 he reported a smaller series yielding 77 per cent. of cures. Dr. Rodman thought that at least one-third of the patients coming to operation should be cured and that early cases should give a much better prognosis. He had operated upon more than one hundred cases of mammary cancer in the period from September 1, 1898, to September 1, 1908. Seven out of 25 private patients were dead and one was living with recurrence; 17 were living and in good health, without any evidences of recurrence. In 2,133 cases operated upon by American surgeons, the operative mortality was less than 1 per cent. In operating the advantages of first attacking the axilla were: (1) The axilla might be so hopelessly involved as to make an attempt at removal worse than useless; the sooner this was known the better. (2) The blood-vessels could be reached and tied at their origin, which materially lessened both hemorrhage and shock, as the same vessel was not repeatedly cut as in working from the breast toward the axilla. (3) The axillary space was dissected from above downwards instead of from below upwards, because it was easier from a surgical, and better from a pathological standpoint, since the dissection was begun beyond the encroachments of the disease. (4) They avoided largely the danger of spreading cancer cells to the adjacent tissues. This was a real, and not a chimerical danger, so much so that unnecessary handling of the infected tissue should be avoided. (5) A dissection *en masse* was sometimes made impossible if the work was begun at the sternum, as the heavy mass might pull upon and break the axillary tail. (6) The functional use of the arm would be better because in beginning the incision at the axilla instead of ending there, greater precision was assured. The incision should not extend into the arm; in such a case the cicatrix sometimes restricted the future movements of the arm.

Cancer of the Breast.—Dr. MAURICE H. RICHARDSON of Boston read this paper, in which he said that treatment of cancer of the breast required the most thorough excision; the use of other methods of treatment in operable cases seemed to him wholly unjustifiable. There was little, if any, encouragement that methods would soon be found to replace the knife. He had seen an appalling number of cases become inoperable under these methods which might have had some scientific basis, but which proved as useless as Christian Science. There was a wide field for the trial of nonoperative methods without taking cases that were easily operable. The layman and many physicians did not know this. The watchword of the profession of late years had been "the earliest possible operation." Dr. Richardson

based his remarks upon his own experience. An incomplete search of his records gave 1,300 cases of breast tumor in his practice since 1890. The glaring need in cases of breast cancer was early recognition. His records were filled with cases of cancer discovered too late. The diagnosis of breast tumor might be easy, difficult, or impossible. The treatment was clear in the sure case but uncertain in the doubtful one. Excision was the treatment for all breast tumors at all ages. Pain as a diagnostic sign had but little weight; as an indication for operation it should have only the weight of its own severity. He was forced to the position that no man's experience was adequate to justify the neglect of surgical exploration, when the signs pointed, in the earliest stages, to a possible diagnosis of cancer. The influence of heredity on a doubtful diagnosis should be great. A single case of cancer in a family might be sporadic, but two, three, four or five meant more than the accidental infection from outside the family of one individual. Cancer of both breasts, occurring independently, was extremely rare, but it had happened often enough to mar the diagnostic value of such an occurrence. The only safe rule in dealing with breast tumors was to treat them as malignant until they were proven benign. An examination of the axilla was prolific in important evidence for or against cancer. The presence of perceptible axillary lymph nodes added an evil significance. The presence of supraclavicular lymph nodes of all the metastases was more serious, and the most malign signs were those of involvement of the cerebrospinal axis. Any persistent cerebral or spinal symptom should excite the strongest apprehension. A persistent cough without adequate signs in the lungs added strength to the diagnosis, although it weakened the indications for operation. Dr. Richardson believed that a tumor doubtful enough to justify the use of the punch or knife section for the microscope should be immediately extirpated, for he was convinced that autoinfection in all forms of malignancy was possible. The prognosis for cancer unoperated upon was as bad as it could be. Statistics based upon a surgeon's own experience were the only ones that were of any value in the formation of his own prognosis. When there was a mass of conglomerated lymph nodes in the axilla, even if there were none perceptible at the first rib, he knew that his dissection was probably too late. When he found but one or two nodes in the center of a mass of axillary fat, easily separated by an extensive and clean dissection, he knew that the outlook was bright for the patient. Surgeons probably erred most frequently by giving a too favorable prognosis. He did not think that there was any limit of years after which a patient might be said to be cured. In favorable cases the probabilities of recurrence were influenced by the thoroughness of extirpation. Except for pain and annoying discharges, the prognosis in advanced cases of mammary cancer was such as to forbid operation. The only exceptions to the rule of universal exploration were those cases of multiple tumors affecting both breasts, which were unmistakably retention cysts. A breast tumor appearing after the removal of a benign growth or simple cyst was another exception. Still another was the appearance in the other breast of a tumor like a benign one that had been removed from the first. Barring contraindications, such as might be found in other organs and in certain constitutional diseases, a better rule was the removal of every tumor of the breast, of whatever nature, at any age. This was the only way to avoid those errors, which, however infrequent, were nevertheless so appalling and indefensible.

Cancer of the Breast.—Dr. Willy Meyer said that early operation depended upon an early diagnosis. The diagnosis of scirrhus carcinoma was comparatively easy, but the diagnosis of adenocarcinoma was difficult This had no effect upon the nipple, its growth was diffuse, simulating that of adenofibroma, and it certainly was not an easy task to diagnose adenocarcinoma in its incipiency. To confound it with the so-called diffuse interstitial fibroma, or chronic mastitis, was hardly possible. The diffuse fibroma belonged to the borderland cases. A suspicious adenofibroma, however, required prompt radical operation. Dr Meyer had had a number of cases of suppurative mastitis, showing a diffuse, hard swelling, which had developed after nursing and had persisted for some time, with now and then some tenderness; these patients were sent to him with the diagnosis of carcinoma. Simple incision effected a cure in these cases. To remove such a breast on the basis of the possibility that the long existing inflammatory focus might produce a malignant growth, would certainly be going too far in their desire to be radical. In making the diagnosis in tumors that admitted of doubt as to their malignancy, the surgeon should never forget the use of the aspirator, which would draw pus in these instances, a fluid that carcinoma never harbored. All of Dr. Meyer's cases were operated upon by the same procedure which was published in the Medical Record, December 15, 1894. Its principal characteristics were that the affected breast, together with the two pectoral muscles, plus axillary and subclavian glands and surrounding fat, were lifted out in one mass All incisions were made within healthy tissue. The work was done from the axilla toward the breast. Blood-vessels were promptly divided at their exit from or entrance into the axillary vessels. The lymphatics were first cut out before the seat of the disease was approached. The operation was typical, anatomical, simple, and was accomplished with a minimum loss of blood. The various operations devised by others, with the exception of the Halsted operation, were all based on the principles laid down in his operation. Dr. Halsted published his procedure simultaneously with the publication of Dr. Meyer's, in the fall of 1894. Dr. Meyer reported the case of a woman, now sixty-four years old, upon whom, in July, 1900, he did a radical operation for an ulcerating scirrhus in the outer lower quadrant of the breast. For eight years the patient remained in perfect condition. He considered her one of his star cases, inasmuch as she seemed to be in such perfect health the entire time and enjoyed absolutely unencumbered use of her arm. In May, 1908, however, she returned to him with a small tumor over the cartilage of the second rib. She had observed it for the last two and a half months. An examination showed a local recurrence, slightly movable. When he operated a few days later the tumor appeared to be sessile on this cartilage, involving the adjacent part of the sternum, and to be diffusely connected with the surrounding tissues. As much of the growth as possible was lifted out with the aid of a broad, grooved chisel and the wound closed without drainage. He expected a prompt continuance of the disease because of the cancerous elements that he had to leave behind. The wound healed by primary union. In the absence of better means he had her use a large oval, Bier's cup daily for forty-five minutes over the sore and, in addition, had her treated with *x*-ray exposures three times a week. After seven months the tumor had not recurred, but the subclavicular glands were recently found to be involved. He did a very extensive removal, but found the entire supraclavicular space badly involved. In view of this state of affairs, he said he could not but think that, had the supraclavicular space been cleaned out thoroughly in 1900, this patient might perhaps have been saved. He found now she could live but a very short time In his summing up he said that surgeons might hope to improve their results by an early operation, based on early diagnosis, by educating the public to understand that the painlessly developing tumor was the most dangerous, by operating also upon circumscribed apparently benign tumors which might become malignant, and by finding the cause of carcinoma

Dr. Arpad G. Gerster said there was one tumor of the breast which could be diagnosed before operation and which did not require amputation, *i.e.* gumma, for which amputation of the breast had been and was being unnecessarily performed. He believed that no mammary tumor should be attacked by the knife until the diagnosis of syphilis had been set aside. He had seen twelve cases in which iodide of potassium caused such tumors to disappear entirely.

Dr. William B. Coley said that he had observd 140 cases of carcinoma of the breast, and that he had as yet not seen a single case of gumma of the breast. He thought it would be a loss of time to subject the patient to a course of treatment with iodide of potassium. In nearly all the cases of local recurrences the infection was caused by the cancer cells that were left behind, rather than by a reinfection. This same explanation applied to the metastatic cases as well. With regard to the benign and borderland cases, Dr. Gibson at the New York Surgical Society gave the correct opinion. One should operate in all such cases, especially after the age of thirty-five years. Two and a half years ago a woman, forty-eight years old, was referred to him. She suffered from some spinal disease and she had a small, apparently benign tumor of the breast. The tumor was not larger than a pea, was movable, and quite characteristic of fibroadenoma. The pathologist pronounced it to be a typical adenoma. This tumor was removed. One year later a similar tumor appeared to one side of the cicatrix. This was removed and the pathologist said it was almost entirely an adenoma, but there were a few cells with carcinomatous changes. The entire breast was then removed. One year later there were recurrences in the opposite breast and the patient had since died of carcinoma of the pectoral muscles and of the neighboring glands.

Dr. Algernon T. Bristow spoke of the difficulty of making an early diagnosis in these cases of breast tumors, and reported the case of a woman, thirty-seven years old, who came to him with a small tumor in the upper external quadrant of the breast. There was absolutely no dimpling of the skin; the tumor was freely movable. Under nitrous oxide gas a portion of the tumor was removed, frozen, and given to the pathologist for diagnosis. Ten minutes later the report came back that it was a benign tumor. Dr. Bristow was putting on the dressings when a hurried message came from the laboratory that the pathologist had found an area of the tumor carcinomatous. The anesthesia was again given, and the tumor was removed. This was eighteen months ago, and the patient to-day was apparently well. He always advocated the use of the *x*-ray as a prophylactic after the operation in these cases.

Dr. John A. Wyeth thought that much could be accomplished if the patients were convinced that the operation of removing these tumors was practically without danger, and if they were taught that many of them would be saved by early operation.

SECTION ON PEDIATRICS.

Stated Meeting, Held December 10, 1908.

Dr. Godfrey R. Pisek in the Chair.

Webbed Hands and Feet.—Dr. Henry W. Frauenthal presented a child with congenital webbed hands and feet. All the digits of the hands, including the thumb, were absolutely webbed together. There was also an absence of the soft palate. The child was five months old and nursed well.

X-Ray Pictures of a Case of Infantile Scurvy.—Dr. E. A. Riesenfeld made this presentation. He reported the case of a baby, ten months old, whose history before the date of examination was negative, and whose family history also was negative. The baby was born at full term and the labor was normal. The child was very restless for six weeks previous to its presentation at the hospital, crying almost continually, and especially when the lower extremities were handled. The physical examination showed a child in fairly good general condition, with excessively tender and relaxed limbs; the examination of the oral cavity was negative, the liver and spleen were both palpable. The baby was put upon a raw milk mixture with the addition of fruit juice; this was followed by a rapid improvement. The tenderness of the limbs had almost entirely disappeared after twenty days' treatment. The weight rapidly increased. Dr. Riesenfeld said that in those cases of Barlow's disease where many of the cardinal symptoms were absent or obscure, the *x*-ray proved a valuable aid in the diagnosis, enabling one to trace those changes in the bone resulting from and following the correct treatment of the condition. The *x*-ray plate revealed two important conditions, subperiosteal hemorrhage, and changes at the epiphyseal line.

Dr. Thomas S. Southworth said that in cases of such pain occurring in children who had a history of being fed with artificial food and water, the diagnosis of scurvy was easily made. He had had three such cases during the past year.

Dr. Godfrey R. Pisek said that although the *x*-ray was very valuable to the general practitioner, frequently in these cases of infantile scurvy the diagnosis was not made, and unfortunately these children were treated for other conditions while the true nature of the disease was not thought of. When used, the *x*-ray was only confirmatory of the diagnosis already made.

Hemorrhage in the Newborn, Apparently Due to Delayed Coagulability of the Blood Transfusion.—Dr. Herman Schwarz and Dr. Reuben Ottenberg reported an unusual case in which blood transfusion was performed in a newborn child. The child was born at full term and the labor was normal. The baby was apparently well until the seventh day when he began to vomit after feeding. On the eighth day the vomitus contained blood, and blood was noticed in the stools. On the tenth and eleventh day bleeding occurred from the mouth. There was no skin eruption, and the liver and spleen were palpable. The lymphatic glands were not enlarged. After the birth of the baby, the mother developed an abscess of the breast which was almost healed. Ten c.c. of horse's serum was injected subcutaneously, but this failed to have any effect upon the bleeding. It was learned that the baby's blood coagulated in forty-eight minutes, and the father's blood in from four to five minutes. If a portion of the father's blood was added to a portion of the baby's blood, the coagulation time was reduced to the normal. The addition of the calcium salts had no effect upon the coagulation, and so transfusion was decided upon. At the time operation was decided upon the hemoglobin was 40 per cent. and when the child was placed on the operating table, it was reduced to 30 per cent. The father furnished the blood for the transfusion. At operation the child appeared to be dead. During the transfusion the hemoglobin increased from 30 to 90 per cent. and all in the course of twelve minutes. When the latter percentage was reached the transfusion was stopped. So soon as the child got the father's blood, the bleeding immediately ceased, and the coagulation time was practically normal. For five days after the operation the bleeding ceased; then bleeding began again. The child died on the twenty-first day as the result of the continued loss of blood.

Dr. F. L. Wachenheim asked Dr. Schwarz when this method of treating hemorrhages was first suggested.

Dr. Schwarz replied, in 1905.

Dr. Wachenheim said that he antedated that time by two years, because he suggested this same treatment in

1903. In these hemorrhages it was probably the complement which must be supplied; this could be done by the use of any foreign serum, as he had advocated in 1903.

Infant Mortality: Comparison of the Past and Present.—Dr. William L. Stowell read this paper, in which he said that statistics had only been collected in civilized countries during the past generation and hence it was only recently that comparison of the past and present was possible. He had made the present study for the purpose of finding out wherein gain had been made and wherein loss had taken place so that it would be possible to lay plans for future work. He thought that infant mortality could be considered as beginning before birth, and Guillemot and Devillieres claimed that from 20 to 25 per cent. of pregnancies failed to mature. In 1851 to 1860 the birthrate in England was 43.1 per 1000 population, while in the United States it was 33.6 per 1000 population; now it was 28.1 per cent. in England and Wales and 27.2 in the United States. The decline was relatively the same in other civilized countries except in France, where it had fallen to 22.2 per thousand. Illegitimacy was also a factor in causing infant mortality, as illegitimate children showed a very high deathrate, due to neglect and to the fact that this class of children was so often sent to institutions. The number of illegitimate births in England had fallen from 6½ per thousand in 1860 to 3 at present. Deformities such as spina bifida, hydrocephalus, etc., lessened the liklihood of children living beyond infancy. Unfavorable constitutional tendencies that lowered the powers of resistance, habits and morals of the parents that were visited on the children, also increased the infant mortality. In studying infectious diseases it was found that the number attacked increased in proportion to their exposure outside the home. Pneumonia carried off a large number of infants; in 1906 more than 12,000 infants died from this disease in the registration area. It could be questioned whether physicians were treating pulmonary and diarrheal diseases as wisely and successfully as they were treating the infectious fevers. The mortality rates in different countries and in different years were so divergent that they could only be explained by studying the character of the homes, the methods of caring for children, and the habits and lives of the mothers. In the year 1860 in this country there were 207 infant deaths out of every one thousand deaths, in 1900 only 191, while in 1906 there were 202. This seemed to show very little gain since 1860. He had presented the records of the Infant Hospital as a basis for his opinions as regards to the effect of certain methods of caring for children upon the mortality. This institution, which was founded in 1866, showed during the first five years of its existence a mortality of 55 per cent. for all children admitted; the mortality for the mothers' children was 16 per cent. The next five years showed orphans and foundlings with a mortality of 44.6 per cent., while the mortality of mothers' children was 12.4. It seemed to be the universal rule that mothers' children had about four times the chance of life that the orphan and foundling had. The mortality among babies farmed out was 14 per cent. in 1875, 21 per cent. in 1885, and 48 per cent. in 1888. The rates for farmed out infants fluctuated markedly, but in general they were lower than for infants kept in the institution. The average mortality of the foundlings from 1897 to 1901 was 47 per cent., a gain of eight points as compared with the five years from 1868 to 1872. Children had been fed with various proprietary foods at different times, but in the main milk was used. After the introduction of new methods in the hospital in 1891, competent nursing, sterilized milk, an increase in the number of wet nurses, renovation of the buildings, sending of contagious diseases away from the Island, and finally, in 1898, the introduction of the percentage method of feeding, the mortality rate for the year 1898 was 19.8 per cent. Since that time it had never risen higher than 27 per cent. Overcrowding had a direct effect upon mortality and this increase was greater among young children. Statistics for the cities and counties in New York State showed that in 1901 there were 70.9 deaths per thousand population in the cities to 39.8 in the country. There had been a steady advance in both city and country during the succeeding years. Density of population alone was not necessarily a reliable standard, as in the Ansonia, New York's largest apartment hotel, where there were 2,000 persons living in 2,500 rooms, making a density of 1,262 per acre, where everything was modern and hygienic, there had not been an infant death in the seven years since the building was completed, neither had any employee, of which there were 400, given up work because of tuberculosis. This showed that it was possible to have a dense population without a high deathrate. In the tenement districts the smaller the number of rooms the higher the deathrate. Dr. Stowell quoted from a paper written by Dr. Harris in the beginning of the eighteenth century in which he scored the women of that day for their failure to nurse their children and their preference for cards, theaters, and social diversions. The women of today were but a replica of their forebears. When the factories were closed in the South during the Civil War there was a great drop in the infant mortality; when the war was over and the factories opened there was a corresponding rise in the infant mortality. In general terms it might be said that the mortality among mothers' children was less than 10 per cent., while among wet nursed children it was a little higher; among orphans brought up on the bottle there were twice as many fatalities as there were among the wet nursed. It had been stated that child insurance was a factor in causing infant mortality, but careful investigation had excluded this. The mortality among insured children was less than the general mortality. Infanticide had been rapidly decreasing for the past ten years. The infant mortality for the registration area for 1906 was 20 per cent. of the total mortality instead of 12½ per cent., which was thought to be normal. Since 1900 the number of cases of typhoid fever had declined and also malarial fever and influenza. Measles and scarlet fever had remained the same, whooping cough and diphtheria had decreased, pulmonary tuberculosis had fallen off somewhat but not as rapidly as in the adult population, respiratory diseases had increased and also venereal diseases. Diseases of the kidneys and the circulatory system remained practically the same. The digestive diseases which showed no falling off during this period were due to infection by means of the food supply. He spoke of the effects of warm weather upon the food supply and of the dangers of infection through the agency of the fly. Dr. Stowell outlined the work done in Berlin, Paris, and New York for the purpose of bettering the surroundings of infants. He said that few young people, even those with families, knew how to care for their offspring and that social settlements, church clubs, and the general practitioner should endeavor to educate the mothers. Women about to become mothers should not be permitted to work in factories until they had regained perfect health. If, as Graham said, 50 per cent. of infant deaths were preventable, the physicians of the United States should be indicted for homicide in 30,000 instances annually. It was the duty of the physician to make the infant death rate go down. Babies should be nursed by their mothers, and if not should be given milk prescribed in proportion by the physician and not according to chance rules of the laity.

Mr. W. C. Phillipps called attention to the worthlessness of statistics which were brought forth regarding infant mortality. Even President Roosevelt made mistakes in his statistics. Mr. Roosevelt had recently stated that in Panama the people were so well that it justified the

belief that, instead of a place of pest and rot, it was the most healthy on the American continent. He did not state that the men sent there were in the prime of health and all over twenty years of age. In getting the statistics regarding infant mortality it should be asked what condition the babies were in when brought to Randall's Island and how long they stayed there. These were, in his opinion, very important questions to be asked. Women had asked him why it was necessary for them to nurse their babies when they could obtain milk already prepared and in bottles. The milk stations gave out many hundreds of bottles of milk daily and this proved one of two things, either the mothers were unable to nurse their babies, or else they were prevented from doing so because of economic reasons. Mr. Phillipps said that the high infant mortality was due to four or five principal causes: (1) hereditary weakness, (2) poverty, (3) industrial conditions, (4) impure milk, and (5) ignorance. All of these causes could be remedied.

Dr. Charles Herrman wondered why Mr. Phillipps had placed ignorance last among the factors causing the high death rate in infants, for he believed that it should be moved up a bit. Ignorance was the one factor to deal with immediately. There was no doubt but that a large part of infant mortality was due to improperly prepared food and improper hygiene. Much good had been done by the dispensaries, milk depots, lectures given by those connected with the Department of Health, etc., in properly instructing the mothers regarding the care of the baby, but these mothers represented only a small percentage, and probably were not those who needed the instruction most. Such instruction should be given as soon as the baby was born. When the birth certificate was received by the Health Department, a physician or nurse should be sent to the home to instruct the mothers on the feeding and care of their babies. If it was not possible to visit all, those reported by midwives, or persons not physicians, should be selected In order to carry out the plan properly, the mothers should be visited immediately after the birth of the child.

Dr. Thomas S. Southworth said that Randall's Island hospital for infants had now emerged from the conditions which once existed there. Since the Infant Hospital had closed in 1904 there were no infants there under two years of age and no mortality on the island. It had been repeatedly claimed of late, both at home and abroad, that the mortality in the Infant Hospital was reduced from 49 per cent. to 19 per cent. by pasteurization of the milk. Sterilization of the milk had been practised for many years before Dr. Neff established in 1896 a milk laboratory for modifying and pasteurizing the infant's milk. Two years later, in April, 1898, private philanthropy installed a very complete apparatus for modifying milk. From the increased facilities for modifying milk they hoped for better results in feeding. Pasteurization and sterilization having been previously tested without noticeable results they had, in 1898, secured sixteen to twenty quarts daily of percentage cream, enough to make all the feedings required in the hospital. This milk, then as now, required no pasteurization to kill the tubercle bacilli, as the milk was obtained from tuberculin tested cattle. The reports of the Visiting Committee of the State Charities Association in 1897 had stated that the "babies in the Infant Hospital were suffering and dying by reason of carelessness, ignorance, and inefficiency on the part of those in charge." "Nursing had shown lack of strong, steady supervision." There was then overcrowding, bad nursing, indifferent feeding, and, as a result, always a mortality. In 1898 a competent supervising nurse was appointed. New plumbing, new floors, and new ceilings were put in throughout the building. The number of wet nurses was quadrupled. Children with contagious diseases were transferred to other institutions. More children were boarded out. Overcrowding of the wards ceased. The report of the same committee for 1898 said, "the sickening odor formerly characteristic of the wards has disappeared." "Making every deduction for altered circumstances there remained a notable decrease in mortality which could only be accounted for by better food, better nursing, better care, and better administration in the Infant Hospital." No mention was here made of pasteurization as the sole cause of the reduction of the mortality, and now that Dr. Stowell had made public the facts, this claim should cease.

Election of Officers.—*Chairman*, Dr. Eli Long; *Secretary*, Dr. William Shannon.

EAST SIDE PHYSICIANS' ASSOCIATION OF NEW YORK.

Stated Meeting Held December 18, 1908.

Dr. H. Illoway in the Chair.

Indications for Hysteroctomy.—Dr. A. Brothers presented a number of specimens of uteri which he said he had chosen from some 150 or more removed by him in his service at the Post-Graduate and Beth Israel Hospitals, to illustrate the variety of conditions for which the operation was done. He presented some very large fibroid uteri, and especially one complicated with a four months' pregnancy, as illustrations of colossal tumors, removed by the abdominal route. He preferred the abdominal to the vaginal route, as the cervix could be left intact in most cases of fibroid uteri, the largest kind of tumors could be handled with comparative ease, the rest of the abdomen could be readily explored, and the operative risks were no greater than by the vaginal route. The indications for hysterectomy were usually the large fibroid tumors, cancer, suppurative adnexal disease, infected uteri, pregnancy associated with uterine neoplasms, and rupture of the uterus.

Dr. S. Epstein presented the following cases: (1) Pott's disease in an adult. (2) Pott's disease in a young man of 20, complicated with tuberculous wrist and lymph nodes, and an apical lesion. He had been operated on, and was gaining in weight. (3) Arthritis deformans of the spine, in a boy of 16.

Free Suppurative Peritonitis; Comment on Recent Discussions.—Dr. A. E. Isaacs read this paper. (See page 306.)

Dr. A. G Gerster said that Dr. Isaacs had adopted a certain nomenclature which was rough and ready. All the nomenclature which had been proposed heretofore for defining different degrees of peritonitis were purely arbitrary and were not based on data sufficiently definite. It should not be forgotten that diffuse spreading peritonitis might be a very simple condition when seen by the surgeon in its very beginnings. Every peritonitis that was due to infection of the general cavity might be called spreading and free. Dr. Gerster believed that the application of the procedure which had been proposed by Murphy to all cases did not always bring about the results claimed for it Usually no difficulty was encountered by any experienced surgeon in securing drainage in any posture. Fowler's posture was not a necessity at all. With various forms of drainage brilliant results had been gotten by all before the so-called Murphy treatment was heard of. The cases in which good advice was needed were not the cases which had been operated on within 40 hours; most of the cases at the hospital included those from the tenement portion of the city, which had been lasting for 5, 6 or 8 days, and which were really diffuse. The mortality had been very great in those cases, and they were the cases which the surgeons would like to learn how to cure. As to the factors used for classification of the cases, Dr. Isaacs had mentioned that one of the safest and best factors was the amount of area involved, but he did not believe that

this was a sufficiently strong and valid factor upon which to base a definite classification. Another factor was the quantity of exudate, and even where it was large and indicated an extensive or a general peritonitis, it did not, in itself, even then mean that the patient was in any very great danger. The quality of the exudate was another of the factors that had been brought forward. It had been said that if the exudate was slightly turbid it was sterile or harmless, and if it was creamy it contained bacilli. This again was wrong, as there were thick, creamy exudates which contained no bacilli at all, and were not virulent, while innocent-looking turbid exudates might be very septic. He thought it easy enough for any experienced surgeon to make the diagnosis of peritonitis. But all the various symptoms and manifestations had to be taken into consideration to appreciate the gravity of any particular case. An opinion based on any one symptom was unreliable and did not permit of a correct prognosis being made. When it came to the classification of results based on the variations in the cases, there it was seen that the personal equation of the observer played a great rôle. Some would define any free infection, so long as it was not confined by adhesions, as a diffuse general peritonitis. These were the men who have reported 2 and 3 per cent. mortality in their cases. Others, again, regarded as subjects of general peritonitis only such patients as were practically dead, and, as Dr. Isaacs had stated, the exact diagnosis could never be made by the surgeon. At times the incision would show exudate in the pelvis and the peritoneum injected everywhere. Surgeons were inclined to consider such a case one of diffuse general peritonitis. The patient, after being drained, immediately began to improve, and it was thought that the operation had done it; yet patients who had not been operated upon at all had improved for other reasons. Some that set in with enormous virulence might be better in two or three days. It was seen that, with defervescence of the process, localization had taken place and residual abscesses formed in various situations. From this he would conclude that all the criteria which we possessed for making a scientific classification of these diffuse peritonitides were extremely unreliable, even though they were carried on with great care on the part of the surgeon. Another point which had been brought out by Dr. Isaacs was the curious fact that in certain cases of peritonitis—fortunately in the vast majority—a tendency was shown very early to form adhesions, while in the minority this process failed It would not be the pathological anatomist nor the surgeon who would solve this enigma of peritonitis. In certain cases adhesions would form promptly, and in others not at all, while between these two extremes there would be any number of gradations. It seemed that there were conditions of economy—chemical or physiological—that determined the efficiency of this process, and this was the line of investigation now being followed up. There must be some reason why adhesions formed in some cases and not in others, and why they would at times be firm and wall off an abscess, whereas in other cases they were soft and easily broken down, and in others again did not exist at all. Among other factors incident to the gravity of the condition, there was the quantity of the infectious material which continued to be thrown into the peritoneal cavity which very naturally influenced the effect. Then, again, there was the condition of the intestinal contents. In stomach perforation, when that viscus was full, after digestion had started, the danger of peritonitis was far greater. Gravity also depended on the portion of the intestinal canal where perforation had taken place. In general as long as our knowledge of this question remained as fragmentary as it was, the statistics did not amount to very much, especially in relation to our capacity to save the patients. As to treatment, he said that the treatment as defined by Dr. Isaacs was the one followed in Mt. Sinai Hospital, and the results had improved. That had been due not only to the fact that operation had been more prompt, but also because interference with the peritoneum had been less than in former days. The intraabdominal pressure of the intestines, as brought out by Dr. Isaacs, which forced out the exudate and the irregularities of the folds and attachments of the mesentery which guided the spread of the infection, played a very important part, and were among the most important factors in the course of the disease.

Dr. H. Lilienthal said that septic peritonitis meant that we had to deal with a living poison-producing agent in the individual—not omitting to consider individual idiosyncrasy, as each one of us had his individual personal power of resistance to toxins. For instance, he knew of a family in which the slightest abrasion of the skin in any member of the family, and in some collateral branches, was followed by suppuration; they were a susceptible family. He was perfectly convinced that if a member of this family should suffer from peritonitis, it would be one of such grave sepsis that an operation would be of no use. Just as individuals had a susceptibility to pain, so they had a susceptibility to sepsis. It was something that was in the blood or somewhere in the nervous organization. He had also noticed that when one operated in cases of peritonitis, a certain number of patients were saved, while if one operated on a person who had no peritonitis and gave him peritonitis he would die. As to adhesions, there were certain classes of cases in which peritonitis was always free—as, for instance, in typhoid fever there are no adhesions. The inverted or Trendelenburg position was a method which used to be employed, the idea being that the stomata of the diaphragmatic peritoneum would absorb the exudate for elimination by the kidneys. But it was wrong, and the same principle of gravity was applied, as in the Fowler position, to assist nature to carry the septic fluid to the pelvis where it would be but slowly absorbed.

Dr. J. Wiener said that he had never been able to see the advantage, either to the patient or to the surgeon, of classification of peritonitis, for, as Dr. Gerster had remarked, the different grades were almost infinite in number. He thought a great deal of time and thought had been wasted, and a great deal of confusion had arisen by trying to classify the different grades. The old statistics of ten or twelve years ago had been improved by working along the lines of short incision, absence of irrigation, and absence of large drainage. Still, some of our German colleagues were still using these measures and claiming good results. He thought Fowler's position deserved a great deal of credit, and should be used before as well as after operation, and that any patient with appendicitis would have his chances of recovery very much improved if he were put in the extreme Fowler position, which did everything that had been said for it. The danger of drainage tubes, mentioned by Dr. Isaacs, recalled a case He had operated at the hospital, removing a gangrenous appendix, and placing a rubber drainage tube. On the sixth day he had been hurriedly summoned to the hospital and had found that a spell of coughing had started a free hemorrhage from a large vessel eroded by pressure of the tube. The bacilli which cause the peritonitis are to be considered, as well as the amount of peritoneum involved. Perhaps improvement in treatment in the future will be along the lines of serum therapy. For the present he did not think we had the right to be as optimistic as Dr. Murphy claimed. If he saw the cases in as late a stage as we, he would not be so optimistic.

Dr. H. M. Silver said that he had never adopted the Fowler position. He had surprised his house surgeon recently by ordering a patient in the Fowler position, but

next day had changed to the belly prone position, which he felt would accomplish just as much and more than the Fowler. Drainage was just as good and the patients were much more comfortable; although for the first few hours they grumbled they afterwards would ask to be placed in that position. He ascribed success in treatment to release of tension of pus in the abdomen, to drainage, and limitation of the duration of anesthesia. He did not use drainage tubes, but rubber tissue cigarette drains, and all drains were very much smaller than formerly.

Dr. A. BROTHERS said women with pus tubes were likely to have a dribbling into the peritoneal cavity, and in his gynecological work he had noted that in these cases the process was usually localized. The spilling of a little pus during excision of a pyosalpinx did not worry him. He seldom drained, for the pus could take care of itself.

Dr. C. A. VON RAMDOHR said that his experience agreed with that of Dr. Brothers as regarded infection of the peritoneum from broken pus tubes. It was the duration of the disease and the amount of perforation that counted, and also the pulse and general appearance of the patient.

Dr. A. E. ISAACS, in closing the discussion, said that he was surprised to hear Dr. Gerster say that Dr. Murphy did not operate in cases of over 40 hours' duration, as he had been under the impression that Murphy operated in all cases that came along. In regard to the criticisms by Dr. Wiener and others of attempts at classification, on the ground that it did the patient or the surgeon no good, he said that the difference between the milder and the severer forms was so pronounced that the details of the treatment of one form need not be applicable to the other. Advance in methods of treatment was the result of observation of the work of others, and if reports of results, good or bad, were made, at least the character of the cases in question should be known. He thought each should understand the other, not that some surgeons should report 2 or 3 per cent. mortality and ascribe it to a certain mode of treatment when it was due to the character of the cases, while another just as able surgeon might report a 50 per cent. mortality in a series called by the same name, but of an entirely different character. It would do the surgeon good to know that there were mild cases that should do well, and that he had done nothing wonderful when they did get well, and it would do many patients good to be treated in accordance with the conditions found and not to be turned inside out and washed, and cauterized with peroxide, and packed full of gauze, because somebody had had a case recover in spite of such treatment. As to ability of judging, on the table, of the extent of the exudate, if the method he had described in the paper be followed, the estimate could be made—not to exactness, yet sufficiently definite for the classification that had been suggested. He was pleased there were others who did not attach importance to the Fowler position. The conditions that had been spoken by Drs. Brothers and Von Ramdohr of infection of the female pelvis by gonococcal pus were not present here. The usual result was a circumscribed pelvic infection, comparable to the circumscribed abscess which was also the usual result in appendicitis. Furthermore, pus from pyosalpinx was frequently sterile, and, therefore, followed by no reaction. As to the infective organism mentioned by Dr. Lilienthal, of those in which culture results had been recorded, more than three-quarters with a mortality of about 6 per cent. had shown the colon bacillus. The other quarter, with mortality of about 33 per cent., had been mostly streptococcal.

Officers.—The election of officers for 1909 resulted as follows: *President*, C. A. Von Ramdohr: *First Vice-President*, Charles Dow Scott: *Second Vice-President*, Max Ghertler; *Secretary*, Sigmund Epstein; *Treasurer*, I. Seth Hirsch: *Trustees*, W. M. Leszynsky, Abram Brothers and H. C. Frauenthal.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending February 13, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	444	180
Diphtheria	496	56
Measles	499	13
Scarlet Fever	367	18
Smallpox	—	—
Varicella	234	—
Typhoid Fever	25	9
Whooping Cough	48	4
Cerebrospinal Meningitis	4	4
Malarial Fever	—	—
Totals	2117	284

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending February 12, 1909:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
Alabama, Mobile	Feb. 9	1	
California, Los Angeles	Jan. 16–23	2	
San Francisco	Jan. 16–23	1	
District of Columbia, Washington	Jan. 23–30	1	
Indiana, Elkhart	Jan. 23–30	1	
Evansville	Jan. 23–30	4	
Indianapolis	Jan. 24–31	2	
La Fayette	Jan. 25–Feb. 1	5	
Kansas, Topeka	Jan. 23–30	13	
Iowa, Dubuque	Oct. 1–Feb. 5	89	1
Kentucky, Lexington	Jan. 23–30	3	
Newport	Jan. 23–30	13	
Louisiana, New Orleans	Jan. 23–30	7	
Maine, Van Buren	Jan. 23–30	8	
Michigan, Detroit	Jan. 23–30	3	
Grand Rapids	Jan. 23–30	1	
Saginaw	Jan. 16–23	1	
Missouri, Kansas City	Jan. 23–30	1	
St. Louis	Jan. 23–30	2	
Montana, Butte	Jan. 12–19	1	
Nebraska, South Omaha	Jan. 9–16	1	
New York, Syracuse	Jan. 1–31	3	
Ohio, Cincinnati	Jan. 17–27	42	1
Dayton	Jan. 23–30	2	
Tennessee, Knoxville	Jan. 23–30	1	
Nashville	Jan. 23–30	7	
Utah, general	Dec. 1–30	24	
Virginia, Lynchburg	Jan. 23–30	1	
Wisconsin, La Crosse	Jan. 23–30	2	
Milwaukee	Jan. 23–30	19	
SMALLPOX-INSULAR.			
Philippine Islands, Manila	Dec. 5–12	3	
SMALLPOX-FOREIGN.			
Arabia, Aden	Dec. 21–Jan. 5		5
Canada, Ontario Province	Dec. 1–31	118	1
Ceylon, Colombo	Nov. 21–Dec. 5	26	8
Chile, Valparaiso	Dec. 5–12	1	
France, Paris	Jan 9–16	2	
Germany, general	Jan. 9–16	5	
Königsberg	Jan. 2–9	1	
Great Britain, Bristol	Jan. 9–16	1	
India, Calcutta	Dec. 12–19		16
Indo-China, Saigon	Nov. 28–Dec. 5	5	4
Italy, General	Jan. 10–17	13	
Naples	Jan. 10–17	46	7
Java, Batavia	Dec. 12–26	6	
Mexico, Acapulco	Jan. 10–17	6	
Guadalajara	Jan. 14–21		2
Mexico	Dec. 5–12		5
Newfoundland, St. Johns	Jan. 23–30	1	Imported
Russia, Batoum	Dec. 1–30		
Moscow	Dec. 26–Jan. 2	29	5
Riga	Jan. 16–23	2	
St. Petersburg	Dec. 19–26	8	3
Turkey, Trebizond	Jan. 9–16		Present
YELLOW FEVER.			
Barbados	Jan. 28–Feb. 4	11	
Ecuador, Guayaquil	Jan. 2–9		2
Mexico, Maxcanu and vicinity	Jan. 18–23	4	2
Merida	Jan. 18–23		1
CHOLERA—INSULAR.			
Philippine Islands, Manila	Dec. 5–19	3	1
Provinces	Dec. 5–19	475	325
CHOLERA—FOREIGN.			
Ceylon, Colombo	Nov. 21–Dec. 5	3	5
India, Calcutta	Dec. 12–19		8
Rangoon	Dec. 19–26		1
PLAGUE.			
Ecuador, Guayaquil	Jan. 2–9		2
Egypt, general	Dec. 23–Jan. 14	22	12
India, Calcutta	Dec. 12–19		9
Rangoon	Dec. 19–26		3
Indo-China, Cholen	Jan. 28–Dec. 5	2	2
Turkey, Bagdad	Dec. 12–Jan. 2	12	5
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Original Articles.

THE CLAIMS OF WATER AS A THERAPEUTIC AGENT.*

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NEW YORK.

THE addition of hydrotherapy to the curriculum of this University, together with a clinic for practical instruction in the remedial uses of water, marks an innovation which is due to a desire of the faculty to add to your equipment a powerful therapeutic agent which is either not taught at all or incorrectly taught in the text books, and for this reason has been responsible for much loss of comfort and life.

The application of remedial agents is the goal of all medical study and practice, as you will quickly realize when you enter upon your professional career. The sick man clamors for relief and restoration to health and the physician who most quickly, surely, and thoroughly responds to this urgent demand will earn the confidence of the public upon which success depends.

The instructors in Materia Medica have doubtless informed you that the pharmacopœia by no means contains all remedial agents, and that there are non-medicinal agents like water, air, diet, exercise, rest, etc., which are of equal if not greater importance in some cases, because without in any manner interfering with the living protoplasm, they serve to enhance the reparative processes in disease and to improve the patient's resisting capacity to the morbific agent.

That water stands easily foremost among these physiological remedies is evident from its achievements at the bedside and its historical record, as I shall endeavor to show.

It has been demonstrated by careful clinical observation that water judiciously applied is capable of evoking many varying and at times contradictory therapeutic effects. To those who are unfamiliar with hydrotherapy, such a claim would seem unwarranted laudation. Following the division of remedies adopted by the systematic works on Materia Medica, let us note how water would lend itself to a classification made in accordance with chief action, viz., into stimulants, depressants, or sedatives, tonics, diaphoretics, emetics, purgatives, antipyretics, antiseptics, etc.

1. Is water available as a *Stimulant?* (a) When called to a fainting person the first thought of the merest tyro in medicine even is a dash of cold water upon the face and chest of the patient. You are aware that this procedure produces a stimulating effect upon the sensory terminals in the skin, that this stimulus is transmitted to the central nervous system and reflected upon motor tracts to the organs controlled by it. The patient revives quickly under this hydrotherapeutic stimulation.

(b) Are you confronted with that most pathetic of all conditions of asthenia which at the dawn of life threatens to extinguish the feeble spark in the stillborn infant? Your instructors in midwifery have taught you to meet this apalling emergency by sprinkling cold water upon the feeble infant, to resort to artificial respiration, and if still unsuccessful to dip the infant alternately in hot and cold water. In most instances this simple procedure sets the sluggish wheels of life into motion. There is no other stimulant capable of accomplishing such a therapeutic marvel.

(c) You stand at the bedside of a typhoid fever patient and sadly note his flagging vitality eloquently proclaimed by the muttering delirium, the lusterless eye, the apathetic countenance, the galloping compressible and dicrotic pulse. Put such a patient into a cold friction bath the technique of which we shall discuss when speaking of the hydrotherapy of this disease. The sufferer emerges from such a bath a changed being; the eye has brightened, apathy has faded from the face, the pulse has resumed its tension; the whole aspect of the case has been changed by this stimulating effect of water, properly administered.

(d) When you want to remove local stasis in frostbite, does your instructor tell you to apply stimulating liniments? No, he counsels the friction with ice water, to stimulate the sluggish vessels.

2. As a *Sedative.* It would seem absurdly contradictory to claim such an effect for water after what has just been stated. And yet by changing the technique of the bath, raising its temperature to about 100° F. and prolonging it considerably, the most powerful chemical sedatives have been defeated by it. Cross the East river and visit the wards of the Manhattan State Hospital; you may there see maniacal patients under the most active motor excitement taken out of the straight jacket and placed into the hammock bath, with the result that they become calm and tractable after hyoscin, chloral, and other powerful sedatives have failed. Indeed, so positive is the sedative action of various hydrotherapeutic procedures which you may learn to apply in our clinic, that the reports from the principal insane asylums are unanimous in the declaration that hydrotherapy has practically superseded all mechanical restraints and that the body- and mind-destroying chemical sedatives may be dispensed with. Some members of this class have seen with me, in Dr. Wittson's wards in the Hood-Wright Hospital, a patient with chronic meningitis who during an exacerbation developed so violent a delirium that he could be restrained only by being strapped to the bed, and yet this patient who failed to respond to

*Introductory lecture to the course on hydrotherapy in the College of Physicians and Surgeons, Columbia University.

hyoscin and chloral and trional became calm after he was placed in a hammock bath of 100° F. in which he was kept for two hours, with the result that there was no return of the delirium, and on the following day he was reading a newspaper. If such severe and intense states of cerebral excitement may be subdued by water correctly administered, it is not unreasonable to expect similar effects in the milder forms encountered in general practice.

3. As a *Tonic* you have seen the results of my method of neurovascular training in the clinic. Gain in weight indicates the attainment of the chief effect of tonics, viz., an improvement of nutrition, and many bloodcounts and hemoglobin examinations have demonstrated that no medicinal agent excels the correct application of water in producing so called tonic effects.

4. As a *Diuretic*. I have numerous bedside notes to prove that under various hydrotherapeutic procedures the quantity of urine has increased from 50 to 200 per cent., and what is of far greater influence, on recovery of the patient the toxicity of urine has been enhanced.

I have records of a case of pneumonia in which 110 ounces were voided.

5. As a *Diaphoretic* you have observed in the clinic the powerful action of the hot bath pack, which pilocarpin or other medicinal diaphoretic cannot surpass. One cannot, however, be substituted for the other. For instance the rapid comforting effect of pilocarpin in giant edema cannot be attained by this pack, while on the other hand the action of the pack in removing faulty tissue change cannot be accomplished by medicinal diaphoretics. Each has its own sphere of action.

6. As an *Emetic* the action of tepid water is well known, but when the most irritating emetics administered in narcotized patients fail, you have in gastric lavage a procedure which will empty the stomach without irritating it and remove all poisons thoroughly.

7. As a *Purgative* the action of an enema is familiar even to the layman. While water cannot be substituted for calomel or castor oil in some cases, there are others in which its application by enteroclysis is not to be approached by purgatives, as in the summer diarrheas of children and autointoxications from the intestinal canal, in icterus, etc.

8. For the *Promotion of Metabolism* and for the elimination of retrograde products of faulty tissue change we have no medicinal agent. Rubner, Ignatowsky, and others have demonstrated by accurate laboratory experiments the increase of oxygen intake and CO_2 outgo, and of N. excretion in the urine the striking action of certain hydriatic procedures in this regard.

9. As an *Antiseptic* water has come to be substituted for the poisonous antiseptics resorted to in the Listerian days of surgery. To-day irrigation with plain boiled water is universally preferred in surgical operations. It is related of the great gynecologist Lawson Tait, of Birmingham, that his success in removing pus tubes attracted many surgeons to see his operations. One day a German surgeon visited Tait at his office to obtain a permit for his operations, asked him what antiseptics he favored. Tait replied "nothing but tap water." When the surgeon expressed his surprise and stated that despite the use of the best antiseptics he had failed to obtain the brilliant results of Tait, the latter asked to see his hands and, pointing to his unclean nails, bluntly said, "That may be the reason!"

10. As an *Antipyretic*. I have purposely left this therapeutic action of water for the last, because the average physician entertains incorrect ideas upon this subject. The cold bath is always classified in the textbooks among active antipyretics, despite the physiological fact that cold increases metabolism and therefore creates heat. We shall recur to this false conception of the action of the cold bath, which above all things I want you to avoid. The true antipyretic bath is not the cold but the tepid bath. It has been amply demonstrated again and again by Riess, Barr, myself, and others, that the temperature in typhoid fever for instance may be reduced quite as readily by the continuous bath at 90° to 95° F. as by any of the coal tar series. Last year I took occasion to show a case of typhoid fever in the service of Dr. Wittson which was going on favorably under the cold friction bath when suddenly the temperature rose to 107° F. by reason of facial erysipelas. I advised to place the patient into a continuous bath of 95° F. After an hour's sojourn in this bath the temperature fell to 101° F. and the insomnia which had not yielded to trional was overcome, so that the patient almost drowned in an unguarded moment.

This review of the therapeutic possibilities of water which may be obtained only by certain modifications in the method of applying it, goes to demonstrate how important it is that you learn these methods in order to be able to avail yourselves of this flexible agent at the bedside, and thus add to your resources for the alleviation of suffering and saving of life.

Lest I lay myself open to the charge of enthusiasm—a fault which the teacher of medicine must avoid, I would not have you lose sight of the fact that there are some powerful medicinal agents which cannot be superseded by water, *e. g.* opium, mercury, quinine, and the anesthetics. Unlike these Sampsons of Materia Medica, water is not a specific, but serves a different though not less important purpose of sustaining the struggling organism in its battle with disease and menacing death, in acute cases, and to invigorate and restore failing functions in the chronic ailments in which medicines are, alas, too often powerless.

It is this large field of therapeutic adaptation of water which has led some conscientious and many unscrupluous and ignorant men to erect the hydropathic system of practice which is still the basis of the quacks who have encroached so extensively upon the practice of the German physicians and who are lying in wait for you in this country also. If you will master the principles and practice of hydrotherapy expounded in these lectures your patients will not only be saved from these medical sharks but you will contribute to the advancement of your noble calling.

It has been unfortunately the custom of physicians to treat these empirics with disdain, and what is more inexcusable and fatal to the humane and material interests of our calling to treat water with contempt because the empirics had appropriated it as their own. I hope that you will serve as missionaries, diffusing correct ideas of Hydrotherapy among the profession, when you go forth with knowledge of its merits and its failings.

History. Let us now consider the claims of hydrotherapy from a historical standpoint. Differing from all other professions, the history of medicine is rarely taught in our medical schools, and when it is referred to at all the dates of birth and death

of the great physicians are the chief subjects. Whoever has studied the history of medicine must become conscious of the fact that while its progress has been slow and halting like that of other intellectual pursuits, until the renaissance of modern times, it has been specially inactive in the field of therapeutics. Indeed we have little to be proud of in this regard. For two thousand years physicians have been dominated by the false idea that disease must be attacked by spoliative measures. That terrible octopus, bloodletting—aided by mercurial and other depletive and spoliative measures—held potent sway over the medical mind. Occasionally, though very rarely, there appeared upon the dark horizon brilliant independent thinkers, like Asklepiades, Paulus Aeginaeta, Van Helmont, Hufeland, Magendie, and in more recent times Jacob Bigelow and Oliver Wendell Holmes, who, clearly discerning the vis medicatrix naturæ of Hippocrates, endeavored to lead the medical profession back to "Nature in Disease," which was the theme of the Harvard professor Bigelow's great but unappreciated work. As we are concerned to-day with that portion of our history which treats of the development of water as a remedial agent, these historical facts are referred to for the purpose of pointing out that nearly every physician who followed the conservative practice of Hippocrates was, like him, an earnest advocate of water, and thus to impress upon you that those brilliant men among the ancients who most nearly approached the therapeutic ideas of the present enlightened era were earnest hydrotherapists.

Passing over the biblical and legendary data usually marshalled to prove the antiquity of water in therapeutics, I shall offer only authentic records. The first treatise on water was written by Hippocrates ("De Aqua et Locis"). He laid down rules for the application of water in disease which mark him as being well informed on hydrotherapy. I regard Hippocrates as the greatest medical genius of all time, because his marvelous clinical acumen prompted him, even in those days of darkness and ignorance of anatomy or physiology, to recognize "vis medicatrix naturæ" as the true curative agency in disease. He therefore enunciated and practised in that long-distant period a principle which has survived the onslaughts of skeptics for two thousand years and which began to be accepted only when the renaissance of medicine was inaugurated by revolutionizing discoveries in physiology, chemistry, and microscopy. Bloodletting and spoliative medication which dominated the entire medical profession for two thousand years lost their influence so soon as these great discoveries illumined the dark pathways and demonstrated their destructive influence upon the organic reparative processes. Water on the contrary gained adherents under the same influences, and the more intensely the searchlight of modern science shone upon it, the more clearly have the true merits of water as a therapeutic agent become manifest.

The man whose therapeutic axiom, after desuetude of twenty centuries, is followed by every enlightened physician of this day, gave us another evidence of his clinical skill in the pithy dictum "cold water warms," *i.e.* stimulates. The enormous loss of life that may be justly traced to the long disregard of this true action of cold water cannot be computed. I shall have occasion to demonstrate to you that although it has begun to be appreciated by the best trained physicians of the present day its recognition is so far from universal that cold water is still numbered among antipyretics in all the text books, and it will be my painful but imperative duty to cite hospital records of undoubted authenticity to prove that hundreds of lives have been sacrificed during the not distant past and are sacrificed at the present time by reason of this false teaching. It pains me to confess that Hippocrates divined the real action of cold water more clearly than does the average doctor of this twentieth century. Lest I be charged with unwarranted bitterness, I refer you to the thirteenth edition of the most popular work on therapeutics (American) which is a textbook in nearly every medical college; there you will find the statement "the object of the bath is the reduction of temperature, and unless this is effected no good results."

An English text book also may be cited. In his charming lectures on the "Action of Medicines," the author says: "The cold bath is a very efficient means of reducing the temperature," and he explains that in his hospital "the cold bath is a bath of 65° F. reduced by the addition of ice to 40° or lower"! He tells the students: "Put the patient into the cold bath and leave him there for a certain length of time." He says nothing of friction which should be the chief requisite in every cold bath. You will agree that no conscious patient would allow himself to be left in a bath of 40° F.; he would escape from it as soon as he touched it.

In every text book on practice the antithermic action of very cold water in sunstroke is reiterated. When we come to discuss the hydrotherapy of this malady I shall point out the fallacy and fatality of a teaching that would make Hippocrates "turn in his grave."

The immediate followers of Hippocrates continued his mild and conservative practice, but as time obliterated the force of his living example venesection became the leading therapeutic agent. Men who were ambitious to form their own schools and become leaders of new disciples disregarded the teaching of the father of medicine and built systems of their own.

A century after the death of Hippocrates, Asclepiades of Prusa, a Greek physician, emigrated to Rome to seek fame and fortune among the world-conquering people. He was so earnest an advocate of water in health and disease that he was called Psychrolutus, and it is recorded that to his influence may be traced the origin of the bathing habits of the Romans, who, according to Pliny, were enabled to dispense with physicians for 600 years by reason of their cleanliness. Asclepiades rose rapidly because he was a man of learning and genial nature and performed many marvelous cures by mild remedies, chief of which were baths and massage. He inveighed against bloodletting and spoliative practices and followed the motto "tuto, cito, et jucunde." Among his disciples three distinguished themselves. Cornelius Celsus, who by reason of his close adherence to the teachings of Hippocrates was called "Latinorum Hippocrates" and on account of his eloquence received the pseudonym "Medicorum Cicero," prescribed water freely in many acute and chronic diseases. His social influence was even greater than his medical; he became the bosom friend of Ovid and Fabius Maximus.

Coelius Aurelianus was an eminent physician

who studied and practised hydrotherapy and invented the wet compress which is so valuable in pneumonia that I regard it as the chief remedial agent in this disease.

Antonius Musa was another worthy exemplar of his master. The historian Suetonius relates that when the Emperor Augustus was given up by the physicians of the imperial household, friends advised him to summon Musa, who had treated Horace with cold water (see sixth epistle). The doctors warned him that this cold water doctor would hasten his death—as is sometimes done nowadays also. The illustrious patient recovered and erected a statue to Musa and conferred the privilege of citizenship upon all physicians.

The prejudice against cold water which existed in the time of Augustus still lingers in the minds of the lay people and of some physicians to-day. The Nestor of American pediatrics once said in the New York Academy of Medicine that he was forced to resign from a children's hospital because he was regarded as too fond of using cold water on the children. This eminent man has happily survived with undimmed reputation and is to-day an honored member of our faculty.

Two incidents from my personal experience may serve to sustain the courage of your convictions if you are ever opposed in the prescription of the cold bath. Several years ago I was requested to take charge of a prominent family in this city. I was informed that the family was opposed to the use of cold water for which I had at that time begun to make propaganda. A year elapsed before I found it necessary to prescribe baths. One of the children fell ill with diphtheria, which I managed with the usual sustaining measures (this was before the day of antitoxin)—when one night I was hastily summoned and found the child with a temperature of 106° F. and all the other manifestations of toxic heart failure. A bath of 85° F. was ordered, and while active friction was practised the water temperature was reduced to 80° F. Not a word of protest escaped the anxious and alarmed parents while in the presence of evident danger. When they saw the child returned to bed in a greatly improved condition they expressed their delight, and after they realized that subsequent cold baths contributed materially to the child's final restoration gratitude replaced prejudice. This child lived to be again saved by the Brand bath with which Dr. Shrady treated him for typhoid fever during adolescence, with my approval.

Another incident from my experience may serve as an example. Several years ago I was summoned to a desperate case of typhoid fever under the care of Dr. Joseph Fraenkel of this city. The patient had been seen by three other consultants, all of whom, like the physicians of Augustus, opposed the cold bath and advised alcoholic stimulants and other sustaining medication on account of the patients' desperate condition. Although I had been the physician of this family for some time I had not been called for two years. When I entered the sick chamber the patient was singing deliriously and did not recognize me. All evacuations were involuntary, the temperature was 102°, the pulse was 160, feeble, and dicrotic; the whole aspect of the case pointed to early dissolution. A bath of 80° F. was ordered, and to neutralize the shock carbonic acid gas from the solution of a package of Nauheim salts was added. The pulse improved, but consciousness did not return until the fourth bath. The patient recovered. One year later passing the lady while alighting from her carriage, she accosted me with grateful appreciation of my service, saying: "I must confess that I gave you up as my family physician because I wanted to escape from cold water treatment of my nervousness. This was cured in Europe by cold water, and now you have saved my life with it."

Seven hundred years elapsed before another advocate of water appeared. Paulus Aeginaeta, accounted the most eminent physician of the seventh and eighth centuries, was a true follower of Hippocrates, whose doctrines he tried in vain to revive. He was an enthusiastic advocate of water in many diseases and discovered the great value of cold affusions in sunstroke—a treatment, by the way, the neglect of which has cost hundreds of lives in this city, as I shall show by comparing its successful use by Dr. O'Dwyer of intubation fame in St. Vincent's Hospital with the fatal procedures in other hospitals.

Again one thousand years elapsed before the appearance of Vander Heyden, who, in the seventeenth century, regarded water as a powerful remedial agent and taught its application as did Van Helmont. The former reported 366 cases of malignant dysentery cured by baths in an epidemic which decimated the population of his country.

In the latter part of the same century—1697—a book, entitled "Psychrolusia," appeared in England, written by Dr. John Floyer a learned physician of Litchfield. So convincing were his arguments and clinical data that the book passed through six editions and was translated forty years later into the German language. Coming to the notice of Friedrich Hoffman, the most renowned professor in Germany, residing in Heidelberg, this influential teacher was led by it to espouse hydrotherapy most vigorously. The first recognition of the influence of cold water upon the tone of the tissues emanated from this philosophical physician. His teachings penetrated to France and Italy.

One hundred years later the English ship surgeon, Currie, reported his marvelous cures of typhus fever, a disease that had been crippling the navy. He put the nude sailors upon the deck and had them treated by affusions from buckets of fresh sea water. Currie published his observation of the favorable results of cold water in this and other diseases, acute and chronic, and the book was translated into every modern language.

In the early part of the eighteenth century Hufeland, who was regarded as the most eminent physician of his time, although he shocked his confrères by teaching that "Nature not the doctor cures," made active and successful propaganda for baths. He offered a prize for the best essay on the action of cold water in fevers, determined by the fever thermometer which had recently been invented. Dr. Froehlich, the body physician of Emperor Francis Joseph won the prize.

We now come to an epoch-making incident in the history of hydrotherapy. Despite the earnest advocacy of water by a few of the most eminent physicians of all time, water did not attain popularity among the lay people until Priessnitz, an unlettered peasant, adopted it, and by his marvelous cures attracted distinguished people to his humble and crude water cure establishment in Graefenberg. This man was led by an accident to the adoption of water as a panacea for all ills. Two of his ribs were broken by the kick of a horse, which also pro-

duced a severe contusion. As was the custom in that day, the doctors wanted to bleed him and he protested. Discovering that when he pressed his injured side against the back of a chair he found instant relief from his sufferings he directed his wife to make a broad linen bandage, wring it out of cold water, and wrap it firmly around his chest. The relief from pain and the recovery from the injury he ascribed to the cold water bandage, and this was the origin of the Priessnitz Umschlag, by which name the cold compress is to-day known. Possessing a large fund of common sense and of executive ability Priessnitz devised various baths and douches from a mountain brook which rushed over some precipitous rocks on his farm. When his children were attacked with scarlet fever he bathed and packed them in cold water; they recovered, while the homes of his neighbors were filled with mourning under the bleeding treatment then in vogue. So extensive had become his repute in 1840 that members of the aristocracy and wealthy people from all countries flocked to partake of his black bread and sour milk and of his treatment by cold water externally and internally. The rise of empirical hydropathy is due to this remarkable man who died after amassing a great fortune and thus stimulated the cupidity of other laymen to adopt his methods. In all countries the water cure system became popular and formed the basis of successful quackery. Unfortunately the medical profession, imbued excessively with the dignity of its calling, treated the remedy with the same contempt which it meted out to the quack, until a sect of nature doctors (Naturärtze) arose which really menaced the status of the doctor to such a degree in the latter part of the last century that a commission for the revision of medical studies was appointed of which the great clinician Kussmaul was made chairman. His report depicted in plain but incisive language the sad plight of the educated medical man who was frequently displaced by the quack because he had not been trained in the use of water in disease. To his sensible presentation of the claims of water and other nonmedicinal agents for recognition in the curriculum of the universities is to be ascribed the formation of clinics and chairs for instruction of students in this branch of therapeutics in Germany.

It is my purpose to thoroughly acquaint you with hydrotherapy to the end that you may be prepared not only to counteract the encroachments of the empirics but to cure your patients *tuto, cito, et jucunde*, and to add to the sum of practical achievement of our calling in the saving of life and alleviation of suffering.

THE COAGULABILITY OF THE BLOOD IN PULMONARY TUBERCULOSIS.*

A PRELIMINARY INVESTIGATION.

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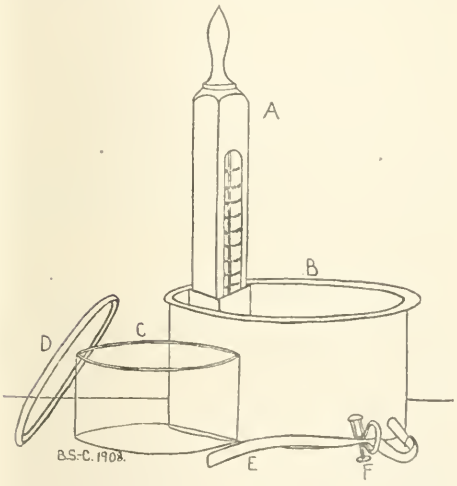
WITH all the attention that has been devoted in recent years to the study of tuberculosis it seems strange that no attempt has been made to investigate the coagulability of the blood in this disease. I have been able to find but two references to such a test having been made. Vierordt[1] in 1878 obtained with his method an average clotting-time of four minutes in two cases of phthisis. Several years ago using Wright's tubes I found the average time of four cases of pulmonary tuberculosis to be two minutes and a quarter.[2]

It undoubtedly would be of interest to know whether the coagulability of the blood in pulmonary tuberculosis differs from the normal and if so whether it is the same in incipient, moderately advanced, and far advanced cases. Such a study might have an important bearing upon the cause and treatment of a complicating hemorrhage, especially in view of Wright's assertion[3] that hemorrhage from the bowel and nose in typhoid fever and often hemoptysis may be associated with a serious defect of blood coagulability, and in view of the relationship between hemoptysis and hemophilia pointed out by Thompson [10] who believes that pulmonary hemorrhage is often the result of an inherited hemorrhagic tendency. The lack of definite knowledge on this



A, ordinary bath thermometer; *B*, zinc pan (common tin pan will answer); *C*, German Stender dish; *D*, lid of German Stender dish; *E*, rubber tube; *F*, clamp.

point is surprising when one contemplates the almost universal use of calcium salts in pulmonary hemorrhage. Many important questions arise in this connection. Is the clotting-time different in patients who are spitting blood from that in those who are not, and in patients who are subject to hemorrhage from that in those who have never experienced it? Does it vary with the degree or duration of the bleeding, and does it change as the hemorrhage continues? It was in an endeavor to answer these and other questions that the present investigation was undertaken.

The Method of Testing Employed.—The blood was tested according to the method devised by the writer,[4] which is a modification of Milian's method, but provides against evaporation and changes in temperature. The rim of a German stender-dish is smeared with lanolin, the lid is fastened on with a rubber band, and the inverted dish is placed in a pan of water whose temperature is maintained at 37° C. (98.6° F.) by the addition of hot and cold water. The dish is taken from the

*Read before the Section on Clinical Study and Therapy at the International Congress on Tuberculosis, Washington, D. C., Sept. 21 to Oct. 12, 1908.

water, quickly dried, and removed from the lid. On the inverted lid are deposited several drops of blood obtained without undue pressure from a deep puncture made with a sharp lance-pointed instrument, the first drop having been removed and the finger being wiped off after each drop is taken. The dish is again laid upon the lid and held in place by the rubber band. With a millimeter scale held under the inverted dish the diameter of each drop is measured, after which the dish is again placed in the water-bath with the lid underneath. At intervals the dish is removed from the pan and tilted, while the drops are inspected both from the side and from the front. On profile view the drop sags, becoming tear- or pear-shaped, before it is clotted; when coagulation is complete it does not change its shape on moving the dish but remains convex in outline. When the dish is held vertically and looked at in front, the drop will be seen to be denser below and clearer above when not coagulated, but darker in the middle or of an even density after clotting has occurred. Note is taken of the size of each drop, the moment it appears on the finger, and the time it is completely coagulated. The interval between the two records is taken as the clotting time. Drops with a diameter under 5 cm. or over 7 cm. are usually disregarded. The average time of the drops used is considered the average clotting-time.

The advantages of this method over the others are that (1) the contact surface is limited in extent, clean and uniform in character, (2) there is practically no evaporation, (3) the temperature is definite and constant, (4) the size of the drops is uniform, (5) the personal equation is largely eliminated, (6) the method is simple and easily available, (7) the results are fairly constant.

Factors Influencing Coagulation Time.—Comparative work on the coagulability of the blood is rendered difficult on account of the variations of the clotting-times obtained with the different instruments. The average normal time with the method just described is 8 2-3 minutes, with the Brodie-Russell instrument and its modifications about 5½ minutes, with Wright's tubes 2½ and 5 minutes, with Vierordt's method 9½ minutes, with Buchmaster's 5¾ minutes, with Biffi's 8½ minutes, with Bezançon and Labbé's modification of Milian's method 10 minutes, and with Hinman and Sladen's modification about 6½ minutes. Where two limits are given by writers I have taken the mean. In different hands and sometimes in the same hands the same apparatus often gives different results.

This variation is due not only to faults of technic affecting the blood after it has left the vessels, but also to other factors influencing the coagulability of the blood while still in its regular channels. As the writer has shown,[6] the latter include meteorological conditions, such as barometic pressure and humidity, viscosity, hemorrhage, meal-time, certain diseased conditions such as jaundice, typhoid fever, and urticaria, certain drugs, namely the salts of calcium and the citrates, alcohol, and blood serum. There are doubtless other sources of error which are still unrecognized.

In order to compare records taken with different instruments I have suggested the following schemes.[5] A pathological clotting-time obtained with any apparatus may be expressed as a fraction, the numerator of which is the pathological time and the denominator the normal time as given by the same method. This fraction may be expressed as a decimal or in terms of percentage. A pathological record obtained with one instrument may also be expressed in terms of another method by means of proportion, the fraction just described being made to equal a fraction whose numerator is x and whose denominator is the average normal clotting-time of the method in terms of which it is desired to express the figures.

The Coagulability in Tuberculosis.—The patients examined were in the writer's wards at the Home for Consumptives, Chestnut Hill, and in his tuberculosis class at the Medical Dispensary of the Hospital of the University of Pennsylvania, in the tuberculosis wards of Drs. Albert P. Francine, Howard S. Anders, Ward Brinton, and H. R. M. Landis at the Philadelphia General Hospital, in Dr. Solomon Solis-Cohen's and Dr. T. Mellor Tyson's wards at the Rush Hospital for Consumption and Allied Diseases, Philadelphia, and from the tuberculosis wards of Dr. Geo. F. Fetterman at the Jewish Hospital, Philadelphia. I desire here to express my thanks to these men for their courtesy in granting me the privileges of their wards.

One hundred cases were examined, 134 tests being made on them. The average coagulation-time of the 100 cases was 5 1-6 minutes, which may also be expressed as 3-5 or 60 per cent. of the normal, and was practically the same in incipient, moderately advanced, and far advanced cases (as classified by the National Association for the Study and Prevention of Tuberculosis). In afebrile cases, moreover, the time differed very little from that in cases with high fever or with moderate rise in temperature. It would seem, therefore, that blood coagulability is increased in pulmonary tuberculosis.

The clotting-time seemed to be slightly affected by some meteorological conditions, although this might have been due to accidental causes.

The outdoor temperature cannot be said to exert any influence. On days when the temperature was above 75° F. the clotting-time was 2-5 of a minute longer than on days when the thermometer registered 75° F. or less; but, on the other hand, it was very slightly shorter on days when the mercury went up to 80° and above than on days when it failed to reach this point. The time moreover was but 1-7 of a minute longer in cases examined in very hot weather than in those tested on cooler days.

Barometric pressure did not seem to be a factor in these cases, although in forty-two tests made on nontuberculous patients the clotting-time was longer on days when the barometric pressure was high.

The coagulation-time, however, did seem to be affected by the humidity, averaging 5½ minutes on days when the humidity was 70 and above and 4⅞ minutes on days when the humidity was below 70; and again 5½ minutes when the humidity was 75 and below, and 5 minutes when the humidity was below 75. This is likewise slightly at variance with my records in nontuberculous cases.[5]

Sunshine also seemed to exert some influence. On days favored with more than eleven hours of sunshine the clotting-time averaged but 4 9-10 minutes, while on days with eleven hours of sunshine or less the average time was 5 5-9 minutes.

The cases of pulmonary hemorrhage are too few in number to permit the drawing of definite conclusions. It would seem, however, that persons with increased coagulability are less liable to hemorrhage than those whose coagulability is deficient. The clotting-time was 4 5-7 minutes in patients

who had never had hemorrhage, 5 5-9 minutes in those who had spit blood within two days, 6 1-3 minutes in persons who had experienced hemoptysis within a week but who were free from it when examined, and 5 3-5 minutes in those who had suffered from hemorrhage at some time but not within two weeks.

Only three cases were examined, both before and during a hemorrhage. In them the clotting-time was 7 1-8 minutes before the bleeding and 4 minutes while it was in progress. This is in accordance with the general observation that hemorrhage is followed by increased coagulability as noted by Hinman and Sladen[6] in typhoid fever, and by Robertson, Illman and Duncan[7] in typhoid fever, abortion, carcinoma of the uterus, and hemorrhage after venesection. Vierordt[1] attributes this increased coagulability to absorption of tissue juices into the depleted vessels.

There also seemed to be some relation between the character and course of the hemorrhage and the coagulation time. The bleeding was less severe and diminished more rapidly in patients whose clotting-time was short than in those in whom it was delayed. The clotting-time was 5 3-8 minutes in those whose sputum was blood-streaked and 6 1-3 minutes in those with slight hemoptysis. Of the cases that began with severe or slight hemorrhage those that only exhibited blood-streaked sputum when examined had a clotting-time of 5 1-4 minutes while patients who were still spitting blood in larger quantity had an average time of 6 1-2 minutes.

The small number of hemorrhage cases may be due to the fact that the tests were made chiefly during July and August, as blood-spitting seems to be noticeably infrequent in the summer; at least such has been my experience and that of several of my colleagues. In two of the hospitals from which I obtained my cases hemoptysis did not occur for a space of two months. A large hospital that never contained less than 200 consumptives and often experienced three and four deaths a day had only a few cases of moderate blood-spitting a week, and severe hemorrhage was quite rare. Thompson,[10] on the other hand, holds that the season at which hemoptysis is most rife is during the summer heat, and he has drawn up a table of 1,000 cases in which the date of the blood-spitting was accurately known that shows the very large preponderance of cases occurring during the summer months. Anders[8] also found that spring and summer show the highest incidence in hemoptysis, but in a recent personal communication he states that a more comprehensive study proves the reverse to be true.

In order, however, to obtain information of practical value many series of observations on patients with hemorrhage will be required. This will necessitate daily tests made before, during, and after a hemorrhage over long periods of time and in large numbers of cases, regard being had to the season and the temperature. These of course can best be undertaken by those residing in tuberculosis hospitals or sanitariums. From the knowledge thus gained it may be possible by examining the blood to tell whether a patient is likely to have a hemorrhage and so be able to take measures to prevent it.

The coagulability of the blood should also be determined separately in patients who have and in those who have not been taking calcium salts. Calcium salts should be administered to one set of patients with delayed coagulability but who are not spitting blood, and their subsequent clotting-time compared to that of another set who are given the drug. In like manner comparison should be made of the clotting-time of patients with hemorrhage who are taking calcium and of those who are not. In this way definite information will be gained as to the action of this drug in preventing or checking pulmonary hemorrhage.

It is not uncommon for female consumptives to spit blood at the menstrual period. The clotting-time in the few cases I examined was practically the same in all instances of hemoptysis in women whether or not they were menstruating or were at the menstrual period. There can be little doubt that hemoptysis in women is often a vicarious menstruation. The possibility of such an occurrence should naturally have an important bearing at times upon prognosis and treatment. A comparative study of the clotting-time of healthy and tuberculous women both during and between their menstrual periods could not fail to prove of value.

Wright[9] applies the term "serous hemorrhage" to increased transudation of plasma through the capillary wall as seen in pleural effusion, serous diarrhea, etc., and suggests the existence in these cases of a connection with deficient coagulability. As pleural effusion and serous diarrhea both occur as complications in tuberculosis I included them in this investigation. In one case of pleural effusion the clotting-time was over 10⅛ minutes, in one case of hydropneumothrax 4½ minutes, in one case of empyema 3½ minutes, and in one case of pyopneumothrax 3⅜ minutes. The cases are too few to admit of any conclusions. It would seem, however, that coagulability is diminished in simple effusion but increased when pus is present in the pleura.

Eleven of the patients who had diarrhea gave an average clotting-time of 5½ minutes, not much longer than that of cases without diarrhea. No questions were asked, however, as to the character of the diarrhea. But even if regarded as a "serous hemorrhage" the question suggests itself: Would not the loss of fluid in a serous diarrhea have a tendency to increase the viscosity of the blood and at the same time its coagulability?

The coagulability of the blood in tuberculosis offers a large field for study. No one realizes more than the writer the inconclusive character of this investigation due to the paucity of cases. Enough, nevertheless, has been shown to demonstrate that the coagulability of the blood in pulmonary tuberculosis offers a large field for study with some probability of obtaining information of practical value. It is to be hoped that those who have the facilities will undertake the lines of inquiry suggested. With the stender-dish method the worker will at least have the satisfaction of knowing that the results of his labors will not be vitiated by faults of technique.

Below are given the figures in detail, including the maximum and minimum as well as the average clotting-times obtained and the number of cases and tests on which each record is based.

THE CLOTTING TIME IN PULMONARY TUBERCULOSIS AND IN ITS VARIOUS STAGES.

Classification	Number of		Clotting Time in Minutes		
	Cases	Tests	Average	Longest	Shortest
All stages.	100	134	5 1-6	10 3-8	2 1-8
Incipient	26	32	5 1-7	8 1-2	2 1-8
Moderately advanced	27	32	5 1-7	8 1-2	2 1-2
Far advanced	47	70	5 1-5	10 3-8	2 5-8

CASES DIVIDED ACCORDING TO THEIR TEMPERATURE.

Classification	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Longest	Shortest
Afebrile	5	5	5 1/4	7 1/2	2 1/8
98.7° to 100°	36	48	5 1/9	10 3/8	2 1/2
Above 100°	36	49	5	9 1/8	3
Temp. not recorded	27	32	6	10 3/8	2 1/4

CASES DIVIDED ACCORDING TO THE OUTDOOR TEMPERATURE ON THE DAY OF THE TEST.

Classification	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Longest	Shortest
80° and above	55	72	5 1/7	10 3/8	2 1/4
Below 80°	45	57	5 1/4	10 3/8	2 1/8
Above 75°	81	99	5 2/5	10 3/8	2 1/4
75° and below	19	28	5	7 7/8	2 1/8

CASES DIVIDED ACCORDING TO THE BAROMETRIC PRESSURE ON THE DAY OF THE TEST.

Classification	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Longest	Shortest
30.10 and above	41	52	5 1/5	10 3/8	2 1/8
Below 30.10	56	74	5 1/5	10 3/8	2 1/4

CASES DIVIDED ACCORDING TO THE HUMIDITY ON THE DAY OF THE TEST.

Classification	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Longest	Shortest
70 and above	55	71	5 1/2	10 3/8	2 1/4
Below 70	41	55	4 7/8	10 3/8	2 1/8

CASES DIVIDED ACCORDING TO THE HOURS OF SUNSHINE ON THE DAY OF THE TEST.

Classification	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Longest	Shortest
11 hours or less	45	52	5 5/9	10 3/8	2 1/8
More than 11 hours	52	72	4 9/10	7 3/4	2 1/4

THE CLOTTING-TIME IN PATIENTS WHO HAVE SPIT BLOOD WITHIN TWO DAYS; CASES DIVIDED ACCORDING TO THE SEVERITY OF THE HEMORRHAGE.

Classification	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Longest	Shortest
All hemoptysis	27	34	5 5/9	8 1/2	2 1/4
Severe hemorrhage	6	7	5 1/3	7 5/8	2 1/4
Slight hemorrhage	6	7	6 1/3	8 1/2	2 7/8
Streaks of blood	15	20	5 3/8	7 3/4	3 5/8

HEMORRHAGE WITHIN TWO DAYS; CASES DIVIDED ACCORDING TO THE DAY OF THE HEMORRHAGE ON WHICH THE TEST WAS MADE.

Classification	Day of Hemorrhage	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Longest	Shortest
Severe and light	1st	6	7	6	8 1/2	3 3/8
" " "	2d	2	2	6 1/8	7 3/8	4 7/8
" " "	3d	13	1	2 1/4	2 1/4	2 1/4
" " "	4th	0	.....	.....	.....	.....
" " "	5th and after	4	5	5 5/8	8	3 3/8
Streaked	1st	3	5	6	7 3/4	3 7/8
"	2d	5	5	5 1/2	7 3/8	4
"	3d	2	2	5 3/4	6	5 1/2
"	4th	1	2	3 3/8	3 5/8	3 3/8
"	5th and after	3	4	5 3/4	7 3/8	4 1/4

HEMORRHAGES THAT WERE SEVERE OR SLIGHT AT FIRST DIVIDED ACCORDING TO WHETHER THEY WERE THE SAME WHEN THE TEST WAS MADE OR WHETHER THEY HAD DIMINISHED TO STREAKS.

Condition at Time of Test	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Longest	Shorest
Severe or slight	4	7	6 1/2	8	3 3/8
Streaked sputum	6	6	5 1/4	7 3/8	2 1/2

RECORDS ON THE SAME PATIENT TAKEN BOTH BEFORE AND DURING A HEMORRHAGE.

Day before Hemorrhage	Clotting-time	Day of Hemorrhage	Clotting time
5	7 1/2	5	5 3/4
38	7 1/2	3	2 1/4
36	6 1/2	1/2	3 7/8

HEMORRHAGE WITHIN SEVEN DAYS OF TEST BUT WHICH HAD CEASED WHEN TEST WAS MADE.

Classification	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Highest	Lowest
All kinds	6	8	6 1/3	10 3/8	3 5/8
Severe	2	3	5 3/4	7 1/8	4 1/2
Slight	3	3	7 1/2	10 3/8	5 1/4
Streaked	1	2	3 5/8	3 5/8	3 5/8

NO HEMORRHAGE WITHIN TWO WEEKS; CASES DIVIDED INTO THOSE THAT HAVE NEVER HAD AND THOSE THAT HAVE HAD HEMORRHAGE.

Classification	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Highest	Lowest
Never had hemorrhage	28	38	4 5/7	8 5/8	2 3/8
Had hemorrhage	34	40	5 3/5	10 3/4	3 1/8

HEMORRHAGES IN WOMEN IN RELATION TO THE MENSTRUAL PERIOD.

Classification	Number of Cases	Number of Tests	Clotting-time in Minutes Average	Highest	Lowest
Menstruating	4	5	5 3/4	6	4 7/8
At menstrual period	2	2	5 3/4	6 1/4	5 1/4
Neither of above	10	16	5 2/3	10 3/8	3 3/8

CASES OF DIARRHEA.

Number of Cases	Number of Tests	Clotting-time in Minutes Average	Highest	Lowest
11	13	5 1/2	10 1/8	3 3/4

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Visceral Rheumatism in Children.—E. Weill and Lucien Thevenot describe a form of rheumatism which affects the heart without any involvement of the joints or joint pains. Its appearance is insidious, and endocardial and pericardial lesions are progressive. There are pulmonary symptoms. The evolution of the disease is often fatal, death occurring with a syndrome that indicates parenchymatous myocarditis. The post-mortem lesions show the endocardium, pericardium, and myocardium affected as well as the pulmonary tissues. Treatment is unsatisfactory.—*Archives de Médecine Infantile.*

THE TREATMENT OF PATIENTS WITH HEMIPLEGIA RESULTING FROM CEREBRAL APOPLEXY.*

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In a varied association with physicians both in hospital and consultation work, I have repeatedly observed that the unfortunate hemiplegiac, should he survive the first two weeks, does not receive the attention that his condition demands. The rational and judicious treatment of these patients is a subject which must perforce appeal to the general practitioner, who is called soon after the onset of the attack.

Cerebral apoplexy is often the first intimation of an unsuspected chronic nephritis associated with arteriosclerosis. Not infrequently, it happens that the individual is apparently in good health and attending to his customary duties when unexpectedly stricken. I can readily recall many cases of this nature, and the same is no doubt a common experience.

Hemiplegia, which occurs suddenly or rapidly, is essentially due to arterial disease. In the majority of cases the vascular degeneration is found in conjunction with chronic nephritis or syphilis. Hemiplegia may also result from other causes, such as embolic softening, meningeal hemorrhage, tumor formation involving the motor tract, a unilateral lesion in the upper cervical region of the spinal cord, or cranial traumatism. Cerebral hemiplegia arising in a person under 35 years of age, excluding the causes just mentioned, is usually suggestive of syphilis, *i.e.* either obliterative endarteritis, gummatous infiltration, or direct pressure.

It is beyond the scope and time limit of this paper to enter into a dissertation on the etiology and symptomatology of cerebral apoplexy in its various phases. My remarks will therefore be confined to a general description of the hemiplegic condition in the adult as a result of cerebral hemorrhage, incidentally referring to arterial thrombosis and embolism.

Hemorrhage may arise in any part of the brain, but it occurs more commonly in or near one of the corpora striata, as the lenticulostriate arteries are the vessels, par excellence, in which miliary aneurisms develop through degeneration of their muscular coats.

Thus, from a combination of pressure upon and destruction of nerve fibers, the conduction of motor impulses through the internal capsule is suddenly interrupted. The consequent hemiplegia is never so complete as to present a maximum loss of power. Not infrequently the face escapes entirely. The extremities affected are always on the side opposite the lesion in the brain. This depends upon the anatomical fact so well known to you all, that the motor tracts decussate in the medulla. The face is paralyzed in its lower portion, on the same side as the hemiplegia, as the fibers from the facial center pass down into the internal capsule and cross over to the opposite facial nucleus. Therefore, any unilateral lesion in the brain, situated above the decussation, if it causes paralysis at all, invariably produces paralysis of the opposite side. When the right side is affected, it is commonly associated with some form of aphasia, on account of the implication of the fiber tracts from the speech center in the left hemisphere.

In exceptionally rare instances there has been found congenital absence of the pyramidal decussation. The hemiplegia then occurs on the same side as the cerebral lesion. Such an anomaly does not require serious consideration under the circumstances. It must always be borne in mind, however, when cerebral surgery is contemplated.

Hemiplegia from arterial thrombosis is, in my experience, quite as frequent as that due to hemorrhage, but thrombotic softening is at times of more serious import. Cerebral hemorrhage usually occurs suddenly without prodromal symptoms, and often terminates life abruptly, or within a few hours or days. On the other hand, thrombosis is almost invariably preceded by premonitory signs such as headache, vertigo, tinnitus, numbness in the hand or foot, transient facial paresis or aphasia, or transient hemiparesis. It may also end fatally in a few days. Most of the symptoms heretofore described by numerous writers, and transmitted to posterity from textbook to textbook, as preliminary to cerebral hemorrhage, are in reality the accompaniment of endarteritis which produces narrowing of the lumen of cerebral vessels, thus interfering from time to time with the circulation, and ultimately terminating in complete and permanent occlusion and circumscribed cerebral softening. The extent of the brain lesion depends on the location and size of the vessels involved. Among the exciting causes precipitating an attack of cerebral hemorrhage through suddenly increased arterial tension, are excessive emotions, a cold bath, temporary obstruction to the return circulation from the brain in such actions as violent coughing, sneezing, immoderate laughter, or straining at stool. Several instances have ocurred in my experience, and no doubt many of you have heard of or seen similar cases, in which the patient has been found in the toilet either paralyzed or dead from cerebral hemorrhage, undoubtedly as a result of straining at stool. Cerebral hemorrhage sometimes occurs while the individual is making some vigorous muscular effort, or otherwise subjecting his vascular system to an excess of pressure. Or sudden exposure to cold air may increase the blood pressure by inducing extensive contraction of the cutaneous vessels.

When apoplexy occurs suddenly without loss of consciousness, the paralysis is evident. During coma, however, the diagnosis is frequently attended with difficulty, owing to the general and complete muscular relaxation. The stertorous breathing and the associated facial paralysis are often quite characteristic. Should consciousness be lost suddenly and profound coma with several general convulsions rapidly supervene, immediately followed by muscular rigidity, there is in all probability an extensive hemorrhage into the ventricles. All of these symptoms are directly due to the resulting excessive intracerebral pressure. When the patient is found comatose, and apoplexy is suspected, the following observations will prove useful in determining the presence of a unilateral brain lesion, for, as a rule, the hemorrhage is limited to one hemisphere: (*a*) If careful watch is kept, one may note an occasional movement of a limb on one side, while there is complete absence of any movement on the opposite side. (*b*) There may be conjugate deviation of the head and eyes toward one side, thus indicating that the lesion is on the side of the

*Read before the East Side Physicians' Association, January, 1909.

brain toward which the eyes are turned. (*c*) The presence of a unilateral Babinski plantar reflex; or the Gordon reflex, which is produced by lateral pressure on the calf muscles, both being manifested by dorsal flection of the great toe, and demonstrating involvement of their corresponding pyramidal tract. (*d*) Hughlings Jackson's sign. In quiet respiration, the movement of the paralyzed side of the chest may be greater than that of the opposite side, while in voluntary respiration, the side on which paralysis is present moves less than the other side. The latter part of this valuable observation can be utilized to advantage only after coma has subsided. If the coma is only partial, and the muscular resistance is feeble or lost upon one side, the diagnosis is evident.

While the patient remains unconscious, the prognosis as to life is doubtful, as we are unable to determine the extent of the hemorrhage. Death usually results if the coma continues more than 24 hours. Or, later, a fatal termination may take place from hypostatic pneumonia, pulmonary oedema or asthenia.

A comprehensive knowledge of general medicine and a familiarity with the pathology of this affection, constitute a sine qua non in its management. Should the patient be seen shortly after the onset of the attack, let him remain, if possible, at the same place, or limit his movements in transportation as much as possible, avoiding all jarring of the head and body, and everything tending to emotional excitement. If conscious, he must not assist in any way. He should be placed in bed, the clothing carefully removed, and the head and chest raised. To relieve stertor, turn the body on the paralyzed side and gently draw the tongue forward. If possible, a positive diagnosis should be made before instituting energetic treatment. Venesection is indicated only when the presence of cerebral hemorrhage is practically certain, and when there is congestion of the face and head, and unusually high blood pressure, with a strong, full pulse. A small, weak, frequent pulse and pale face is a contraindication. The withdrawal of about ten to twelve ounces of blood is usually sufficient. It is preferable to operate on the non-paralyzed side. In such cases, venesection is of great value in reducing the excessive blood pressure, but only at the very beginning of the attack. It is often followed by transient improvement. The stupor diminishes, the respiration is less labored, and the pupillary reaction returns. Several cases have been reported in which it was followed by surprisingly good and permanent results. In severe cases, however, it is rarely successful, although temporary improvement may occur. In my experience, a repetition of the bleeding is useless. A man fifty years of age, with cerebral hemorrhage and profound coma, when seen two hours after the onset, the systolic blood pressure was over 300. The removal of 14 ounces of blood reduced the pressure to 190. He then became conscious and spoke rationally to his family, but in a few hours he gradually relapsed into coma with a blood pressure of 320. This was again reduced by venesection, but the coma persisted and he died on the third day.

As an exact differentiation between apoplexy from hemorrhage and that from thrombosis or embolism is often impossible, venesection should never be practised in doubtful cases. In thrombotic softening it is not only useless but harmful. The arterial pressure may also be lowered, more slowly, of course, by the administration of tincture of aconite, two or three drops every half hour until effectual. Or, a ligature about the extremities close to the trunk may prove serviceable in diminishing the volume of blood in the internal organs, thus relieving the intravascular pressure and hastening the formation of the clot. This procedure is most likely to prove efficacious when the symptoms are indicative of a large hemorrhage, or in those cases in which there is an apparent tendency to an extension of the hemorrhage. It must be borne in mind, however, that in old people a somewhat high blood pressure is a normal condition. During the attack of cerebral hemorrhage the rise in blood pressure is assumed to be due to irritation of the vasomotor centers in the medulla, and may be considered, in a measure, conservative. Hence, the blood pressure must not be reduced too low. If coma lasts more than a few hours, the bladder should be emptied by catheter. When there is reason to believe that there is an accumulation of feces and the blood pressure is high, two drops of croton oil or one quarter of a grain of elaterium may be placed on the tongue; or, if the patient can swallow, give one fluid drachm of saturated solution of sulphate of magnesia every two hours; or an enema if required. Always satisfy yourself by personal investigation as to whether the patient is able to swallow, and do not depend upon the statement of the nurse or attendant, for there is danger of producing a fatal aspiration pneumonia. Even if the patient is able to swallow, do not force food upon him. Ordinarily, he may with safety do without food for 24 to 48 hours. If necessary, food may be administered per rectum, and medicine either per rectum or subcutaneously. When there is great restlessness or delirium, or convulsions, chloral or hyoscine hydrobromate may be used. In alcoholists small doses of whiskey or brandy may be required. In mild cases, too much active treatment may prove harmful. Either the hemorrhage is so large that it is beyond the influence of treatment, or it is so small as to require no special measure. The presence or absence of chronic nephritis must always be taken into serious consideration.

When the apoplexy and paralysis are due to arterial thrombosis, it is associated with low blood pressure. Hence, the special plan of treatment is just the opposite to that for cerebral hemorrhage, although rest in bed and the same general management are essential. The blood pressure may be increased by saline rectal irrigation or hypodermoclysis, and the administration of caffeine, strychnine, or tincture of strophanthus.

A similar plan may be followed when the thrombotic softening is the result of an embolus, although other indications must be met in relation to the associated cardiac affection.

If syphilis is known to be the cause of the arterial disease, iodide of potassium or sodium should be given in doses of about five grains every three hours, in addition to mercurial inunction.

Nephritic patients may become hemiplegic during a uremic attack, as a result of vascular spasm or localized cerebral edema, the so-called uremic hemiplegia. Should this be accompanied by semi coma and convulsive seizures, it may often be materially alleviated by the withdrawal of 50 to 75 cc. of cerebrospinal fluid by lumbar puncture.

Bedsores over the sacrum and over the heels are not essential features of the malady, but are usually the result of carelessness and neglect. The position

of the patient must be frequently changed, and, either by a water-bed or by various mechanical devices, the points that are subjected to pressure must be protected. In rare cases the formation over the buttocks of a so-called bedsore, which is due to trophic changes, may occur despite the most careful vigilance.

Should consciousness be restored, and the vitality be maintained, the prognosis as to recovery from the paralysis depends upon a number of factors. The bloodclot, in interfering with the innervation through the pyramidal tract, may produce a complete hemiplegia, partly from pressure upon and partly from destruction of nerve fibers. The period of inflammatory reaction varies from ten days to two months. The fibres that are torn across never regenerate. Pressure upon others gradually subsides during the absorption of the clot, and their normal function is resumed. This most frequently occurs in the fibers going to the lower extremity. In many cases of hemorrhage spontaneous improvement may therefore be expected. On the other hand, in softening due to embolism or thrombosis, less improvement will follow, as a collateral circulation is never established when the area of softening is large enough to produce a complete hemiplegia lasting for several days.

The hemiplegia is always of the same general character, whether the cerebral lesion be due to hemorrhage, thrombosis, or embolism.

There is neither clinical nor experimental evidence to prove that we possess any drugs whose administration will hasten the absorption of the extravasated blood, or help to establish a collateral circulation in an area of softening, and thus relieve the patient of the immediate cause of his paralysis.

Recovery from hemiplegia will occur from any kind of lesion, if it be a small one. If the patient begins to move the arm the next day, he is likely to get well altogether. We cannot infer so much from early recovery of the leg, as this is very often not completely paralyzed at the outset, and we know that it frequently recovers when the arm remains paralyzed. It happens not infrequently that in mild cases of cerebral hemorrhage associated with hemiplegia, that the leg recovers within a few hours. When the patient is seen later, it may be incorrectly assumed that we are probably dealing with a cortical or subcortical lesion limited to the centers or fibers for the arm and face. The history of the onset and early progress will clear up any doubts. In such cases, there is a small hemorrhage either in the internal capsule or the corona radiata.

Before the patient is able to leave the bed, which is usually at the end of two or three weeks in favorable cases, much can be done by careful management and close attention to details to prevent unnecessary complications.

Furthermore, we must constantly bear in mind that central nerve fibers that have been torn across or broken up in any part of their course do not undergo regeneration, and that motility can not be restored in those parts which receive no motor impulses. We must not delude ourselves in the belief that we can cure the hemiplegia. As previously mentioned, a partial restoration of function usually takes place spontaneously, and need not be attributed to the treatment.

In this connection it will be of interest to call your attention to some of the clinical signs of the cerebral type of hemiplegia which are not usually observed nor their value recognized. Corresponding to the well-known fact that in the facial paralysis accompanying hemiplegia the orbital portion of the nerve is usually unaffected, a similar phenomenon may be observed in the upper extremity in the fibers of the spinal accessory nerve. This nerve divides into two branches—one supplying the sterno-cleido-mastoid muscle, and the other, the upper segment of the trapezius. As a rule, the branch to the sterno-cleido-mastoid escapes, while that supplying the trapezius is paralyzed. The latter paralysis manifests itself in the drooping of the shoulder while at rest. The paralysis in the lower extremity, which is usually neither complete nor permanent, also shows several characteristic peculiarities, which explains the fact that walking is still possible even in severe cases. In such patients, while in the supine position, one can demonstrate that active elevation of the extended leg to a certain height can still be accomplished, although feebly.

Dorsal flexion of the ankle joint is nearly or completely abolished, but plantar flexion can be performed with considerable force. In the prone position, the flexors of the knee joint are nearly or completely paralyzed, while the extensors show a well-marked or almost normal strength. Therefore, in hemiplegia the muscles which are especially important in locomotion are the ones that are the least affected.

While Nature aids us materially in the absorption of the clot, we must aid Nature in the care of the paralyzed limbs, which, if left to themselves, frequently undergo changes that will render them more or less useless. This is especially so in the upper extremity.

In the paralyzed arm, the shoulder joint being relaxed, arthritis is prone to develop and terminate in ankylosis, unless suitable measures are adopted. From the very beginning, the arm should be supported in a sling in order to prevent traction on the ligaments, and the shoulder joint be subjected to gentle passive movements several times daily. At the end of a week or ten days, the entire extremity should receive daily massage and pasive motion of all joints, the patient gradually being taught to make efforts at voluntary movement. The lower extremity should receive similar treatment. In this way, much can be accomplished toward preventing such an unnecessary complication and consequent increase of the disability. Neglect of this important precaution invariably results in the formation of adhesions and a stiff shoulder joint. In order to be efficient, this plan must be followed intelligently, systematically, and persistently.

Electricity, in the form of Faradism, should not be used until about four weeks after the onset of the attack, the strength of the current applied to the paralyzed muscles being just sufficient to produce slight but evident contractions. The applications are to be made every alternate day, the entire seance lasting from ten to fifteen minutes. Faradization keeps up the nutrition of the paralyzed muscles and improves the peripheral circulation. The same may also be accomplished by massage and volitional movements when possible. In view of the fact that the extensors in the upper extremity and the flexors in the lower extremity are the muscles usually paralyzed, our electrical and manual manipulations should be directed in greater part to these groups of muscles.

There is no proof that strychnine, glycerophosphates, or other so-called "nerve remedies" directly

influence the paralysis. Their use should be restricted to those cases in which they are indicated for improving the general health.

Rigidity of the limbs may be present at the very beginning of the attack, indicating excessive cerebral irritation or ventricular hemorrhage. When rigidity of the paralyzed limbs takes place as a late manifestation (*i.e.* several months later) and is accompanied by exaggerated knee-jerk, ankle clonus, and the Babinski plantar reflex on the paralyzed side, no further recovery need be expected, as secondary degeneration of the motor tract has taken place.

The treatment of the aphasic state associated with hemiplegia requires special educational methods.

Later, our efforts must be concentrated with a view to the prevention of another attack. This constitutes a prominent feature in the management at this stage. The first attack may prove conservative, inasmuch as it may lead the patient to follow instructions faithfully and thus prolong life.

It may now be asked upon what grounds are we enabled to infer a predisposition to cerebral hemorrhage, and what means are to be adopted for its prevention? (Some families exhibit such a predisposition, but this is usually an indirect result of the inherited tendency to arterial degeneration.) 1. From the history of a previous attack. 2. From the constitutional state which induces arterial degeneration, *i.e.* senility, chronic nephritis, rheumatism, gout, diabetes, syphilis, lead poisoning, etc. 3. From the presence of arterial degeneration itself, as manifested in the radial and temporal arteries by their rigidity and tortuosity. This evidence of arteriosclerosis is extremely suggestive, but is not positive proof of a similar condition of the cerebral vessels. It has recently been claimed that tortuosity and prominence of the temporal arteries are commonly due to the frequent pressure of a rigid hat band. As a matter of fact, however, many cases are on record in which post-mortem examination and careful microscopical investigation have shown normal cerebral vessels coexisting with degenerated temporal and radial arteries. The presence of retinal hemorrhages and ophthalmoscopic evidence of arteriosclerosis furnish indications of considerable value. They are extremely significant, inasmuch as they point to a state in which cerebral hemorrhage is most likely to occur. 4. From the presence of continuous high blood pressure (as determined by the radial pulse and the sphygmomanometer), chronic interstitial nephritis, and ventricular hypertrophy.

These are matters which demand painstaking investigation. In all cases of cerebral apoplexy, and in those patients with a manifest tendency thereto, the condition of the arterial system is a factor of cardinal importance. Too much emphasis can not be laid upon this point.

For several years I have used the Riva Rocci sphygmomanometer in estimating the systolic blood pressure. While the results of such examinations are not absolutely accurate, they are approximately correct, and clinically very valuable, being far more reliable in experienced hands than the customary tests of the pulse tension with the fingers. In the early stage of cerebral apoplexy it has proved a source of great satisfaction to me as an invaluable aid in differential diagnosis between hemorrhage and thrombosis, and thus indicating the most suitable plan of treatment. It is a useful adjunct during venesection.

We should never fail repeatedly to examine the urine, and satisfy ourselves as to the integrity of the heart and kidneys. In fact, every organ in the body should be examined.

Granting that the arterial degeneration is to a great extent irremediable, let us devote our attention to the regulation of the blood pressure and the avoidance of exciting causes of the arterial rupture.

Every patient should be impressed with the possible danger to which he is exposed while straining at stool, and be instructed to avoid conditions likely to produce sudden increase of arterial tension. In conjunction with the foregoing, the general plan which will be found appropriate in most cases is to regulate the diet, to diminish the amount of nitrogenous food, to keep the bowels free, to avoid excessive water drinking where there is high blood pressure, and to reduce high blood pressure by the use of salines or mercurials, nitroglycerine, the nitrites, aconite, or thyroid extract, and to give antisyphilitic remedies when necessary.

I have thus endeavored to briefly outline the proper plan to be adopted in the management of an unfortunate class of patients who tax our resources to the utmost. Much of our success in averting another attack will depend upon the intelligent cooperation, self-denial, and self-control of the patient.

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TUBERCULOSIS OF THE BREAST.*

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The intention of the paper is not to review the whole question, but simply to call the attention of the members of this association to certain aspects of the affection, clinical as well as therapeutical.

Tuberculosis of the mammæ is a rather rare affection. If we have noted it perhaps more frequently since some 25 years or so, it is because the attention of clinicians as well as pathologists has been drawn to certain inflammatory conditions of the breast, indolent in their evolution and particularly slow at healing.

Sir Astley Cooper in England, Velpeau in France, and Foerster in Germany seem to have been the first to signal out tuberculosis of the breast. But their affirmation was not sufficient in the eyes of the exclusive pathologists. Virchow, in his "Lehrbuch der Geschwulste," and Cornil and Ranvier, in the first edition of their "Manuel d'Histologie Pathologique," without refusing to admit the theoretical possibility of tuberculosis mammæ, said that there were no definite and true cases known. But here again clinical studies had preceded the microscope. Let us recognize that since that epoch, the latter has gradually come more and more to the front and that now-a-days both the clinician and the pathologist work harmoniously hand in hand.

Anyhow, opinions were unsettled on this point until Dubar in a thesis, proposed before the Paris Faculty in 1881, clearly proved tuberculosis of the breast to be a well defined pathological entity. Among the cases which have come under my observation, I shall briefly summarize the clinical his-

*Read before the Canadian Medical Association, at its annual meeting in Ottawa, 1908.

tory of two, which will serve as a basis for the conclusions I desire to propose.

Case I.—Miss H., 16 years old, comes to my clinic on account of trouble in the left breast which presented a small abscess on the point of bursting, altogether superficial, on the outer side of the nipple. It had grown gradually without causing any pain whatever. Some five cubic centimeters of pus were drawn from it. The microscopical examination revealed neither Koch bacilli nor streptococci nor staphylococci. On the same breast were two cicatrices of previous abscesses, which had similarly begun by a nodule, enlarging gradually and later on softening into a small pus collection, which had opened by itself, all this time causing no pain whatever. On the right breast was an old cicatrix, and presently an ulcerated surface as large as a five-cent piece. Both were weeks and weeks before healing and scarcely had the one on the left breast healed when a new one formed near the nipple and like its sister abscesses was particularly slow at healing. The general state of health was always excellent. To-day, two years later, the young lady, particularly well developed for her age, is in excellent health. The cicatrices show well but are not adherent to the gland, save the one in the neighborhood of the nipple, which has been drawn in.*

Case II.—Miss C., 20 years old, came to me in 1906 on account of an ulceration in her right breast, cough, and lately hemoptysis. Some weeks previously a nodule appeared which grew larger, then softened, and finally without having caused pain an abscess opened spontaneously. Microscopical examination of the secretion from the ulcerated surface showed strepticocci and staphylococci. The ulcer was many weeks before healing. A year later later she came back having had one attack of slight hemoptysis. Presently, anemia appeared and signs of infiltration in the left subclavicular region. Since then the patient has been lost sight of.†

Are these two cases typical ones? Of course objection can come from the fact that the Koch bacillus was not found. Let us first see if such is usually the case. What we can gather from the published clinical observations on the subject leads us to a negative conclusion. Reverdin reports that von Bruns found the bacillus in two cases; but it is impossible to trace up these observations. Anyhow in these two cases of mine, the clinical history is typical of the disease. Both were young girls, perfect personal cleanliness, no anterior infection save tuberculosis, concomitant tuberculosis of the lung in one of them, the painless evolution of the affection, the absolutely torpid character of these ulcerations, their aspect, their long time in healing; all lead to the conclusion of tuberculosis mammæ.

Let us see if tuberculosis of the breast is exclusively met with in women? No. There are cases, very few indeed, of tuberculosis mammæ in man. Such for example was a case of Mayor, reported by Poirier (in *Archives générales de médecine*, 1882) and a case reported by Delbet (in "Traité de chirurgie," Duplay at Reclus, I edit, vol. V).

As for the age, we can infer from the cases reported, that this affection is unknown before puberty, that it is very rare after fifty, that its greater frequency is between the ages of 20 and 30.

And how does the bacillus tuberculosis gain entrance to the breast? In three different ways: (1) By way of the nipple and its lactiferous ducts, as Verneuil claims; (2) by way of the lymphatics and then again secondarily to a neighboring lesion of the pleura, ribs, or glands; finally (3) by way of the blood-vessels, as Orthmann pretends. All of which goes to say that tuberculosis mammæ may be primary or secondary.

Out of 26 cases analysed, the mammary or corresponding axillary lesion was the sole one in 12 cases; 10 had simultaneously pulmonary lesions, and 4 other tuberculous lesions. In two of my cases there were pulmonary complications.

And now what about local predisposing causes?—that means inquiring if anterior mastitis or a trauma may bring about a local development of tuberculosis. A traumatism, affecting a patient already tuberculous, might be an exciting cause; but if the wounded is not already tuberculous, it seems to be without any effect. As for mastitis, let us remark that such a coincidence has often been noted, but at the same time I must insist on the fact that tuberculosis mammæ seems more frequent in unmarried young women.

Should we now look into the clinical aspects of this affection, we would infer the following conclusions from the cases which have come under our observation and those reported. Tuberculosis mammæ presents itself under one of these three aspects. In the first case the tuberculous foci are localized under the skin and very superficially. The nodules are generally indolent and painless, and, as they enlarge, usually soften. Soon a fluctuating area makes itself evident. If such purulent collection is not properly attended to, the skin soon becomes reddish and thin and the abscess bursts spontaneously. Such was the case with a patient of Poirier, one of Orthmann, and one of Kramer.

Now again—and these are the most frequent cases met with—the tuberculous foci are deep seated and it is only by chance that the patient discovers one or more nodules in the breast. The following is a typical case of this class: Miss C., 28 years old, came to me on account of a mass noticed in her right breast. Painless at the beginning, it had gradually grown to be, if not painful, at least troublesome. On examination I found a nodule about the size of the yelk of an egg and hard. Toward the axilla two other nodules, small and hard, which had been noticed only lately. Nothing in the armpit. Temperature, 99.2°. Pulse, 80 to 85. The patient is anemic and pale and has lost flesh lately. An incipient costosternal periostitis is present on the right side. There is an infiltration at the apices of both lungs. These nodules gradually evolve toward abscess formation in one focus, or secondary nodules appear, each giving rise to as many so-called cold abscesses, which may coalesce into one large cavity or develop independently.

Then again in a third variety of cases, the bacillus is localized primarily in the neighboring glands—axillary or more generally pectoral. This tuberculous adenitis may exist for a long time, even years, before involvement of the mamma.

It is in this category of lymphoglandular origin that I would place three other young patients who came under my care: Eva P., 17 (1905); Albina F., 29 (1907); Cleo L., 13 (1907), all single, who had developed primary pectoral adenitis, one of

*Four months later the patient presented a deep-seated nodule in the right breast, giving rise to no pain. Her general state of health was excellent.

†The patient has been seen lately, since the above was written; she is in excellent health. The breast is definitely healed and cured.

them showing later on a secondary polyadenitis of the axilla; and these glands were tuberculous. The first patient, who then showed signs of incipient tuberculosis of the lung, is now, as reported by her attending physician, in an excellent state of health and is apparently cured of her pectoral fistulæ which were a very long time at healing. Excision and cauterization were done in all of these cases.

As for treatment, three ways of dealing are at our disposal: (1) To treat these cold abscesses of the breast as we do those of similar nature elsewhere, that is: evacuating by aspiration, with the strictest of aspetic precautions, and then injecting into the pouch a modifying liquid, either iodoform-glycerin or ether, or one of Calot's mixtures, viz., iodoform and creosote with ether and oil; (2) to open, cauterize, and drain; (3) or else again—and this a more radical treatment—to excise the whole of the breast and clean out the axilla. Da Costa and Keen, Kümmel and von Bergmann, von Bruns, Delbet, all advise excision *in toto,* claiming from experience far better results through this radical procedure. Nevertheless we hesitate to accept such a radical suggestion for all cases. For there are cases in which the patient comes to us with only small abscesses, as well localized as superficial, subcutaneous ones, without the least glandular reaction, where to excise at once the whole organ seems to us a rather hasty procedure.

I now close this paper with this proposition: If excision of the breast and cleansing of the axilla is the treatment of choice in a large number of cases of tuberculosis of the breast, there are also cases with superficial and subcutaneous localization but no lymphatic reaction, in which evacuation by aspiration and injection of a modifying fluid, or else cauterization with the thermocautery, ought to be used, before making the more radical operation of excision of the breast.

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ACHYLIA GASTRICA VERSUS INSUFFICIENTIA PYLORI.

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We have here to consider whether achylia gastrica is a disease, whether it exists at all, or whether the clinical picture represented by achylia gastrica should be recognized as insufficiency of the pylorus. In accordance with my researches, now supported by other evidence, the medical profession should drop the term achylia and substitute for it insufficientia pylori. As in medicine generally, so here also, the name is more than a mere denomination. I ask for this change because the term achylia not only confuses as to the actual underlying cause, but because it implies facts and conditions of the stomach which do not exist. Einhorn defines achylia as "the absolute cessation of all gastric secretion," a definition which not only is not warranted but is grossly misleading. For, with the condition of the absence of all gastric functions in our mind any therapy becomes a sort of placebo and the patient is permitted to drift along as best he can, and he usually drifts from bad to worse. If, however, the profession accept my teaching that the identical clinical picture which is taught as being achylia is in reality due to insufficiency of the pylorus, then an excellent prognosis is offered in lieu of the gloomy outlook achylia implies. The practitioner is offered this selection: Achylia, with the uncertain and rather bad prognosis or insufficientia pylori which is not only of excellent prognosis but is capable of speedy improvement, manifestations of improvement appearing often within 48 hours. It is, therefore, not an academic question to substitute insufficientia pylori for achylia gastrica, but it is of the utmost necessity to recognize the true condition. My statements are very bold, indeed, but true. Especially in diseases of the gastrointestinal canal the true diagnosis is of so much importance. It is one thing to assume the existence of an atrophy of the mucosa and it is quite another to be absolutely certain that such an assumption is chimerical and founded on insufficient investigation. True, atrophy of the gastric mucosa exists, but the clinical picture we are called upon to interpret as due to atrophy is not so caused. Naturally, we treat according to the diagnosis made. Fallacious diagnosis, fallacious treatment. When by reason of the diagnosis of achylia gastrica we assume a desiccation, as it were, of the gastric mucosa the line of treatment will of necessity differ from the treatment we must adopt when we know that the cause of the trouble is altogether something else. Insufficiency of the pylorus

means that for some reason or another the pylorus cannot close tightly, as it normally should, and because of such inability the food passes on into the intestines sooner than it should. Quite often, in old protracted cases, the food seems to drop right into the intestines without remaining in the stomach for any time at all. Such conditions prevailing, it is self-evident that no food can be aspirated at the usual time of one hour after the test breakfast, or only a trace of food according to the degree of the relaxation of the pylorus. In order to explain this absence of food and the slightly acid, or more often, the alkaline or neutral reaction, the teaching of achylia gastrica assumes the operation and coexistence of two contradictory, diametrically opposed conditions. The absence of food is explained as due to hyperkinesis of the muscularis, and the absence of gastric digestion is ascribed to the atrophic condition of the mucosa. The fact that the stomachs of the so-called achylics very seldom show any organic changes does not bother the believers in achylia gastrica. There is no food in the stomach—cause, the working overtime of the muscularis; there is no acidity in the stomach—cause, atrophic condition. Could we not lead this thought to some more logical conclusion and argue: One has a hemorrhage—cause, there is too much blood; one has chills—cause, he ate too much ice cream? How simple medicine would become. Achylia gastrica forces us to recognize the synchronous presence of hypermotility, which is an excessive physiological action with atrophy, which means no physiological action at all. Could we only induce the stomach of the patient to become atrophic, just to oblige us and to justify our diagnosis, we might stretch a point just for the sake of good comradeship, as to the real existence of hypermotility. But the trouble is, the stomach is obdurate and fails to be won over, and persists in remaining absolutely normal in almost every case. Of course, achylia teaches that the hypermotility of the muscularis is only to compensate for the atrophy of the mucosa, a sort of *manus manum lavat;* on the principle "one good turn deserves another."

When in 1902 (*Philadelphia Medical Journal,* May 24, 1902) I described for the first time insufficientia pylori as a sequela of chronic gastritis I assumed the presence of this condition from the facts that presented themselves, and which I had learned to diagnose as achylia. At that time I had no anatomical evidence to prove the correctness of my contention. I argued that if the selfsame stomach which showed absence of food and digestion acidities one day, an hour after the test breakfast, did show perfectly normal conditions the following day when, instead of waiting with the aspiration one full hour I only waited half the time, I could hardly admit the existence of an atrophic condition of the mucosa, I could not help concluding that the supposed atrophy was imagination. The next thing I had to do was to find an explanation for the absence of food at a later time. This is the conclusion I reached.

Anatomically, the pylorus is the lowest part of the stomach when the person is either standing or sitting. Hence all food and drink, following the natural laws of gravity, fall to the lowest level, to the pylorus. Normally, the pylorus closes on the introduction of food or drink into the stomach and opens at certain intervals. During these intervals portions of food are projected into the duodenum. It is necessary that the physician fully understand this mechanism. Neither the closing nor the opening is effected by any other agency or influence than the normal peristalsis. Active peristalsis closes, passive peristalsis, the relaxation, the recoil after the contraction, opens the pylorus. Inasmuch as to open denotes an active condition, and the opening of the pylorus is not due to active participation in the work by the muscularis, we really are not entitled to say that the pylorus opens, but rather that the pylorus relaxes. I have already explained in former articles why and how peristalsis closes the pylorus, and will here repeat that the peristaltic wave, striking the narrow pylorus, causes the muscularis of the pylorus to contract just as it does that of the body of the stomach. The selfsame amplitude of contraction which diminishes the diameter of the stomach cavity diminishes also the diameter of the pylorus. But, owing to the fact that the diameter of the pylorus is only a small fraction of that of the body of the stomach, and that the lumen of the pylorus is only about a quarter of an inch wide, but little contraction is sufficient to close it entirely. If, for some reason or other, the pylorus is incapable of contraction, if it remains open, any food or drink taken into the stomach will escape into the intestines because of mere gravity. Now the question is: is there such a thing as the incapability of the pylorus to contract? This question is answered in the affirmative in my first article. (Lest I be misunderstood, I refer to the insufficiency of the pylorus as a sequel of chronic pyloritis. I have cited Ebstein's case of insufficiency and also the insufficiency assumed to be caused by some nervous derangement.) The premises I started from were the assumption that at some previous time there was an overactivity of the pylorus, an overcontraction, which means that at some previous time the pylorus, excited too strongly, responded with either too violent or too prolonged contraction; hence a too violent or a too prolonged occlusion of the pylorus. For the time being such occlusion acts and has the effect of a stenosis, and I termed it "stenosis pylori ab irritatione." Such a stenotic condition may, and very often does, occur in the very first days of our lives, produced either by improper feeding or by improper food. Undoubtedly such a stenosis in such early days will produce a coalescence of the mucous membranes of the opposing surfaces and the stenosis becomes real, organic, fatal. How many of the so-called congenital stenoses really have such an origin is hard to maintain; but unquestionably a great many belong in this class. The oft repeated and prolonged irritation of the gastric mucosa causes oft repeated and prolonged stenosis of the pylorus. The consequence of this is the gradual weakening of the muscle of the pylorus, analogous to the weakening of the muscles in any other part of the body following overexertion. The pylorus tires from overactivity, if I may use such a phrase. The passing of a previous stenosis into a subsequent insufficiency is well known to medicine. So that, if a preexisting stenosis can be proved the assumption of the succeeding insufficiency follows as a matter of course. There is no doubt now as to the existence of a benign stenosis of the pylorus, more correctly to be called 'stenosis pylori ab irritatione." Clinically, the stenosis is evidenced by pain or even cramps in the region of the pylorus and the trained hand will feel the contracted pylorus; the examination of the test meal yields a large quantity of chyme which separates on standing into two layers: a very fine, "floury" lay-

er at the bottom and a thin fluid over it. As soon as the pylorus begins to weaken the just mentioned symptoms show gradual abatement. The pain is lessened, smaller quantities are aspirated, and the aspirated chyme becomes less floury and more coarse, its appearance becomes "spongy." The once stenotic pylorus may finally become so insufficient that the stomach can hold nothing at all. The transition from stenosis to complete insufficiency is usually very gradual; gradually the pylorus weakens more and more. When, one hour after the test meal has been eaten, the aspiration yields only one or two c.c. of a coarse chyme, usually imbedded in mucus, the diagnosis of insufficiency of the pylorus is justified. The degree of the insufficiency must be ascertained by repeated test-meal examinations on succeeding days. Every day we shorten the time of waiting for the aspiration by 15 minutes. So that the first day we wait one hour, the following day only three-quarters of an hour, then only half an hour, then 15 minutes. If this last examination is unsuccessful, the patient is put on his back for 15 minutes after the test meal the following day and, if this test prove again unsuccessful, the patient is given a coffee test meal the next day and again one waits only 15 minutes. This coffee test meal consists of 200 c.c. (not 300 c.c., as in the usual test meal) of black coffee and 35 grams of roll. If there is any contractility left the black coffee will excite it. This is now my routine method. The black coffee test meal is my last resort. The knowledge arrived at by these repeated test meals is very important not only for prognosis but especially for treatment. As the treatment is alkaline we must be sure of the degree of the insufficiency so that we do not give the alkalies too soon after eating, thus destroying whatever stomach digestion there may be left. If, on the other hand, we give the alkalies late enough, we permit a certain amount of the ingested matter to pass into the intestine where a certain amount of decomposition takes place before the alkalies have reached it. The alkalies must be given at a time when the stomach is ascertained to be empty.

If the stomach of the selfsame patient shows one day the clinical picture of achylia and the following day yields a good quantity of chyme and digestion acidities (when the aspiration is performed half an hour earlier than the day before) the condition of atrophy of the mucosa of the stomach can never be assumed. How can the stomach be atrophic one day and be perfectly normal the succeeding day? If there is atrophy of the mucosa, that atrophy is there whether we aspirate one hour after eating or whether we aspirate 15 minutes after eating. True, Einhorn speaks of some cases that showed achylia for some years and then bestirred themselves and apparently regenerated the mucosa of their stomachs, which then showed good digestion. But, at least years are made to elapse between the atrophy and the regeneration. Or have the stomachs of my patients, just for my delectation, played hide and seek with me, now I digest and now I don't? If there were atrophy the day before, whence came the good gastric secretion the day following? To be sure, I had not decided the question whether this was insufficiency or achylia until I had made sufficient examinations on a number of patients.

The fact that I could aspirate some contents if the patient lay on his left side, when there had been no contents the day before when the patient was in the usual sitting posture, shows that the posture had a decided influence. One, surely, would not dare assert that the "hypermotility" which is made to explain the absence of the chyme in the stomach operated only in certain positions of the body. My intention in changing the position of the body is to change the lowest point of the stomach. In the sitting and standing posture the pylorus is the lowest, but when one lies on his left side the lowest point of the stomach is shifted to the fundus. Therefore the ingesta gravitate to the fundus in the last mentioned position, but they do gravitate past an open pylorus in the normal sitting or standing position. We have in this change of position a positive proof of the operation of the purely physical principle of gravitation in an open pylorus. This fact must be impressed on the physicians that the mere change in the posture produces a vital change in the gastric manifestations. Sitting or standing, the picture of achylia, lying down, and there is evidence of digestion. It is hardly conceivable that the gastric mucosa, atrophic in one position of the body, magically regains the lost glands if the posture of the patient be changed.

The proper recognition of insufficientia pylori, as a true and an existing condition—not as an occasional nervous phenomenon—does not involve solely a question of diagnosis; it involves more, it involves the question of whether or not the patient is to be cured. With the diagnosis of achylia gastrica we grope around in the dark and try to catch at anything in the vain hope of doing something good. In insufficientia pylori the road is not only definitely marked out, but it leads to absolute and speedy cure.

As stated before, I arrived at the conclusion regarding the existence of insufficientia pylori after uninterrupted failures in my attempts to cure the patients of achylia. It was then that I decided to explore the condition of the stomach more thoroughly and at a time less than one hour after the eating of the test meal. Rather, it was curiosity, experimentation, without any idea of what I might find. Only after I had obtained good chyme half an hour after the eating of the test meal, while the day before the same patient gave the unequivocal picture of achylia gastrica, and after I had obtained the same results in many other cases, was it that I rejected achylia gastrica with all its teaching. Achylia gastrica does not exist although there are isolated and rare cases of atrophy of the gastric mucosa. Insufficientia pylori is mistaken for any of the grave chronic diseases—tuberculosis, heart disease, diabetes, cancer, etc. Imagine the case of a patient presumed to be affected with any of these diseases of unfavorable prognosis being not only benefited, but actually cured in a few weeks, and this, irrespective of how long the suffering had continued. The almost instant and favorable response to the proper treatment of insufficientia pylori is little short of the miraculous; the nagging and gnawing symptoms of many years' standing show marked abatement often in less than 48 hours; this without the use of any of the narcotics or other pain-quieting remedies.

The illogical acceptation of the coexistence of atrophy and hypertrophy of the same organ at the same time should not be tolerated in medicine. The picture of achylia presents apparent absence of gastric secretion and absence of chyme. The first is explained as caused by atrophy of the mucosa and the latter as produced by an overaction, overmotility of the muscularis. The coexistence of such con-

trary conditions is assumed not because of any positive proof, but because of the inability to account for the symptoms in any other way. That the numerous operations speak against such theories, that the many autopsies do not prove the existence of any atrophy, is not taken into consideration.

Insufficientia pylori has had to stand the test of time. Even if there appeared isolated supporters of my teaching the whole question was a matter of inference until the appearance of Moullin's article ("Pyloric Stenosis and the Conditions of the Pylorus During Life," *Lancet*, January 19, 1907). Moullin tells us that he has made it a practice to examine the condition of the pylorus whenever the opportunity presented itself during laparotomies. He writes: 'For some time past, whenever I had occasion to open the abdomen for the purpose of operating upon the stomach, I have made it a practice to examine the pylorus as thoroughly as I could . . . the pylorus . . . while it was fixed with the left hand the index finger of the right hand was made to invaginate the wall of the stomach some way off and was pressed against, or where it was possible without using undue force, pushed into the pylorus . . . In those cases in which the stomach was opened the examination was afterward completed with the finger in the interior. . . . From the interior of the stomach the pylorus feels like a round opening with well defined edges which just admit the tip of the forefinger. . . . I found that the size of the pylorus varied from that of a channel which could easily admit three fingers with the invaginated wall of the stomach around them to that of a tiny orifice which could scarcely be felt. The former was in a patient who was suffering from general enteroptosis . . . the pylorus was so indefinite that it was difficult to find, the sphincter could scarcely be felt, and the stomach and intestines seemed to form one continuous canal without a break." It seems to me that these notes on the finding of actual conditions remove once and for all any doubts as to the existence of the disease as described by me five years before the appearance of Moullin's article. Insufficientia pylori is no more a hypothesis but an actuality, an absolutely existing condition. Boardman Reed has this to say in his book on "Diseases of the Stomach and Intestine," page 868: "When pyloric incontinence exists in the absence of any mechanical cause for it, the more plausible explanation seems to be the one championed by Knapp, viz., that the muscle has become exhausted by long overaction." That we may not be misled by thinking that under complete anesthesia there must be also a relaxation of the sphincter we have this from Moullin: "Tonic contraction . . . which does not entirely disappear from involuntary muscles, even when the reflexes are abolished." Also, Moullin found the pylorus in every degree of contraction under the identical conditions of complete general anesthesia. Hence general anesthesia does not cause a relaxation of the pyloric sphincter.

The remarks here made are intended not only to establish the existence of the disease, insufficientia pylori, as I originally described it, but also to prove the fallacy of achylia gastrica. Let the reader bear in mind the extreme importance of the diagnosis of insufficientia pylori. Let the reader bear in mind that insufficientia pylori may masquerade as tuberculosis, as a cancer hidden somewhere, as neurasthenia, etc. Let the reader bear in mind that the diagnosis of a fatal disease invariably leads to a fatal prognosis and that this again, most likely, to a fatal issue because of improper medication. Let the reader bear in mind that insufficientia pylori is the natural sequel of chronic pyloritis (incorrectly and commonly known as chronic gastritis). Let the reader bear in mind that, as such natural sequel, insufficientia pylori is one of the most common diseases. Let the reader bear in mind that no matter how long the patients suffered—and I have had patients who suffered for over 40 years—the patients do get well and are completely cured under the appropriate treatment for insufficientia pylori in an almost miraculously short time. Let the reader bear in mind that achylia gastrica has been born of an insufficient conception. Let the reader bear in mind that there is no such thing as achylia gastrica

616 Madison Avenue.

Bradycardia in Appendicitis in Children.—The Budapest correspondent of the *Lancet* draws attention to the importance of bradycardia in children suffering from appendicitis. This symptom has not been dealt with as yet; in the literature of the subject there is only one memoir referring to bradycardia in appendicitis, and in it only adults are considered. Professor Bókay draws the following conclusions from an experience of ten cases treated successfully. 1. During the absorption of the periappendicular exudation bradycardia sets in almost regularly and persists for many days; it may even last for more than a fortnight. 2. Bradycardia may also be observed after an appendicular abscess has been evacuated by an operation. 3. In children between the ages of seven and 16 years the pulse rate ranged from 52 to 80. 4. There is no parallelism whatever between the pulse-rate and the temperature. 5. Bradycardia cannot be regarded as an unfavorable sign from the point of view of prognosis; on the contrary, in cases of periappendicular exudation it is a sign of the commencement of the process of absorption. In all the ten cases observed by Professor Bókay the bradycardia must have been of extracardia, *i.e.*, nervous, origin, because organic heart disease could be excluded. He was therefore justified in assuming that the essential cause was irritation of the vagus, probably due to the absorption of toxins from the periappendicular exudation.—*The Lancet.*

A Series of Thirteen Pylorectomies.—G. Faysse describes a series of thirteen pylorectomies performed by him recently. He gives histories of these cases, and follows them by his conclusions as to the value of the operation. It is not always possible in appropriate cases to find a distinct tumor in the stomach or intestine. Absence of vomiting does not assure us of permeability of the pylorus. In all cases at the age of fifty, without past digestive troubles, with loss of flesh and gastric pain an exploratory laparotomy is justifiable. The chemical history of the gastric juice cannot be relied upon for diagnosis. The mobility of the pylorus is the criterion as to appropriateness for operation. If it is movable resection is in order. Any serious adhesion to the pancreas contraindicates it. The enlargement of the lymphatics may be purely inflammatory. Out of thirteen operations the microscopic examination showed ten to be malignant growths; three were benign. There was always thickening of the walls, ulceration of the stomach mucous membrane, and absence of this in the duodenum. Three patients died: one after a long and difficult operation and prolonged anesthesia; one operated on too late and in bad general condition; one of purulent pleurisy. Five of those who survived operation are dead from recurrence of the growth. Five are still alive.—*Archives Provinciales de Chirurgie.*

The Ganglionic Nervous System of the Human Uterus.—M. Kieffer has made an examination of the nervous system of an infant two months old as to the ganglions of the uterus and vagina, thus confirming the observations made by him on the uterus of the dog some years ago. He finds in the walls of the uterus and vagina a chain of ganglia of the sympathetic comparable to the other ganglia of the sympathetic system. These ganglia are well defined and he has been able to demonstrate multipolar cells in the ganglia. He has not demonstrated single isolated cells or masses of cells as were seen in the dog.—*Bulletin de la Société d'Obstetrique de Paris.*

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THE PULMONARY APICES AND TUBERCULOUS INFECTION.

THE frequency with which tuberculosis of the lungs begins in the pulmonary apices has called forth numberless theories in explanation of the fact. That a general predisposition of the apical portions of the lungs to tuberculous infection exists in all individuals has been claimed by some observers, but the absence of universal tuberculous infection of the lungs disproves the correctness of this view. Other observers have searched for some slight differences between the apices of tuberculous subjects and normal individuals, and one such difference discovered many years ago by Freund consists in the presence of a partial stenosis of the upper aperture of the chest caused by abnormal shortness of the upper ribs.

Of late a number of other workers have taken up this theory and among them Carl Hart who writes on this aspect of predisposition to tuberculosis in the *Münchener medizinische Wochenschrift* for January 19, 1909. In addition to the abnormal shortness of the upper ribs Hart has found in such ribs premature ossification combined with rudimentary development, all of which lead to interference with the ventilation of the apices by the respiratory movements of the chest. These deformities lead, namely, to the formation of acute angles in the direction of the bronchi leading to the pulmonary apices and predispose likewise to stagnation of expired air in the regions of the apices; they enable thus the inspired bacilli to settle in a part of the lung tissue diminished in its natural power of defense against infection. One very strong point in favor of the truth of this theory is given by the circumstances usually attending the occurrence of tuberculosis in other portions of the lung than the apices; in such cases there is frequently the history of quite another predisposing moment, such as trauma or diabetes, which has exposed to infection an individual who otherwise would not have been attacked by the disease. Still further argument in the same direction is the well-known frequency with which tuberculosis of the lungs in infants begins in the central portions of the lungs about the hilus while the apical regions are spared. Hart correctly states that stenosis of the upper thoracic aperture does not exist in children in whom all the ribs are still growing in length; in them the infection that may have been carried to the lungs by the inspired air, by the lymph channels, or by the blood finds the most favorable site about the least expansile portions of the lung in the region of the hilus near the large bronchial glands that often serve as the primary foci of the disease. The increase in the frequency of tuberculous infection of the apices that is noticed in the fourth to sixth decade of life may be explained by the interference in the ventilation of the pulmonary apices caused this time not by abnormalities of the ribs but by the beginning senile rigidity of the chest walls that produces a like effect.

Hart's studies lead him to conclude that the prevention as well as the cure of incipient tuberculosis depends a great deal upon the realization of this congenital or acquired predisposition of the apices to the infection; whether operative interference with the upper ribs or more conservative attempts to overcome the effects of the deformity by proper respiratory gymnastics, etc., are the best means to nullify such predisposition, remains to be shown by future observations.

THE PASSING OF SUPERALIMENTATION IN TUBERCULOSIS.

UP to within a comparatively recent period, forced feeding was regarded as perhaps the most important element of the therapeutic tripod in tuberculosis; and even to-day many practitioners regard it as a triumph of good management if they can get two quarts of milk and half a dozen raw eggs into a stomach which is already laboring with the disposition of three or four hearty meat meals a day. The laity, always slow to unlearn hygienic errors, continue almost without exception to overfeed the phthisical, and resent, as opposed to logic and common sense, the most modern teaching that a surfeit of protein weakens the patient and favors the progress of the disease.

The origin of this practice of stuffing the tuberculous is not hard to trace. The foundation of it was the fallacy, not yet fully recognized as such, that the more food a man eats, especially the more protein he swallows, the better nourished he must of necessity be. Another fallacy which gave support to the practice was the belief that a fat man is a healthy man. The observation that tuberculosis is a disease preeminently of the herbivora and that carnivora seem to be immune, was also a factor in establishing the therapeutic doctrine of overfeeding with flesh meat. Finally it was a matter of frequent observation that when, by open-air treatment or good management in other ways, the appetite and digestion of the tuberculous were bettered so that they were able to take sufficient food, an improvement often followed in their general and local condition. Then with the illogicality of the dispensary patient it was argued that if a little food was a good thing, a lot of food must be better. The example of the Strasburg geese, with their diseased livers beloved of short-lived gourmands, was forgotten or ignored. Such an easy and logical prescription as to force food on the poorly nourished impressed physician and patient alike and an eager striving after fatness was begun. The plan was put in execution in hos-

pitals and sanatoria and was copied by physicians and the laity in private life, and much increase of suffering resulted therefrom.

Superalimentation rests upon fallacious theories, and in practice is productive of great harm. Set a theory to kill a theory, however. One of the most popular and appealing theories favored by the medical practitioner of to-day is that of autointoxication, especially intestinal autointoxication, as a cause of disease and of a lowering of the resisting power of the individual. But adherence to this doctrine is obviously incompatible with a belief in the restorative effect of overfeeding. It is plain that one cannot stuff the alimentary canal with great quantities of putrescible proteins without danger of absorption of the poisonous products of intestinal putrefaction. As a matter of fact the fever is often increased by the eating of great quantities of meat or of eggs, and indeed it sometimes appears to be caused by that alone. The digestion is also taxed to the utmost, intestinal disorders are frequent, and hepatic congestion may be pronounced. Another and very real danger of superalimentation is kidney disease, and biliary and renal lithiasis, diabetes, and various cutaneous disorders are common results of an excessive flesh diet. To sum up, in the words of Labbé in a recent article in the *Medical Press*, "excessive nourishment, especially in the shape of meat, is apt to give rise to a whole series of disturbances, some mild, some grave, some early, some late. The practitioner should be on the lookout for these, so as to combat them at the onset. They may be recognized by certain symptoms. The facies is florid, and often somewhat flushed, and there is a tendency to varicose veins; the breath is foul, presenting a characteristic odor recalling that of the breath of carnivorous animals; the tongue is coated with yellowish fur; digestion is labored, and is accompanied by a feeling of weight, by epigastric distention, and somnolence. The urine has a strong odor, and is dark in color. Lastly, albumin is often present." Such patients are prone to suffer from elevation of temperature, sometimes of a hectic character, which is wrongly attributed to overexertion, and rest is counseled with the result that the evil effects of the excessive meat diet are increased many fold.

Fortunately the evils of overfeeding in tuberculosis are now recognized by the majority of therapeutists, and most modern authorities recommend caution in this respect. The patient is no longer told to eat all he can and then a little more, but the diet prescription is now, or should be, as carefully thought out as that for climate or drugs. If the patient is of normal weight or even a little under it, and is not losing flesh, his diet is evidently sufficient for his needs and nothing is to be gained by increasing it. If he is over weight and still gaining, the diet should be reduced, for an undue amount of adipose tissue is of no advantage to the tuberculous. If there is rapid loss of flesh, in spite of a full dietary, nothing is to be gained by adding to the amount of food, but the cause of the disordered metabolism must be looked for with a view to its correction if possible. Of course if there is anorexia or indigestion the problem of the physician will be to provide for better nutrition by stimulating the appetite and promoting digestion. But with the increase of food there should be no disproportionate increase of proteins. The evil of the past has been a protein surfeit.

POST-GRADUATE INSTRUCTION IN OTO-LARYNGOLOGY.

In the latest issue of the *Laryngoscope* this subject is discussed by Dr. George E. Shambaugh of Chicago, who makes a plea for a higher standard of instruction than has yet been reached, or at least insisted on, in our post-graduate institutions. They have, he says, filled a useful place, but like the proprietary medical schools their period of usefulness has largely disappeared. The time has passed when a practitioner should drop his general work for which his medical training has prepared him and limit his practice to a special field with no other preparation than a few weeks' attendance at a post-graduate school or a short trip abroad. The writer incidentally condemns the practice of some general surgeons in operating on the mastoid for the relief of complications arising in the course of chronic suppurative otitis media. He might just as well assume to be his patient's dentist. No one should operate on the ear unless he has given to the study of its anatomy the time and attention which only the well trained specialist has done.

The author insists that the time is ripe for a revolutionary change in our attitude toward the preparation of the specialist. One of the most urgent problems in medical instruction to-day is the establishing of courses which will properly equip men for special practice. The anatomy, physiology, and pathology of a specialty must be the foundation stone of such instruction. These subjects must be thoroughly mastered before clinical study can be profitably undertaken. We have at present, Shambaugh insists, no provision for work of this kind. Our post-graduate institutions give but a smattering of clinical instruction, and often it is not as thorough as the work in special fields now being required in our leading undergraduate schools. Adequate courses can be given, he adds, only in our large schools with university connections and ample laboratory facilities.

Long ago Burke taught us the impossibility of indicting a whole nation, and the principle of this aphorism is not without its application here. We believe it possible for such ideal instruction as that outlined in the writer's argument, with the main ideas of which we fully agree, to be obtained in more than one institution in America. The trouble is more with the student who seeks the short cut to knowledge. The first specialists did not have the advantage of those of the present time. They were in a sense self-made men who had a splendid ground work of general medical information and experience, and who knew how to study, and with their meagre facilities they accomplished most commendable results. It would doubtless be found that they did just what is advised by Dr. Shambaugh—

studied as best they might special anatomy, physiology, and pathology. The part is not greater than the whole, and no ideal specialist can be made who has not had some general practice. No one should take up a specialty without at least having served in a large hospital. On this foundation his special studies may properly begin.

We need a better systematization of facilities in many of our institutions, so that a man may the better conserve his time and energies. Most of all, we need on the part of the post-graduate student a clear conception of what he has come to the post-graduate institution for. There are many attractions here and there which will but divert his energies, and he needs a greater power of concentration than the average man possesses. Hence, while there are scattered over the country men who limit their work to this or that field of medicine, there are but few well grounded specialists, according to the ideals of the writer whom we have quoted. But he has done well in calling our attention to our pedagogical weaknesses.

Fatty Degeneration of Organs.

Long ago the father of modern pathology, Rudolph Virchow, taught that the fatty changes in the parenchyma of organs may be due either to the degeneration of the cells and their transformation into fat or to their infiltration by fat brought from elsewhere in the body. In an article in the *Berliner klinische Wochenschrift* for January 21, 1909, Dr. G. Klemperer discusses this view in regard to one organ, the kidney, and shows that the views of Virchow must undergo a serious modification in the light of the results obtained by modern chemical methods. Thus Rosenfeld has shown that the degeneration of cells into fat does not take place in any such manner as suggested by Virchow; he succeeded in producing fatty changes in the liver after feeding dogs for a long time on mutton fat. The fatty substance found in the degenerated cells of the organ proved to be this foreign fat brought from other parts of the body. The occurrence of fatty changes observed in the spontaneous autolysis of organs removed from the body seems to oppose these findings, but Kraus has quite recently shown that the amount of fat in the organs after such an autolysis is in reality less than previously, which fact excludes, of course, the possibility of the appearances noted above being due to fatty degeneration of cells. Klemperer took the trouble to obtain a perfectly normal kidney and estimate its normal fat content. Like examination of diseased kidneys showed that the appearances that are usually regarded as fatty may be due to two quite different processes. One of these is fatty infiltration in the sense of Virchow, that is the deposit in the kidneys of fat derived from other portions of the body; the other altogether different in character, depending upon the deposition not of fat but of liquid substances such as cholesterin and lecithin. Both processes may exist in kidneys that are quite competent functionally. Klemperer concludes, therefore, that the grave prognosis founded upon the appearance of epithelial cells in the urine that seem to have undergone fatty degeneration is not always justified. While an abundant deposit of such character may be regarded as an indication of extensive fatty degeneration, occasionally such degeneration may not give any symptoms. Small amounts of such a sediment are of little significance in prognosis.

The Method of Mosetig in the Treatment of Bone Cavities.

In the treatment of bony cavities one of the first requirements for a permanent cure without deformity is some method of replacing the bone that has been lost by disease. This has not been found an easy matter. It is generally found to be impossible for nature to supply immediately sufficient material to produce a solid structure where much tissue has been lost in the interior of a bone It is necessary to find some material that will not act as a foreign body in the tissues, or cause suppuration, and that can be gradually absorbed, acting for a time as a splint and allowing of a gradual formation of new bone in the cavity. In the *Journal de Médecine de Bordeaux*, for December 27, 1908, Codet-Boisse describes the method proposed by Mosetig for filling bony cavities with an iodoform mixture, which has been very successful. The Congress of Surgery held at Paris during the past summer considered this subject, and all the surgeons who had made use of it expressed their satisfaction with the results. To obtain success with this method the most minute asepsis is necessary in preparing the cavity which is to be filled with the mixture. The mixture is composed of iodoform 60 grams, oil of sesame and spermaceti each 40 grams. When cold it is a solid mass, but when heated in a water-bath to 50° C. (122° F.) it becomes liquid and may be poured into the cavity in this condition. It is progressively absorbed by the walls of the cavity and its place taken by new bone. The advantages of this substance are its introduction while liquid, the antiseptic and therapeutic effects of the iodoform, and that the substance is absorbable and eliminable. In a few cases primary union of the skin wound is obtained. Generally the union is complete except at certain points where a brownish fluid flows out for a time; later granulation and cicatrization are complete. This consumes from three to eight weeks. In some cases union is not sufficient and we are able to watch the process of absorption and replacement going on in the cavity. In rare cases the mass is extruded entire. This method is applicable in osteomyelitis of the chronic variety, whenever it is possible to render aseptic the entire cavity. It fails when there are several foci of the disease. It is still more useful in tuberculous cavities that are extraarticular.

Heated Air in Medicine.

Greater efficiency is claimed for the electric light cabinet as a source of heat than for vapor or hot air baths. Heat applied in this manner is pleasanter to the patient, is well tolerated, and acts as a regulator of the circulation and a nerve tonic. Delherm and Laquerrière in the *Gazette des Hôpitaux*, for November 24 and 26, 1908, advocate its use in the general and local application of heat. Sweating is established slowly and the sweat is gradually evaporated by the heat. The lymphatics as well as the blood vessels of the surface are dilated and excretion of urea is increased. As a local application it may be used to relieve pain in neuralgia, rheuma-

tism, and lumbago. In skin diseases it relieves pruritus and eczema, and improves the condition of atonic wounds. It exercises a resolutive action on periarthritis, arthritis guttosa, and chronic edemas. The fatigue and tendency to syncope of the hot air bath are absent. In obesity it is possible to obtain a considerable reduction in weight without bad effects on the general health. In intoxication and the morphine habit disintoxication is obtained with elimination and without weakness. In fact these authors laud this method of treatment in many painful and nervous affections, and regard it as superior to most if not all of the other measures which have been advocated for their eliminative, analgesic, and sedative effects.

News of the Week.

Lectures on Sanitary Science and Public Health.—During the month of March the following lectures will be given in the course on Sanitary Science and Public Health conducted by Columbia University. The lectures are delivered at the College of Physicians and Surgeons, 437 West Fifty-ninth street, at five o'clock in the afternoons, and are open to the public. March 1, Reinforcement of Vital Resistance, by Dr. Simon Flexner, of the Rockefeller Institute; March 3, Public Health Problems of the Municipality, by Dr. Walter Bensel, of the Department of Health; March, 10, Public Health Problems of the State, by Dr. E. H. Porter, State Commissioner of Health; March 15, Public Health Problems of the Nation, by Dr. Walter Wyman, Surgeon-General, Public Health and Marine-Hospital Service; March 17, Milk Supplies and Public Health, by Dr. W. H. Park, Director of the Research Laboratories of the Department of Health; March 22, Infant Mortality and Its Reduction, by Prof. L. E. Holt, of Columbia University; March 24, The Prevention of Tuberculosis, by Dr. H. M. Biggs, of the Department of Health; March 29, School Hygiene and Sanitation, by Dr. John J. Cronin, of the Department of Health; March 31, Street Cleaning, Garbage Collection, and Refuse Disposal, by Dr. Walter Bensel.

Prizes for Typhus Serum.—The Mexican Academy of Medicine has offered $50,000 in prizes for the discovery of means of preventing typhus fever. Twenty thousand dollars is to go to the discoverer of a specific that will cure the disease; a like amount to the person discovering a serum that will kill the germs in the blood; and $10,000 to those who have aided the winners of the first two prizes.

A Healthy Town.—Higham-on-the-Hill, a village in Leicestershire, England, with a population of about 600, has a remarkable record for 1908, not one death having occurred during the year. The parish churchyard is notable for the number of octogenarians buried there, including seven of one family.

Brooklyn Doctors Protest.—The Kings County Medical Society and the Kings County Homeopathic Medical Society have joined in a protest against the recent action of Commissioner Darlington in removing the assistant sanitary superintendent from the borough of Brooklyn and transferring the records to the central office in Manhattan. The societies also condemn the dropping of measles from the list of contagious diseases.

Courses in Psychology.—The second international course in legal psychology and psychiatry will be given at Giessen, Germany, from April 13 to 18, 1909, under the direction of Dr. Sommer, Professor of Psychiatry in the University of Giessen. A two weeks' course in the problems concerning feeble-minded and psychopathic children will also be given in the Neurological Institute of Frankfurt a. Main during the latter part of June. Detailed information may be obtained from Dr. H. Vogt, Neurologisches Institut, Gartenstrasse, Frankfurt a. Main.

Sixteenth International Medical Congress.—The Secretary-General of the Sixteenth International Congress which will be held in Budapest, Hungary, from August 29 to September 4, announces that manuscripts of papers to be presented to the Congress must be despatched by February 28, at the latest, to his office, 8 Esterhazy-utcza 7, Budapest. The subscription to the Congress is twenty-five crowns in Austro-Hungarian currency, which sum may be sent by post office money order to the treasurer of the Congress at the same address.

Radium Institute in Germany.—A gift of $32,500 recently made to the University of Heidelberg is to be applied to the foundation of the first radium institute in Germany. Prof. Philip Lenard has been named as director.

Bellevue Fire Force.—A local force to fight fire has been organized at Bellevue Hospital, New York, consisting of fifty-five employees, who are being instructed by a fire drill expert. They are divided into four companies, two hose and axe companies, one chemical company, and one stretcher carrier company. A new set of signals is also to be introduced by which the steam siren in the engine house can indicate the exact location of a fire.

Hospital Heads Resign.—The trustees of the S. R. Smith Infirmary at New Brighton, Staten Island, have accepted the resignations of Dr. William C. Walser, the visiting physician, who has been connected with the institution for twenty years; of Dr. David Wilson, the chief surgeon; and of Miss Cadmus, the superintendent.

Proposed Tuberculosis Hospital.—A bill recently introduced into the New York Senate provides for the establishment of a State hospital for the treatment of intermediate and advanced cases of pulmonary tuberculosis, an appropriation of $150,000 being included to cover the cost of the site and the erection and equipping of the hospital. Preference is to be given to indigent patients, though when rooms are available, patients able to pay will be admitted. The bill provides for a governing board of five trustees, two to be physicians, appointed by the Governor.

Department of Mechanicotherapy.—The newly established Department of Mechanicotherapy at the Vanderbilt Clinic, New York, was opened on February 19. The equipment, which was the gift of Mrs. Ray Matshak in memory of her husband, consists of thirty steel machines for the exercise of every joint and muscle in the body. The department will be under the direction of Dr. Charles H. Jaeger, chief of the orthopedic division, and instructor in orthopedic surgery in the College of Physicians and Surgeons.

Dr. H. W. Lincoln has been appointed Gastro-enterologist to the Eastern District Hospital and to the Samaritan Hospital of Brooklyn.

New Police Surgeon.—Dr. Marvin R. Palmer has been appointed chief surgeon of the Police Department to succeed the late Dr. Quigley. Dr. Palmer has been attached to the department since April, 1895.

Dr. Walter C. Klotz has been elected superintendent and medical director of the Vermont Sanatorium at Pittsford. Dr. Klotz is a graduate of the College of Physicians and Surgeons, New York, and has been connected with the Stony Wold Sanatorium.

Dr. John B. Deaver, surgeon of the German Hospital, Philadelphia, was the guest of honor at a dinner at the University Club in that city on February 15, the hosts of the occasion being 150 men upon whom he had operated for appendicitis. The grateful patients presented him with a handsome silver loving cup inscribed with their names. Dr. Henry W. Stelwagon acted as toastmaster, and toasts were responded to as follows: Deaver, the Anatomist and Teacher of Anatomy, by Dr. John C. Heisler; Deaver, the Surgeon and Teacher of Surgery, by Dr. Richard C. Norris; Deaver, the Man, by Dr. Joseph S. Neff. The formal presentation of the cup was made by Dr. William E. Hughes, and appreciative remarks were made also by Dr. George W. Wagoner, President of the Medical Society of the State of Pennsylvania. Several poems appropriate to the occasion were also read.

The Alumni Association of the Lying-In Hospital.—The first meeting of this association will be held at the Harvard Club, 27 West Forty-fourth street, New York, on Tuesday evening, March 9, at half-past eight. The paper of the evening will be read by Dr. Barton Cooke Hirst of Philadelphia on "The Scope of Obstetrics as a Surgical Specialty." The secretary of the Association is Dr. J. E. Lumbard, 1925 Seventh Avenue, New York.

Westerly Physicians' Association.—At a recent meeting of this society the following officers were elected: *President,* Dr. M. H. Scanlon; *Vice-President,* Dr. Harold D. Kenyon; *Secretary,* Dr. W. A. Hilliard; *Treasurer,* Dr. C. Grant Savage.

The McLeod County (Minn.) Medical Society at its annual meeting at Glencoe on February 4, elected the following officers: *President,* Dr. B. S. Wilkerson of Glencoe; *Vice-President,* Dr. J. B. Clemens of Lester Prairie; *Secretary-Treasurer,* Dr. D. L. Axilrod of Hutchinson.

The Brainerd (Illinois) District Medical Society elected the following officers at its annual meeting, held January 28th: *President,* Dr. John M. Wilcox, Clinton; *Vice-President,* Dr. D. W. Deal, Springfield; *Secretary,* Dr. Harry S. Oyler, Lincoln. The next meeting of the society will be held in April at Lincoln.

The Danville (Illinois) Physicians' Club, recently organized, has elected the following officers: *President,* Dr. Chas. E. Wilkinson; *Vice-President,* Dr. A. M. Miller; *Secretary-Treasurer,* Dr. Benjamin Gleeson.

The Missouri Slope Medical Association, at a meeting at Bismarck, N. D., on February 3 elected the following officers: *President,* Dr. W. H. Bodenstad, New Salem; *Vice-President,* Dr. P. F. Kearney, Glen Ullin; *Secretary-Treasurer,* Dr. A. M. Brandt, Bismarck. Resolutions were passed urging the Legislature to provide for the establishment of a State tuberculosis sanatorium and condemning the proposed law permitting the sale of liquors only upon a doctor's prescription.

The York and Sunbury (N. B.) Medical Society was reorganized at a meeting at Fredericton on January 28, and the following officers were elected: *President,* Dr. A. J. Murray, Fredericton Junction; *Vice-President,* Dr. J. W. Bridges, Fredericton; *Secretary-Treasurer,* Dr. R. H. McGrath, Fredericton.

New Medical Society.—The Swedish Medical Society of Minneapolis, which was recently formed, has elected the following officers: *President,* Dr. C. J. Ringwell; *Vice-President,* Dr. A. E. Hedback; *Secretary,* Dr. Gilbert Seashore; *Treasurer,* Dr. O. A. Olson.

Gifts to Charities.—The Presbyterian Hospital and the Daisy Fields Home and Hospital for Crippled Children each receive $5,000 under the will of the late Mrs. Margaret Dows of New York, recently filed for probate. The New York Homeopathic College and Flower Hospital also receives $5,000 for a nurses' training school.

Obituary Notes.—Dr. George Rolla Highsmith of Carrollton, Mo., died at his home on January 21, from heart disease, aged 60 years. Dr. Highsmith was graduated from the Missouri Medical College, St. Louis, in 1875, and from the Bellevue Hospital Medical College in 1883. He was a member of the Americal Medical Association and the Western Surgical and Gynecological Society, and a former president of the Missouri State Medical Association and the Association of Surgeons of the Wabash Railroad. He was a lecturer on railroad surgery in the Medical Department of the University of Missouri.

Dr. Charles Everts Rider of Chappaqua, N. Y., died at his home on January 31, aged 69 years. Dr. Rider was graduated from the University of Vermont in 1863, and was a veteran of the Civil War. He was a member of the American Ophthalmological Society and the American Otological Society, an honorary member of the Rochester Pathological Society, and emeritus professor of ophthalmology in the Medical Department of Syracuse University.

Dr. Nathaniel A. Robbins of Brooklyn, N. Y., died at his home on February 16, after a long illness, aged 68 years. Dr. Robbins was graduated from the Harvard Medical School in 1864, and after serving for a time as assistant surgeon in the navy, began the practice of medicine in Brooklyn. In 1884 he was appointed Surgeon to the Brooklyn Fire Department, an office which he held until the time of his death.

Dr. Morgan Lewis Woodruff of Pittsfield, Mass., died on February 11, as the result of injuries received in a street-car accident. Dr. Woodruff was born in 1852, and was graduated from the medical department of the University of Vermont with honors in 1876, and from the Long Island College Hospital in 1878. He was one of the oldest physicians on the staff of the Mercy Hospital of Pittsfield, having served in that capacity since 1883.

Dr. Elmo Allen Hall of Mayer, Ariz., died at his home on February 1, aged 31 years. Dr. Hall was graduated from the Denver College of Medicine in 1901.

Dr. N. H. Longabough, formerly of Norristown, Pa., died at Camden, N. J., on February 16 at the age of 86 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1849.

Dr. Thomas Lancaster died at Philadelphia on February 18 at the age of 76 years. He was grad-

uated from the Medical Department of the University of Pennsylvania in the class of 1866.

Dr. Leonard Dearth of Los Angeles, Cal., died on January 26, aged 51 years. He was a graduate of Bowdoin Medical College of Maine.

Dr. Harold Noyes of Berwick, Maine, died at his home on January 25, aged 50 years. He was a graduate of Bowdoin Medical College in the class of 1881, and had for many years served as superintendent of schools in Berwick.

Obituary.

WILLIAM TILLINGHAST BULL, M.D.,

NEW YORK.

In the death of William T. Bull, which occurred on February 22 at Wymberly, near Savannah, Ga., there has passed away one of the most deft and skilful operators that this country has had. Although learned in his science and guided in all he did by an alert brain, he was nevertheless preeminently the chirurgeon—the worker with intelligent hand, as one must be whose field of operation is largely the abdominal cavity. Dr. Bull was skilled in all surgical technique, but it was in intestinal operations, especially in the repair of the intestines after gunshot and stab wounds of the abdomen, that he made his early reputation, and he was also one of the first to perform appendicitis operations with success. He was likewise a close student of, and frequent operator for, cancer, the disease to which he succumbed after a struggle of less than a year.

Dr. Bull was born in Newport, R. I., May 18, 1849, being therefore within three months of 60 years of age at the time of his death. He was graduated in arts from Harvard in the class of 1869, and in medicine from the College of Physicians and Surgeons, New York, in 1872. After serving a term as interne in Bellevue Hospital he spent two years in study in Europe, and then began practice in this city in 1875. He was in charge of the New York Dispensary for two years, and was surgeon in chief of the Chambers Street House of Relief of the New York Hospital from 1877 to 1888. It was in this hospital, with its enormous accident service, that Dr. Bull did most of the abdominal work which first gave him fame. In 1880 he was appointed surgeon to St. Luke's Hospital, and in 1883 to the New York Hospital, resigning then from St. Luke's, for he believed that a surgeon could not hold two hospital services and do his duty to each. Upon retiring from St. Luke's he was appointed consulting surgeon to the hospital, and he was also consultant to the Hospital for the Ruptured and Crippled and to the New York State Emigrants' Hospital.

In 1879-80 Dr. Bull was demonstrator of anatomy at the College of Physicians and Surgeons, and in 1887 was appointed professor of the practice of surgery in the same institution. His final illness dated apparently from April of last year, when he was operated upon for glandular enlargement in the neck. A second operation was found necessary some months later, and in the autumn he returned from his Newport home a dying man. He made a brave fight for life, always cheerful and always hopeful, and a month ago was taken to Savannah where the mild climate would permit him to spend more time in the open air. He was of a bright and cheerful disposition, a pleasant companion, and a loyal friend, and his premature death will bring sincere grief to patients, colleagues, and friends alike.

A FRIEND'S TRIBUTE.

A great surgeon is dead. But that is not all; indeed, it is only a part of it, and a small part. Dr. Bull's great kindness and sympathy; his absolute integrity of purpose; his admirable judgment; his perfect poise and self-reliance, without the smallest shade of conceit, or littleness, in any way, made him a marked man anywhere. A handsome presence, a cordial, genial manner, a perfect consideration for others at all times, a loyalty to his friends which stood every test; an inability to pull down and slight others ever; a fair and candid appreciation of good, square work always; a readiness to do for all men at the unlimited sacrifice of himself; an upholding, under all circumstances, of the best, highest ideals of professional tone and honor—all these combined good and laudable traits made him almost unique in the present generation of surgeons of New York, of our country—the world. It will be quite impossible to replace him, at least for many a day, and the consensus of every man, woman, and child who has known him in his professional, or social relations purely, is to affirm all that is commendable of him in life, and now that he is gone, alas! from among us, to emulate closely his example and to cherish his memory ever green, as the symbol of our faith in righteousness and well-doing, forever and aye.

Beverley Robinson.

New York, February 23, 1909.

Correspondence.

THE PHYSICIANS' MUTUAL AID ASSOCIATION.

To the Editor of the Medical Record:

Sir:—A few days ago I read in the daily paper a statement that the Physicians' Mutual Aid Association had been criticised by the Insurance Department at Albany because it had made a loan to its own treasurer. The defense as given was that, owing to the association's status, it did not come under the provisions of the special rule, the violation of which was claimed. I also noted the brief reference to the matter in your issue of February 20.

Probably no one of our local medical organizations has had the greater confidence of the profession than the one in question. Whether it has violated any rule of the Insurance Department or not, is for the law to determine. But the publicity already given to the matter may undermine the faith of some, and I therefore think that a statement from its officers of all the facts in the case is distinctly in order.

Whether the association has violated any definite law or not, does it not seem at least injudicious to lend its own funds to one of its own officers, no matter how well the loan might be secured? Since the recent insurance disclosures the public mind is very sensitive about the necessity of avoiding even the appearance of evil.

Member in Good Standing.

CORRECT MEDICAL SPEECH

To the Editor of the Medical Record:

Sir:—The following lines I have had printed on a card, and sent to many colleagues throughout the country. Might I ask you to reprint them so as to give them a still wider circulation:

"Correctness of onomatology is even more an index of character in science than in daily speech. In medical onomatology, as in ordinary speech, wanton incorrectness is an offense against both truth and good manners. The uncultured mind revels in uncouth expressions. Incorrect medical onomatology is on a par with slang in ordinary speech; the use of either betrays ignorance or a mind devoid of fine feeling."

A. Rose, M.D.

New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

ROYAL ARMY MEDICAL COLLEGE—KALA AZAR—GENERAL PARALYSIS IN CHILDREN—ANESTHETIC QUESTION—ALLEGED MONOPOLY OF HOSPITAL APPOINTMENTS—ANOTHER VICTIM OF X-RAYS—OBITUARY.

London, February 5, 1909.

On Tuesday the Director-General of the Army Medical Department and the members of the Royal Army Medical College entertained at dinner Viscount Middleton, who as Secretary of War founded the college. Sir Alfred Keogh, Director-General, said the mantle of Lord Herbert of Lea had fallen on Lord Middleton, who had recognized how potent was the influence which an efficient medical service could exert in promoting efficiency in war and diminishing sickness in peace. The establishment of the college was designed to improve the early education of the medical officer, as well as to afford later and special opportunities for research, and there had ensued remarkable results, as in Malta fever and sleeping sickness. Diminished mortality and invaliding, with better recruiting and improved physical training of the soldier, had also followed. Extraordinary results in antienteric inoculation in India were also due to the work of the professors in the college. In many ways the latent energy of the service had become actual through the attitude of Lord Middleton, when, as War Secretary, he founded the Royal Army Medical College.

Lord Middleton, after warmly thanking his hosts and saying he was proud to be their guest, declared the medical service had no more escaped criticism than other branches. During the last war there were almost as many laymen ready to show how the hospitals ought to have been organized as there were amateur strategists to tell our generals how to conduct a campaign. After the Crimean War there was a general outcry for a reduction of the medical strength and stagnation or worse was the consequence. But the seven years since the South African War have formed a record for the service and the British army medical service now bids fair to be a pattern among the armies of the world. In this college, after seven years' service, the officers can come for six months in the most advanced studies and so not be cut off from the workers in the civil profession. This was not due to himself, but to Sir A. Keogh and other distinguished authorities from whom he received inspiration in 1901. Though so short a time established, the college had become a link between the civil and military profession, with advantage to both. Malta fever and sleeping sickness are witnesses. The discovery of the organism of kala azar, the preparation of antityphoid vaccine, and the chemical work as to food and training of soldiers have been on in the laboratory of the college and these results inspire belief in an even brighter future. It is to this college the country must look to maintain the assured position of the medical service in the army and to secure through the army for the nation those priceless results which it is in the power of medical science to bestow.

The parasite of kala azar has been the subject of discussion at the Society of Tropical Medicine. It was begun by Captain W. S. Patton, M.B., I.M.S., who has made exhaustive investigations on the organisms supposed to be responsible for this and some other diseases. He had no hesitation in rejecting the view that the parasite is a trypanosome, but is a herpetomonas. The type species of this is the *H. muscæ domesticæ*, the life cycle of which he found closely resembled that of the parasite of kala azar. He has carefully studied these and other species and concludes that the parasite of kala azar is the *H. donovani* (Laveran and Mesnil); that of infantile splenomegaly is *H. infantum* (Nicolle) and that of oriental sore *H. tropica* (Wright). He suggested that diseases caused by these parasites should be collectively known as herpetomoniases. All attempts to inoculate animals with *H. donovani* have failed and it may not be possible to prove that the carrier is the suspected bedbug. Feeding experiments in tubes of different blood-sucking insects, though interesting, are not likely to be conclusive, and the difficulties of carrying them out were mentioned by Captain Patton, who has described the development of the parasite of kala azar in the "Scientific Memoirs" of the Indian Government.

Dr. Sambon was inclined to agree with Sir Patrick Manson, who regarded oriental sore as a benign form of kala azar. The geographical distribution favored this view and the oriental sore was held to confer immunity against kala azar. The reason of the rarity of preflagellate stages was that they were only to be found after recent blood-sucture.

Dr. G. C. Low was not satisfied that the parasite was a herpetomonas, for that organism had no sexual stage and there was such a stage probably in the other parasite.

Sir Havelock Charles, in the course of a long experience on the northwest frontier of India, had not met with kala azar, but had treated many cases of oriental sore. In Lower Bengal he had many cases of kala azar. If the two were practically the same, he should expect to find them coexisting in any locality.

Dr. Wenyon would not draw a hard and fast line between herpetomonades and trypanosomes, for many varieties of the latter resembled the former in some of their stages. The observations by the French Commission on sleeping sickness seemed almost to suggest that one form passed to the other on account of different conditions.

Sir P. Manson, president, said we could not say the life history of the Leishman body was fully nor approximately complete. Captain Patton had assumed that the domestic fly infected itself by feeding on its own feces, but there was no proof that it did anything so contrary to the whole course of nature. It was possible that kala azar was not identical with oriental sore, but it was probable, and the life history of the parasite of oriental sore ought to be worked out, for it would most likely throw light on that.

Dr. Sandwith then showed a specimen of "Jeddah ulcer" for Dr. Creswell of Suez and remarked that it ought to be called "oriental sore." French writers had lately been calling it "Leishmaniose cutanee." The term "fly-bite" is applied to it in some parts by the natives, some of whom trace it to bad water, and in India it is said to have been less prevalent since the better supply. It is more common in autumn when gnats and other insects abound. A distinction should be made between oriental sore and Nile boil, which could be inoculated into a healthy man, but did not go on to ulceration and did not last for months, each boil usually disappearing in a fortnight. Mr. Madden had obtained a pure culture of *Staphylococcus pyogenes aureus* from a case in Cairo.

There was a rather gruesome exhibit at the Pathological Section (Royal Medical Society), the president showing microscopical sections he had made from a piece of the aorta of the reputed Pharaoh of the Exodus, sent to the Royal College of Physicians by Professor Smith, who unwrapped the mummy, which was found in the tomb of Amenhotop II. The sections showed typical senile calcification, the bony, parallel, elastic lamellæ being perfectly preserved, and the intralamellan material thickly strewn with calcium phosphate. King Menaphta (Pharaoh) was an old man.

Dr. P. Rondoni of Florence narrated two cases of juvenile general paralysis and one of disease of brain. All three were hereditary syphilitics. The chief histological characters were perivascular infiltration with plasma cells and lymphocytes especially marked in the cortex, but also extending to the base. In one case he excluded general paralysis on account of the absence of the appearances often called diagnostic. Dr. Mott remarked that plasma cells around the vessel were suggestive of syphilis or trypanosome disease. It was a mistake to consider it diagnostic of general paralysis. In working on sleeping sickness he had fifty blocks cut from various brain diseases in the laboratory. They were stained and put up by an assistant, and he said he would pick out the general paralysis and sleeping sickness cases from the microscopical appearances. He succeeded in thirteen cases of general paralysis and two of sleeping sickness. Dr. Rondoni's paper was important from the discovery of the changes in the perivascular lymphatics and the basal ganglia. The change was expected on account of what had been observed in sleeping sickness.

A special meeting of the Section on Anesthetics was held on the 20th ultimo to discuss the bill proposed to be brought forward which would restrict the administration of these agents to qualified medical practitioners. To the surprise of outsiders, there was no unanimity in the Section. It was proposed that the prohibition should not apply to persons who gave nitrous oxide, on the ground that dentists had been accustomed to give it. This proposition met with a seconder. Another

member opposed the bill *in toto* and did not believe the House of Commons would pass it. On the other hand, it was urged that the bill had the support of the General Medical Council. On this point you may remember that last year when the Privy Council asked for an expression of the Medical Council's opinion the president replied that the bill appeared to contain what is essential for the protection of the public in this department of practice and it would be well if it could be extended to all departments by which life or limb is endangered. The president, Sir Donald MacAlister, has been generally held to have well represented medical opinion in this pronouncement. It may, indeed, be argued that the theme touched the first need of medical reform. It may be questioned whether a bill dealing with so small a portion of the reforms needed would assist or hinder further restrictive legislation. But the deaths that have been caused by anesthetics are making an impression on the public, and it is possible Parliament may determine to do something. In that case, say some, why not accept a modicum of protection for the profession on the principle that half a loaf is better than no bread. This, however, is hardly half a loaf—only a crumb, it seems. The discussion in the Section was adjourned until this evening, when perhaps the anesthetists will assemble in full force and come to a decision.

A few holders of Scotch and Irish diplomas are again trying to get up an agitation about what they designate the monopoly of hospital appointments in England by holders of English qualifications. The grievance is an old one, according to these gentlemen, who would have us believe that they are unfairly excluded from competition. Lately they got up a meeting in London, when all their old assertions were repeated, and they threaten an active campaign, but as many such have died under the indifference of the profession, the English corporations have little to fear, even although some of the agitators talk of parliamentary interference. The existence of different qualifying bodies in the three Kingdoms is perhaps an unfortunate fact, and carries with it certain preferences. If we had only a single State qualification, and that properly protected, few would care how many academical distinctions were left or which the governors of hospitals would prefer. As it is the local, some call them national, institutions naturally obtain a preference in their several localities, and it is not necessary to make invidious comparisons. Scotch and Irish doctors practice in London as freely as any. But it does not follow that they are all the most fitted to be hospital physicians and surgeons. The governors of these charities are entitled to say what distinctions they desire their staff to hold, and the same claim would be made under a State qualification. That would be necessary; but the governors could ask for any additional diplomas, although they were only academical distinctions. The grievance seems to be like many others of the kind, quite one-sided. These agitators would do well first to ask themselves how far Englishmen and English things are *hors concours* in Dublin or in Edinburgh. We have had examples of this sort of discrimination even in medical appointments.

I regret to report another victim of *x*-ray work. Mr. H. W. Cox, the well-known manufacturer of scientific instruments, has had to have three fingers of his right hand removed. He had previously lost a finger of the left hand. I understand the dermatitis was not caused by his recent work, but at an earlier period—some of it in testing apparatus to be sent out for use during the South African War. The King has sent a message of sympathy.

The death is announced of Surgeon-Major T. J. Tucker, who entered the army as assistant surgeon in 1855, and saw service through the Indian Mutiny, being present at Dinapore, 1857; Koer Singh, thence in the advance to Lucknow and the siege and capture of the city. He received the medal with clasps for his services. He retired in 1877.

News arrived to-day from India of the death of Major W. H. Orr, C.I.E., I.M.S., at the age of 41. He served the Waziristan Expedition in 1894-95 and obtained the medal and clasps.

Dr. Evan Spicer, who was killed by an avalanche in Switzerland, was a distinguished alumnus of the London Hospital, and was appointed Registrar last year. He had a good prospect of election to the staff, but, to the deep regret of his fellows, perished at 33 years of age.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

TRANSPLANTATION OF ADRENAL GLANDS; ISRAEL'S RESULTS IN OPERATIONS FOR RENAL CALCULI; THE PATHOGENESIS OF RENAL TUBERCULOSIS; RESULTS OF SUPRAPUBIC PROSTATECTOMY; THE CONTROVERSY OF PHYSICIANS WITH THE LIFE INSURANCE COMPANIES.

BERLIN, January 15, 1909.

THE meeting of the Berlin Surgical Society that took place on December 14, 1908, proved to be a very important scientific event; Professor Israel presided that evening and the entire program consisted of papers prepared by him and by his assistants. Dr. Neuhauser reported a successful experiment which has not been duplicated by any other worker. He has tried to transplant adrenal bodies removed from embryos into the kidneys of rabbits; at first, the pieces thus transplanted were absorbed in every case. Finally, he decided to transplant the adrenals of rabbits that were only a few days old, and was rewarded with signal success. Dr. Neuhauser demonstrated first some serial sections of the adrenal body of a very young rabbit, which showed the presence of large epithelioid cells with clear protoplasm that were not unlike the cells found in the hypernephromata of the human being. A second picture showed a complete section of a rabbit's kidney into which adrenal tissue had been implanted; the upper part of the organ contained some tissue that was quite different from that of the kidney proper. Microscopically this tissue proved to consist of cells that were similar to the cells of the adrenal body mentioned above. Larger magnification of the tumor tissue showed several places at which the renal substance proper was being invaded by the cells of the neoplasm, the invasion taking the path of the capillaries of the organ. This preparation showed that, at last, the experimental production of an adrenal tumor has been successfully carried out, the destructive character of the new growth being proved by the microscopical appearances detailed above.

The same speaker addressed the meeting on the "Results of Operations for Renal Calculi," the material of Israel's practice having been used by him for the paper. The general mortality reached 12 per cent. of the cases; this figure appears quite high when the vast experience and skill of Dr. Israel is considered, but it must be remembered that a number of patients that are sent to Israel for operation reach Berlin in very poor condition, and that no case is turned away without operation if there is the least hope that a surgical procedure might prove beneficial. In reference to the prognosis of postoperative hemorrhage Israel's figures show that whenever a secondary nephrectomy had to be performed the mortality was much greater than in cases in which simpler measures, such as tamponing of the wound, were successful in stopping the bleeding.

Israel and Schneider spoke on the "Pathogenesis of Renal Tuberculosis"; according to them most cases of renal tuberculosis begin with the invasion at the apices of the renal pyramids. Preparations of early tuberculous material showed many instances in which the pelvis of the kidney had not been attacked by the infection while the apices of the papillæ were already in the primary stages of the disease. As this primary grade of tuberculous infection is characterized only by a light swelling of the tissues and by changes in staining reactions it is quite evident that such changes could very easily escape the attention of operators not versed in renal pathology. The next stage of the disease is characterized by the development of cavities in the pyramids, which are, of course, easier to recognize.

Dr. Bloch spoke on the subject of "Ureteral Calculi," and reported the cases operated upon in the clinic under the direction of Israel, giving description of the technique employed. Dr. Cahn spoke of the clinical and histological data obtained from the study of some forty cases of suprapubic prostatectomy. The following conditions are regarded in Israel's clinic as indicating the operation in question: Grave disturbances in the function of urination that cannot be dealt with by conservative treatment and become almost unbearable for the patient. Among these are included cases in which the use of the catheter is not accompanied by any improvement in the bladder disturbance, either because residual urine cannot be every time removed by catheterization or because inflammation of renal pelvis occurs or, finally, because dysuria and tenesmus are not avoided by the use of the catheter. Other cases are selected, among those mentioned in which catheterization is impossible either because it is attended with serious hemorrhages and intense pain or because of the existence

of false passages in the urethra that make the use of a catheter dangerous. A third set of cases in which operation is indicated belong among those persons in whom the use of a permanent catheter could not be carried out without inviting quick infection of the urinary organs. Grave hematuria is also looked upon as indication for the removal of the prostate even though it may appear without being accompanied by disturbances of urination or any other difficulty.

In all forty operations the technique of Peyer's suprapubic enucleation of the gland was followed. Six patients died soon after the operation one of them of anuria and uremia, one of diabetic coma, two of pulmonary embolism, one of pneumonia, and one of peritonitis. Of the thirty-four patients who bore the procedure well, thirty-two were cured, that is, they could empty their bladders in the normal intervals of urination and without experiencing any difficulty in the act. Two patients suffered from incontinence of urine at the time of their discharge.

The histological findings, which were illustrated by lantern pictures during the delivery of the paper, are very interesting, because of the fact that in all forty specimens, Dr. Cahn has found adenomatous structures resembling papillary adenomata. Dr. Cahn concludes from these findings that hypertrophy of the prostate gland depends upon adenomatous changes in the glandular epithelium; this view is in agreement with the observation that a recurrence of the hypertrophy can take place even after a supposed total removal of the gland as well as with the fact that frequent carcinomatous changes are found in the gland. The latter changes were very well demonstrated by some of the pictures that showed various portions of the same hypertrophied gland.

The last few weeks of the past year brought with them very important developments in the professional relations of German physicians to insurance companies. The last Physicians' Congress decided to look for means of obtaining better remuneration for services rendered to life insurance companies, and the Leipsic Union has been carrying negotiations in this direction. The Assocation of Life Insurance Companes, however, declared that the Leipsic Union was not, in its opinion, the proper bodv to carry on these negotiations, and refused absoluetly to have anything to do with it. This, of course, meant a declaration of war for the German physicians. The Leipsic Union directed the physicians to furnish certificates for life insurance companies only at much higher rates than were charged for such service before, and to refuse to perform the service in question altogether if the bills were not honored. The resolution was carried out, the German profession proving that it was united in the defense of its justifiable demands for better remuneration of professional services. On the 28th of December a new agreement was finally arranged, according to which the pay of physicians for serving life insurance companies was increased, and in addition it was agreed that a permanent committee should be formed, to consist of three members of the Leipsic Union and of as many representatives of the Union of German Life Insurance Companies in order that permanent arrangements should he made in regard to the question at issue.

OUR LETTER FROM COPENHAGEN.

(From Our Regular Correspondent.)

COPENHAGEN, January 31, 1909.

AT a joint meeting of the Danish Surgical Society and the Danish Otolaryngological Society Prof. Holger Mygind read a paper on otogenic meningitis, with special regard to its operative treatment. During the last two or three years he had observed 21 cases of otogenic meningitis and had operated in 16 of these, with the result that 5 of the patients operated on recovered. The diagnosis was based not only on the usual clinical symptoms, of which he had found the most reliable to be Kernig's symptom and the retraction of the head, but in every case had lumbar puncture been performed and the cerebrospinal fluid evacuated had been turbid in its appearance and had presented on microscopical examination an increased number of polynuclear leucocytes and often microbes, especially pneumococci. Lateral sinus thrombosis often occurred as a complication, and cases of this class seemed to possess the most favorable prognosis, perhaps because the sinus thrombosis was the connecting and transmitting link between the suppurative otitis and the meningitis, while at the same time it was possible to eradicate the infected thrombus far more thoroughly than an operation, for instance on the labyrinth, could hope to do in cases in which the meningitis had been induced by a labyrinthitis. As to the treatment Professor Mygind recommended to follow the method which he had adopted. After complete radical operation of the middle ear and mastoid process, a large craniotomy opening is made in the middle and posterior fossa cranii, so that the dura mater is exposed in a rather large area. Next, a crucial incision of the dura gives access to the subdural space, so that a possibly existing subdural abscess may be found and emptied. The third stage—not always carried out—is incision of the temporal lobe or cerebellum in order not to fail to discover a latent cerebral abscess. There is no great escape of cerebrospinal fluid during or after the operation, as the cerebral substance bulges as a rule into the craniotomy opening, thus in a way shutting off the subdural space from the mastoid wound. Therefore, Professor Mygind does not make the incisions through the dura mater in order to drain the subdural space, but chiefly in order not to fail to discover localized subdural inflammatory processes.

Dr. P. Tetens Hald communicated a case of meningitis arising after a radical operation of the middle ear, in which he had been able to demonstrate intravitam by means of the modern labyrinthine tests that the infection had passed from the middle ear through the labyrinth to the meninges. Besides opening the subdural space, he had therefore performed a radical exenteration of the labyrinth, but had failed to save the patient. He stated his view as to operation of the labyrinth in cases of otogenic meningitis to be the following: Where the clinical examination shows destruction of the labyrinth, it is of course always necessary to operate on it. If the clinical examination does not show any such destruction, there are two eventualities. Either the operator finds during the operation intracranial complications capable of explaining the arising of the meningitis, for instance a sinus thrombosis; in this case it is sufficient to operate on this complication and await the further course of the disease. Or there is not found any such complication; in this case Dr. Tetens Hald proposes as a rule to operate on the labyrinth, because it may without doubt be infected and transmit infection to the meninges, though the clinical examination fails to demonstrate a destruction of it. The patient will therefore have a greater chance of recovery when the labyrinth is operated on in these cases. Of course, it will then also occur in some cases that a really healthy (i.e., not infected) labyrinth is opened. But as the operation of the labyrinth in itself is not a danger to the life of the patient, and in these cases the function of the labyrinth is nearly always impaired, Dr. Hald estimates that the operator ought to run the risk of operating sometimes on a not infected labyrinth in order to give his meningitis patients in every case all the possible chances of recovery.

Professor Tscherning said he had operated on otogenic meningitis as far back as 1895, but during the first years all his patients died. It was essential to operate at the earliest possible stage. He believed more in draining the subdural space than did Professor Mygind, and he lifted therefore the brain away from the underlying structures and interposed strips of iodoform gauze. He congratulated Professor Mygind on his results, which he considered encouraged operating in every case where the patient could possibly stand the operation.

Progress of Medical Science.

Boston Medical and Surgical Journal, February 11, 1909.

Human Milk in the Treatment of Various Infections.—F. P. Denny finds that human milk is of great value to infants in increasing their resistance against infections of the gastrointestinal and respiratory tracts and against sepsis. He finds it can be employed just as we use antitoxins or bacterial vaccines. In many cases in which human milk is given to infants because they are thought not to be able to digest cow's milk, the real cause of the trouble is a gastrointestinal infection. The presence of undigested food in the bowels does not necessarily cause symptoms, but rather leads to bacterial growth in the intestinal contents and the toxic material resulting therefrom acts on the digestive glands and impairs their functions. Very frequently the substitution of human for cow's milk in such cases will increase the infant's resistance toward

infection, and symptoms promptly subside. So also with bronchopneumonia and subacute skin infections, like tuberculosis. As to obtaining human milk, it must frequently be drawn from the breast and fed to the child. Among a large number of nursing mothers there are always a few who have an overabundance of milk. The author says that a large city needs some registry for wet nurses and which might keep a list of women who could furnish breast milk when called on.

The Serum Diagnosis of Syphilis.—F. P. Gay and J. L. Fitzgerald epitomize recent literature on the subject and give comparative results with the Englobin, Noguchi and Wassermann methods. From the result of their work to date they conclude that a positive Wassermann reaction with blood serum or cerebrospinal fluid is diagnostic of syphilis, but that a negative reaction, particularly in the tertiary stage, is of little absolute value. The Wassermann reaction is usually present in secondary syphilis and less frequently in tertiary syphilis and parasyphilitic conditions. The probable effect of treatment on the Wassermann reaction may explain the fact that the reaction is not so frequent in the tertiary stage. The Noguchi method as applied to the cerebrospinal fluid gives a positive result in syphilitic meningeal complications in many more cases than does the Wassermann reaction. But although it fails to give the reaction in many cases without meningeal complications, it may give it in any case that shows them. The reaction is therefore probably of value chiefly as an adjuvant in the differential diagnosis of general paresis. The authors tabulate the results of their own work and append a brief bibliography.

New York Medical Journal, February 13, 1909.

Four Hundred Operative Cases of Mastoiditis.—The results in this series of cases which occurred in the New York Eye and Ear Infirmary are analyzed by F. P. Calhoun. The Schwartze and Schwartze-Stacke operations are contrasted and the results compared in the work of some twenty operators on a class of patients whose home surroundings were, as a rule, most unfavorable. A careful analysis is made of etiology, symptoms, bacteriological findings, operative accidents, complications, etc. Of the Schwartze series, results are known in one hundred and eighty-six of the two hundred and seventy-one cases. The shortest time of healing was thirty-four days, and the longest was one year. This last case was in a tuberculous patient. On the other hand, there was another tuberculous patient in a more advanced stage whose wound healed in six weeks. The average mastoid healed in ten weeks. One hundred and twenty-six patients were cured. Seventeen were in a state of healing when last seen. Fourteen did not heal, and when last seen had posterior discharging sinuses. The posterior wound healed entirely, but the aural discharge still continued in eight cases, and there were twenty-one deaths. Of the fourteen cases that did not heal, fifty per cent. were in children or infants under five years. The only explanation offered for this failure is the fact that they were neglected by their parents when dismissed from the Infirmary, and did not report promptly for clinical dressings or observation. Five of this number required secondary operations (Schwartze-Stacke). Of the Schwartze-Stacke series of eighty-one cases, results were followed in sixty-four. The average time of healing was about four and one-half months. The longest was nine months. The shortest forty-nine days. The ten cases grafted did not give the results as one would ordinarily expect. The majority of the grafts sloughed. The shortest time of healing with a skin graft was three months. Thirty-nine cases healed completely; eight patients were in a state of healing when last seen, two months after opertion; ten were discharged with no prospect of a permanent cure; seventeen were lost sight of; seven died. The deaths were due to the following causes: One case of diabetic coma following operation; meningitis in two cases; brain abscess with meningitis in one; sinus thrombosis (operative); sinus thrombosis (unoperative), and cavernus sinus thrombosis. The Stacke operation was done in forty-eight cases for relief of chronic aural discharge with or without other symptoms. The results are tabulated, grafts having been used in twenty cases. Four healed; three were healing three months after operation; eleven were discharging from three to eleven months after operation, and two were lost sight of. Of the cases not grafted, thirteen healed, four were healing, three months after operation; five discharging at periods as above indicated, while six were lost sight of. The author's paper is a careful study of valuable material.

Diagnosis of Chronic Bright's Disease by Signs Other Than Those Furnished by the Urine. H. B. Allyn considers the subjects of cardiovascular signs. Light arterial pressure, thickening of blood vessels, enlargement of the left ventricle, hemorrhage, albuminuric retinitis and retinal detachment, dizziness and vertigo, nutritional changes, tone phenomena, coma, convulsions, paralysis, delirium and peripheral neuritis. Summarized histories are given of five cases illustrative of the points made by the author. He regards the cardiovascular signs as perhaps the most important and constant, and includes under this heading several of the foregoing, such as cardiac enlargement, vascular thickening, accentuated second aortic sound, etc. The author believes that in the vast majority of cases the urine, if repeatedly and carefully examined, will at some time show albumin or casts, or both, or will have a persistent low specific gravity, yet in a few cases it will give us no help in diagnosis or may mislead us into thinking that the kidneys are sound. Moreover, in hospital cases particularly, we must often make a diagnosis in a short time and with very inadequate previous history. It would be better to regard the condition of the urine as only a part of the clinical picture of chronic Bright's disease, and not necessarily and always the most important. But experience in and out of the hospital convinces me that too much dependence is placed upon an examination of the urine and too little attention paid to the general phenomena of the disease. The net result is that Bright's disease is often overlooked and the patient treated for heart disease, anemia, or weakness and malnutrition of unknown origin. These are the considerations which have induced the writer to endeavor to present the extra-urinary phenomena of Bright's disease, in the belief that by them we can often diagnose the disease even when the urine is negative.

Neurasthenia.—A brief general article is presented by H. M. Folkes, who notes the disturbed mentality, the most notable manifestation of which is the tendency of the patient to constantly dwell upon his condition. He usually believes that he is the only person who has ever had the exact symptoms he presents. No opportunity is lost to impress upon the physician the gravity of his especial case. His sense of proportion is usually markedly impaired and he does not dare to undertake things, the execution of which, to the normal mind, is trivial, as it assumes alarming characteristics from his viewpoint. Prominent among the other mental symptoms presented are fear of being left alone, making a journey, or even walking from one room to another. These subjects dwell in large measure upon their inability to earn a living. Nearly all of them have insomnia. About a third are decidedly emotional. Fully a third have periods of depression, loss of memory, inability, at times for maintained effort, loss of confidence, and irritability. The physical symptoms are endless, appearing as fatigue, weakness, tremor, paresthesia, headache, dizziness, anorexia, anemia, dyspepsia, constipation, flatulence, pain in various parts of the body, vague, ill defined feelings, impairment of the special senses, cold extremities, cold sweating, and impairment of the reflexes. Young women who have been overworked at college, as well as the housewife, frequently display many of the pelvic symptoms common to their sex. Relapses are the rule. Treatment should discard all drugs unless absolutely necessary. We must never lose our grip on the patient's mentality, for herein lies the key to success.

A Case of So-called Birth Mark.—F. A. Thompson recalls the case of an intelligent woman of 30 years who in the third month of her gestation was hanging a picture on the wall (being on a stepladder) and was accidentally precipitated to the floor, on the way striking her forehead on the edge of a chair. There was a mark on the forehead, red swollen between the eyebrows and up on the forehead about two inches. It extended over the orbit on the left side so that the upper eyelid was swollen and later black. In due time the patient was delivered of a healthy male child of normal build and size. The period of labor was normal, not protracted, no instruments being used. At birth there was a very small and faint red mark on the baby's forehead, but as the mother's fall had been forgotten, it was thought to be a parturient accident, and the parents were told that it would disappear. A few days later the mark was if anything plainer, and is still

there. It is a finely lined collection of dilated capillaries and occupies the exact position of the mark that the mother had. Another peculiar fact was brought out in talking the matter over with the mother recently. She states that she noticed at the time of the fall a sore spot on the occipital region. She paid no attention to it, as she reasoned that she had bumped herself in the fall. The child now has on its occipital region a mark similar to the one on the forehead. This was discovered a few days later than the one previously described.

Journal of the American Medical Association, February 13, 1909.

Tropical Diseases.—R. P. Strong describes the results of scientific methods of combating tropical diseases in Manila since the American occupation. Tropical dysentery, of which no accurate knowledge had previously been obtained, was found after an extensive research to include three different affections, requiring different treatment—amebic dysentery, due to a protozoan; bacillary dysentery, with an acute onset, and apparently the same as that prevalent in Japan, and lastly catarrhal dysentery, corresponding to the forms prevailing more or less throughout the world. Each of these can be recognized by laboratory methods and the treatment modified accordingly. The first two forms were found to be acquired usually by drinking infected water, and the catarrhal form was at least frequently contracted in this way. It was found, moreover, that the city water supply was practically always infected with amebas, which cannot be destroyed by chemical methods or filtration, hence it can only be safely used for drinking purposes after sterilization. The results of these researches, however, have been that the mortality and the amount of dysentery among Americans and Europeans has been greatly reduced, and bacillary dysentery, which formerly was epidemic, and which frequently carried off its victims in from three to four days, has become a rarity, and amebic dysentery is becoming less and less frequent every year among the more intelligent population. Strenuous methods were adopted at once against plague on its introduction in 1900, and a method of antiplague vaccination has been devised which will probably reduce the mortality to under 20 per cent. At present there has been no case of plague for over a year. Cholera has also been largely controlled, in spite of bitter opposition on the part of the natives, who were inclined to conceal every case. It still exists, and may be considered endemic in the islands; but, while the present hygienic measures are enforced, there is little danger of any large epidemic. It seems not unlikely that in protective inoculation we have a valuable aid in freeing a community from this disease, and that more and more reliance will be placed upon it in the future. It has been found that about 50 per cent. of the children in certain portions of the islands suffer from a latent form of malaria and that in some districts over 50 per cent. of the adults have the disease in an active or latent form. The amount of anemia and general debility thus produced has been greatly underestimated. In certain portions of the islands such measures as the discovery of these latent cases by routine microscopic examination of the blood and treatment of the patient, play an important part in the work for the suppression of malaria. Malaria is uncommon in the white population, however, especially in the large towns. Studies in dengue fever, recently made, seem to show that its ultramicroscopic organism is conveyed by the bite of the mosquito, *Culex fatigans*, which also conveys the filaria of elephantiasis. Infection with intestinal parasites, especially amebas and hook-worms, appears to be prevalent in the natives, but the hook-worm infection does not seem to have quite so serious consequences in causing grave anemia as it does in Porto Rico and some other regions. Both of these organisms, however, are pathological and may be of serious importance. The methods of satisfactorily disposing of human dejecta, so as to control these infections, present a problem that will require considerable study and is now being investigated. Over 3,515,000 people have been vaccinated against smallpox, without any serious case of infection from vaccination being reported, and with the result of a great decrease of smallpox mortality. In provinces where there were formerly 6,000 cases annually, not one death from the disease has been reported during the past year. The disease has been kept thoroughly under control by vaccination alone. In conclusion Strong says: "After nearly ten years' residence in the Philippines, I think that I am justified in saying that Manila to-day can certainly be regarded as a very healthy city for those who exercise proper hygienic precautions in regard to their mode of living. The death rate here for the past year among American residents has been only 5.59 and among Spaniards but 15.84 per 1,000."

Tuberculosis vs. Paresis.—A. J. Rosanoff states that while the death rate from tuberculosis is high in the patients of the hospital from which he writes, he has for several years had his attention called to the fact that paretics that came to autopsy were remarkably free from tuberculous lesions. This observation was almost constant and he went over all the autopsy records and found that they strikingly corroborated it. As the total number of cases, however, was small, he availed himself in addition of the autopsy records from the State hospitals at Ward's Island, Flatbush, Middletown, and Buffalo, including 1,056 autopsies, 214 of which were cases of general paresis that are also tabulated. It shows that while active lesions were found in 23.2 per cent. of other psychoses only 2.3 per cent. of the paresis cases showed the presence of active tuberculous lesions. He also tabulates the data in such a way as to show the frequency of tuberculosis in paresis and other forms of insanity. In his study he made no use of the many thousands of clinical records, as they might affect his results and make them unreliable. Nontuberculous pulmonary complications are very common in general paresis and cannot always be distinguished from pulmonary phthisis. On the other hand, tuberculosis among the insane is often overlooked. Rosanoff thinks, however, that the number of pathological records on which his statistics are based is sufficiently large to establish almost beyond doubt the existence of a distinctly heightened immunity of paretics against tuberculosis. He asks to what this can be due and suggests that the immunity may be due to the same cause as that of former syphilis against syphilitic infection, the inflammatory reaction produced by both syphilis and tuberculosis being almost clinically identical. Paresis is generally acknowledged nowadays to be due to former syphilis, and Krafft-Ebing has shown that paretics are immune to syphilis. Other questions of practical interest suggest themselves. One of them is how would the course of a case of tuberculosis be affected by a superadded luetic infection?

Iridotomy.—J. L. Ziegler reviews the history of iridotomy since the days of Cheselden, its originator, showing how the pendulum of surgical preference has oscillated between the knife-needle and the scissors methods of operation, and points out the advantages of the knife-needle method in the case of incision, the lack of traction on the ciliary body, its freedom from postoperative inflammatory reaction, the avoidance of opening an eyeball that may contain fluid vitreous, the lessening of the tendency to iris hemorrhage from lowered tension, and in the avoidance of the nebulous scar that often follows a large corneal incision in old inflammatory eyes. Its disadvantages, he thinks, have been in the technique employed and in the imperfection of the instruments. The essentials for success in iridotomy by the knife-needle method are given by him as: (1) A good knife-needle, and he finds the modified Hayes instrument the best. Of course, it must have a well-sharpened point and edge. (2) A proper incision in the iris membrane; it should be a double incision. His choice is the V-shaped incision, which is undoubtedly the only one that will cut through all the iritic fibers in such a way as will give the greatest retraction of the membrane. (3) Absolutely no pressure shall be made in cutting with the knife-needle. This must be recognized as the main secret of success, whether the surgeon is cutting a dense felt-like iris membrane or a thin filmy capsule. With this rule observed there will be no traction on the ciliary body. (4) The knife-needle must be moved back and forth through the corneal puncture with a gentle sawing movement. (5) The corneal puncture and membrane counterpuncture must be far enough apart to make the corneal puncture a good fulcrum for the delicate leverage necessary in executing the iris incision. (6) The knife-needle must be so manipulated that no aqueous is lost, as this accident may prevent the completion of the operation and increase the tendency to iris hemorrhage by lowering the ocular tension. (7) Each incision must be a thoroughly clean cut, and all tearing of the tissues be avoided. (8) The most perfect

artificial illumination must be secured, either by an electric photophore of a condensing lens, as both iridotomy and capsulotomy require close and constant inspection of the operative field. Ziegler gives the details of the technique of his V-shaped iridotomy and reports cases. He also points out the applicability of the method to capsulotomy. He claims that it is by far the best way of incising a delicate secondary capsular cataract.

Hereditary Hypoplasia in Man.—C. P. Noble calls attention to the causes of degeneracy as affecting the race and as the basis of a number of morbid conditions. The impregnated ovum has within it potentially the whole future being and when it is defective the resulting offspring is abnormal. When the defect is very great we have monstrosities, idiocy, and imbecility. In a less degree it produces subnormal children, either mentally or physically, and between these, sharing in part in both, nervous instability. There is lack of sexual development, chlorosis, enteroptosis with all their complications and consequences, and he goes in considerable detail into the description of these. These patients are also peculiarly subject to tuberculosis and to puerperal infections, and should be carefully differentiated from those in whom the morbid condition is due to environment or other external or accidental causes. This explains the lack of results of treatment by routine gynecologists, who have not separated the cases, mental in origin, due to a defect primary in the ovum, from those cases in which the disease is acquired in normal or relatively normal individuals. As a young gynecologist Noble was puzzled by the cases of delayed development and it was pointed out to him by the late Dr. Harrison Allen that such patients were degenerates and their condition due to developed mental defects, but at that time they both thought that the trouble was primary in the nervous system and through the trophic nerve causing malnutrition and arrested growth. Now, however, Noble attributes it to a primarily developed mental defect. To distinguish such cases from those in which there is an acquired defect, we must learn the family history and search for the stigmata of degeneracy, especially the high-arched palate which is one of the most easily recognizable.

The Lancet, February 6, 1909.

Shell-fish Typhoid Fever.—H. C. Pattin refers to three well marked outbreaks of typhoid fever conveyed by cockles which occurred last year in Norwich, England. More than a dozen cases were traced to cockles obtained from two shops. The cockles which came from Ipswich were seized by the local health authorities, examined bacteriologically, and found to be grossly polluted with sewage.

Some Comparative Measurements of the Lives of Leucocytes When the Cells Are Resting in the Plasmata of Different Persons.—H. C. Ross has made these experiments with reference to the application of such measurements as an aid to diagnosis in infective diseases. His paper is mainly taken up with details of technique which must be read by those interested. The problem he set before him may be expressed thus: It appears reasonable to suppose that the plasma of a person suffering from an infective disease is poisonous to the leucocytes of a healthy person. This granted, the same plasma would not be so poisonous to the leucocytes of another person suffering from the same disease, because, presumably the cells would already be used to, or immune against, the toxin. Moreover, if the toxin of one infective disease differs from that of another, it may be believed that the immunity on the part of a leucocyte against one disease will not render it immune against another. Consequently, if it is possible to tell with accuracy when a leucocyte is dead, it will also become possible to measure the lengths of the lives of the cells after removal from the body. This in turn will enable us to make comparative measurements of the lives of leucocytes when they are mixed with the lives of different persons. Supposing that it is true that an infected plasma shortens the lives of a healthy person's leucocytes, but not those of another person with the same disease, it may be useful to reverse the process and assist in the diagnosis of infectious disease by making measurements of the lives of such a person's leucocytes when they are mixed with different plasmata. For instance, if the leucocytes of a person suffering from an indefinite infectious disease are found to be easily killed by the plasmata of persons suffering from a variety of diseases, but are not comparatively easily killed by the plasma of a person with, say, typhoid fever, the presumption would be that the given patient has, or has recently had, the latter disease, because his leucocytes are used to, or immune against, that particular infection. The author's observations are yet too few to enable him to draw positive conclusions.

Blood Crisis in Lardaceous Disease.—T. S. Kerr and E. I. Spriggs report the case of a man of 30 years admitted to hospital with fever, chest and abdominal pain, vomiting, and very dark colored urine. The case was thought at first to be one of appendicitis. The blood contained an extraordinary nucleated red blood cells. In a few days the urine cleared, and on quinine dosage the fever disappeared. Later violent diarrhea, with vomiting and abdominal distention, set in, with thrombosis of the superficial leg veins. The patient fell into a state of asthenia and died in about six weeks. Autopsy led to a diagnosis of lardaceous disease following syphilis, complicated by hemorrhages from the liver and bowels, with patches of old perihepatitis deforming the liver. The author comments on the fact of the blood crisis with reference to (1) the enormous number of nucleated red cells, (2) the rapid increase of the normal red cells and the hemoglobin from the anemia noted when the patient was first seen, and (3) the rapidity with which the nucleated cells disappeared. Bleeding from the kidneys is an uncommon symptom in lardaceous disease.

Early Cardiac Inadequacy.—Leonard Williams calls attention to the early signs and symptoms of failing circulation, dwelling especially on dyspnea, palpitation, tachycardia, and slight edema. The latter symptom, he says, may be due to ingestion of too much common salt. In health any salt excess is immediately eliminated by the urine. In certain abnormal conditions the chlorides are stored up in the blood, but are immediately passed off into the lymph spaces, where they attract to themselves sufficient water to make a solution isotomic with the blood plasma. A "normal saline," in fact, and edema is set up. Consequently an essential feature of all treatment is the restriction of the salt intake. Not more than 110 grains should be taken in 24 hours. We should determine first of all whether the hyposystate originates in the heart itself or in the arteries when the heart is working against an increased peripheral burden. We should lessen the latter by removing the vasoconstrictor toxins which are accumulating in the blood. Dietetic and hygienic measures rather than drugs will yield the best results. If the primary fault is in the cardiac muscle, rest in bed with cardiac tonics and diuretics, is all-important. But more important still in both sets of cases is that the patient should maintain an equable temperament and a calm mind.

British Medical Journal, February 6, 1909.

Iodine for Sterilization of the Skin of Operation Areas.—F. J. W. Porter commends the use of iodine for the purpose named. The evening previous to operation the skin area has a hot soap bath, but excessive scrubbing is not permitted. The skin is then shaved and a bandage of dry lint laid on. When the operation is about to begin, the area is freely painted with a ten per cent. spirituous solution of iodine and eucaine injected, if a local anesthetic is used. A fresh application is made just as the primary incision is to be begun. In case of a general anesthetic the painting is first made before anesthesia is begun and secondly when the patient is ready. Scrubbing is not permitted for the following reason: Epidermis is not an absolutely compact tissue. The cells are loosely packed and intercellular spaces exist, communicating with the outer air by microscopical clefts. These latter contain fat, bacteria, and sweat, all of which are readily dissolved out by the iodine solution, but if they are scrubbed, the hot water is apt to cause a swelling of the cells and the contents of the clefts may become stopped up in them. After the operation is finished the line of sutures is also painted. The author has followed the above plan in thirty operations, including appendectomy, radical cures for hernia, varicocele, hammer-toe, etc. His results have been just as good as with more elaborate methods of skin sterilization.

Atrophic Rhinitis Complicated by Mastoid Abscess and Extra Dural Abscess.—F. Stoker reports the case of a woman of thirty years who had had atrophic rhinitis for twelve years and had been variously treated without benefit. When first seen she was complaining of severe pain over the frontal and mastoid areas. In the course

of two days it became necessary to open the mastoid antrum in which thick yellow pus was found. There was considerable caries of the bone and the lateral sinus was exposed. She did well for a week when facial paralysis was noticed and there was severe pain over the side of the head and tenderness over the squamous area. It was considered necessary to operate further and an abscess was found under the dura from which pus escaped. She died quietly on the fifth day thereafter. No autopsy was obtained. The author says that infection had evidently passed from the nasopharynx to the middle ear and destroyed the ossicles and had also invaded the antrum and rarefied the mastoid bone. No symptoms occurred until the aditus became blocked with inflammatory products—granulation tissue or swollen mucosa—as until then a road for the inflammatory products was open into the nasopharynx. When the block occurred the symptoms appeared as the result of tension. The author adds that it would have been better to explore the middle fossa as well as the lateral sinus at the time of first operation. He also suggests that a more effective route for draining the floor of the middle fossa might be obtained where the complete mastoid operation is done, if the infero-lateral opening usually made is continued and forward by removal of the roofs of the external meatus middle-ear attic and antrum. The external semicircular canal would not be in danger if a bent probe was kept over it and the others could be safeguarded by cutting inward and forward.

Edema with Resolution by Urinary Crisis.—The patient of H. D. Rolleston and F. L. Golla was a man of twenty-seven years of age with chronic parenchymatous nephritis. When admitted to hospital he had edema of the legs and lower abdomen and thrombophlebitis of the left femoral vein. He remained under hospital care for some two months with the usual variation of symptoms, but eliminative measures failed to make any definite impression on the edema. Suddenly the amount of urine excreted daily rose from 48 oz. to a very much greater amount, on one day reaching 204 oz. In the course of four days he lost nearly 60 pounds in weight from the subsidence of the edema. After this sudden "urinary crisis" he had some slight headache and felt weak but was not thirsty. As to the cause of onset of this sudden renal activity the authors make no suggestions. They add some remarks on current theories as to the etiology of edema. In such a case as the one described, it is obviously of great importance, in order to secure accuracy, that there should be records of the elimination of the nitrogen and salts both before and during the crisis.

Berliner klinische Wochenschrift, January 25, 1909.

Roentgen Rays in Therapeutics.—Müller says that the advantages of *x*-rays in therapeutics are twofold: in the first place, they are especially promising in their action in the case of some otherwise incurable diseases and of very disfiguring skin affections, and on the other hand their application is accompanied with no pain and extremely little discomfort to the patient. The rays are selective in their action, their effect upon the healthy skin in correct application being limited to the increase of the pigment in the deeper layers; in pathological conditions the rays lead to thrombosis of the smaller capillaries, to degenerations of the abnormal cells and in the endothelium of the blood-vessels and to the gradual diminution of the diseased tissues by the interfering with their nutrition. Among the diseases most favorably affected by the rays is sycosis, both simple and parasitic; Müller does not remember a single case of this affection that was not cured or at least very markedly improved by the rays. Folliculitis, acne vulgaris, favus, trichophytosis, hypertrichosis, eczema, lupus, rodent ulcer, and, finally, some superficial malignant tumors are open to the influence of the rays. Still more important are the results obtained in the treatment of blood diseases such as leukemia, as well as in the obscure group gathered under the name "pseudoleukemia"—which are very obstinate under any treatment and many cases of which show improvement as soon as the *x*-rays are used; final cures have not been obtained, however, in these conditions by any means at our command.

Münchener medizinische Wochenschrift, January 26, 1909.

Marmorek's Serum.—Schenker says that Marmorek's serum has an antitoxic action in the human organism, and works especially well in pulmonary tuberculosis of the first and second grade, as well as in tubercular disease of the bones, the peritoneum, the kidneys, and the bladder. In more advanced stages of pulmonary phthisis the serum is often capable of stopping the progress of the disease and improve the general condition of the patient. The secret of success in such cases, however, lies in the persistence in the use of the serum, for the more obstinate and chronic is the process the longer is the treatment called for. In cases where large areas of tissue have been destroyed the serum is, of course, as little useful as any other possible procedure. The serum may be administered by the mouth or by the rectum, and has been shown to exercise no untoward action whatever. During its use general hygienic and dietetic measures used in treating tubercular infection must not be neglected, plenty of fresh air and sunlight affecting very much the rapidity of the improvement. Schenker concludes that Marmorek's serum is the best means for fighting tuberculous infection that is known to the medical profession at the present time.

Pyocyanase in Diphtheria.—Grósz has used pyocyanase in the gravest forms of diphtheria and reports very favorable results. The best results were obtained by spraying the solution into the pharynx and even the larynx, for which purpose a special apparatus had to be constructed. In other cases inhalation of steam saturated with pyocyanase was tried. In all cases the pseudomembrane disappeared very much more quickly than is usual in diphtheria, and the comfort of the patients was much increased. The temperature fell much more rapidly than with the use of antitoxin alone, and all general toxic symptoms were very favorably affected. In several severe cases of croup intubation was made unnecessary, the pyocyanase helping to separate the membrane very effectually; where intubation was done the tubes could be removed in much shorter time than has been usual. The author concludes that the use of pyocyanase deserves to become universal in cases of diphtheria, as it offers the best means of attacking the local lesions of the disease and shortening its course.

Deutsche medizinische Wochenschrift, January 28, 1909.

The Leucocytes in the Urine in Genitourinary Tuberculosis.—Goldberg says that he has noted very many irregularities in the shape of pus cells that appear in the urine in cases of tuberculous infection of the genitourinary tract. Colombino has laid special stress on such deformities, claiming that they appear in tuberculous disease in connection with the loss of the usual staining properties and the appearance of vacuoles in the protoplasm. Goldberg agrees that these appearances are almost constantly present in tuberculous disease, but his experience with gonorrheal cystitis proves that deformed leucocytes may appear in the urine in this affection. If gonorrheal infection can be positively excluded, the finding of deformed leucocytes in the urine is a valuable point in directing attention toward tubercular infection of the genitourinary tract. In the presence of gonorrhea the findings are of no value for differential diagnosis.

Unilateral Chyluria.—Salle reports the case of a man, twenty-five years old, who suffered from pain in the region of the left kidney, the affection being accompanied by the intermittent appearance of chylous urine. The chyle-content of the urine varied with the time of day, being much more considerable in the night; it also varied with the position of the patient, being increased when the patient was kept quiet in bed. That the diet had influence upon the appearance of the chyle in the urine was shown by the increase of fat in the urine when the fats in the diet were increased; the passage of the fat into the urine was proved by the demonstration of cod liver oil in the urine soon after it was administered to the patient. Cystoscopic examination showed that the chylous urine was secreted only from the left ureter. No casts were found. Salle concludes that these findings exclude the supposition that the metabolism was at fault in this case or that the secretion of the left kidney was abnormal. The explanation of the chyluria was probably due to some anatomical lesion of the lymph channels in the neighborhood of the left kidney.

Puerperal Abscess of the Uterus.—Anderodias and Pery give puerperal abscess of the uterus as a rare and not easily diagnosticated complication of puerperal infection. It occurs in the second week of the puerperium after the acute symptoms of sepsis have passed over. There is a rise of temperature of septic character. When the adnexa are not involved there is not much to be learned by bimanual palpation unless there is found tenderness and elasticity at one horn of the uterus. Generally the diagnosis is made at operation. If there is a single abscess not too large laparotomy may be done and the abscess opened and drained. When there are multiple abscesses hysterectomy becomes necessary. When no operation is undertaken the case is fatal.—*Journal de Médecine de Bordeaux.*

Book Reviews.

Surgery of the Ureter. An Historical Review (1585-1905) by Benjamin Merrill Ricketts, Ph.B., M.D., LL.D.; Member American Medical Association; Western Surgical and Gynecological Association; International Medical Congress, 1887; International Association of Railway Surgeons; Mississippi Valley Medical Association; Cincinnati Academy of Medicine; Ohio State Medical Society; American Proctologic Society; Honorary Member Society State of New York; Honorary Member St. Louis Medical Society; Fellow New York State Medical Association; Member Société Internationale de Chirurgie; American Urological Association, and Pan-American Congress. Cincinnati: 1908.

Industry of a most exceptional character is shown in this book. It bears evidence of a surprising amount of literary research on the ureter, and evidences that the author has provided what probably is the most exhaustive list thereof extant. The book was originally published as a serial in the *St. Louis Medical Review*, and is now presented by the author in a bound volume, rendering its contents accessible to whoever may need the immense material it contains. The usefulness of the work would have been materially enhanced for rapid reference had the author added an alphabetical index to the classification of his matter. Still, considering the vast amount of work devoted to the literature of the ureter by the author, it may not be asking too much to ask of the reader to search the titles presented for precisely the division of the subject-matter that he may need. It is doubtful whether anything has been written on the ureter within the four centuries covered that has not been at least mentioned by the author. A bibliographic appendix gives the titles of 249 of the author's own contributions to literature, and of two books he has in preparation. His subjects are extraordinarily varied. Selected at random the following titles manifest his industry: Construction of Sewers, Psoriasis, Oidium Albicans, The Relation of the Red Corpuscles to the Brain, External Urethrotomy, Plasto-Cosmetics in Surgery of the Face, Cremation, General Alopecia, The Surgery of Cleft Palate, Niagara's Water Power, Radical Operation for Prolapsed Rectum, Hematoma of the Ovary, Trigeminal Neuralgia, Protracted Birth of Second Intrauterine Twin.

Le Traitement Pratique de la Tuberculose Pulmonaire. Sept conférences faites à l'Hôpital de la Pitié. Par le Dr. Louis Renon, Professeur Agrégé à la Faculté de Paris; Médecin de la Pitié; Membre de la Société de Biologie; Membre de la Société d'Etudes Scientifiques sur la Tuberculose. Paris: Masson et Cie, 1908.

At the request of his colleagues the author has published these seven lessons which were originally delivered at the Hôpital de la Pitié. They are eminently practical and express the ideas of a keen observer at the bedside. Without being a sceptic he nevertheless points out the value of the newer and multitudinous methods of treating this disease as being largely of pshychotherapeutic value, and praises them as such. In a very sane way he goes into the diet, climatotherapy, hygiene, medicinal and symptomatic remedies, and includes such methods as are of value in the associated conditions such as diabetes, syphilis, emphysema, etc. Above all, the author insists upon doing no harm, on avoiding the rekindling of the latent fires of a quiescent phthisis, and on laying main stress upon hygienic methods without ignoring other remedies so long as they do not add to the burdens of the disease. As an exposition of the conservative methods of modern France these lectures are of distinct value.

Principles and Practice of Physical Diagnosis. By John C. Da Costa, Jr., M.D.; Associate in Clinical Medicine, Jefferson Medical College; Chief of Medical Clinic and Assistant Visiting Physician, Jefferson Hospital; Hematologist, German Hospital; Fellow of the College of Physicians of Philadelphia; Associate Member of the Association of American Physicians; Member of the American Climatological Association. With 212 original illustrations. Philadelphia and London: W. B. Saunders Company, 1908.

The work before us is a very useful book, particularly to the more thoughtful students of medicine, who inquire into the reasons back of physical phenomena. The author takes pains to describe such clinical anatomy as would have a practical bearing on the subject under discussion and to demonstrate the relations existing between pathology or physiology and the physical signs appropriate for each.

The technical methods employed in eliciting the various objective data are carefully explained and conservatively estimated, just and proportionate value being given to the useful and fanciful, showing the hand of the author as a clinician and teacher with practical experience.

The book is divided into sections, the first of which deals with the technique of physical examination, the second with the thorax, and the third with the bronchopulmonary system. The fourth section takes up the diseases of the bronchopulmonary system and the mediastinum. The fifth and sixth describe the heart and vessel diseases, while the last section has to do with abdominal signs.

The examination by means of Roentgen rays is noticed here and there, but only when of special value. The newer tuberculin reactions are included, as also are such of the more recent physical signs, as Grocco's paravertebral triangle, which has been under trial long enough to have its merits and limitations fully recognized.

Useful illustrations abound in the book, these being diagrammatic, clinical, topographical as the circumstances demand. As a whole, the work is clear, concise, interesting, and accurate, and may be used as a safe and sane guide in modern methods of physical diagnosis.

Pulmonary Tuberculosis and Its Complications. By Sherman G. Bonney, M.D., Professor of Medicine, Denver and Gross College of Medicine, Denver. Philadelphia and London: W. B. Saunders Company, 1908.

The volume before us represents an enormous clinical experience, such as is not apt to come to the average practitioner in large cities who has rarely had the advantage which the author has enjoyed of residing in a place where phthisical patients are apt to congregate, and yet where a general practice is at hand to keep one from being too narrow and to define less often many obscure cases as certainly tuberculous. The author writes from the practical and clinical standpoint. The tinge of the laboratory does not color his pictures except when it is of proved value and more than a mere theory. His case histories are to the point and help in elucidating his ideas. Perhaps the chief criticism against the work is that it is written for busy general practitioners, yet gives nearly eight hundred pages of text. The illustrations, colored, *x*-ray, and diagrammatic, are well chosen and add to the value of a very excellent volume. Under diagnosis there appear many helpful hints and the author advocates the use of the newer reactions, such as those of Calmette and v. Pirquet, as being of help in doubtful cases. But the strongest parts of the book deal especially with the older and well-tried methods, such as percussion, auscultation, history taking, and close observation of the course of the disease toward either cure or death. Recognizing the fact that the lungs are not the only organs involved, the writer goes into the complications such as are frequent in a pulmonary case. The physician in charge of lung tuberculosis must be on the lookout for the disease elsewhere and understand its management. Hence these adventitious manifestations occupy over one hundred pages of the text. Also associated conditions like syphilis, pregnancy, etc., receive due consideration. Under treatment the author shows himself a strong advocate of climate added to a carefully controlled hygiene. He appreciates that the individual must be considered primarily and that no stereotyped method is applicable to all cases. He decries the use of drugs.

Taber's Pocket Encyclopedic Medical Dictionary. Edited by Clarence W. Taber, Author of "Taber's Medical Dictionary for Nurses," "The Secret of Sex," Co-author of "Eales' and Taber's Anatomical and Physiological Chart," Associate Editor, Nicholas Senn, M.D., Ph.D., LL.D., C.M., Professor of Surgery, University of Chicago; Professor and Head of the Surgical Department, Rush Medical College, etc. Chicago: C. W. Taber, publisher.

This book might be useful in a way if it were not for its mistakes in spelling, derivation, pronunciation, and definition, and its careless proofreading. Such misprints as milearia, muscularis mycosal, mycosis grannloma, marrow, myllocele, myllomeningitis, idiophatic muscular atrophy, hygenic, mycosis tonic of blood (!), etc., disfigure nearly every page. As specimens of etymology we find: mogiphonia, from Gr *mogus*, hardly: migraine, from Gr. *half-head*; wound, *As Winnan Strive* (!); wrist, *As Writhin twist*, mons Veneris, L. *venereus*, Venus; peroneal, Gr. *piero*, pierce. Among the definitions, we note: muscle, "contractile tissues made up of bundles of fibers which serve as the means of motion"; molecular, "action through the physical elements of a substance"; melanin, "certain black pigments of the body"; malaria, "a disease due to air or water contaminated by poison from the soil" (!) The book was apparently written in the present century

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held December 24, 1908.

DR. WM. S. STONE IN THE CHAIR.

Carcinomatous Ulcer of the Vagina.—Dr. S. W. BANDLER reported a case of large carcinomatous ulcer of the upper part of the vagina. This was the fourth case of vaginal carcinoma which he had had the opportunity of observing in the last two and a half years. The first two had been treated by injections of trypsin and amylopsin at the time when this method was extolled as efficacious in the treatment of carcinoma. The case reported was of interest because, just one year ago, Dr. Bandler had done a hysterectomy for persistent uterine bleeding due to fibrosis of the uterus. Unfortunately, the specimen could not be found in the laboratory, as it would have been of interest to discover perhaps some early malignant changes in the cervix or fundus. The history showed, however, that nothing of an abnormal nature was noted leading to this supposition; hence the case was reported as one of a primary carcinoma of the vagina developing within a year after the operation of hysterectomy.

Ovarian Sarcoma in a Young Girl.—Dr. S. W. BANDLER reported a case of sarcoma of the ovaries in a child eleven years old. She was admitted to the Beth Israel Hospital June 25. Six months before she had had an attack of influenza, associated with cough and pain in her bones. She was confined to her bed for one week. Five weeks before admission she complained of gradually increasing weakness and headaches. Some pain was experienced during digestion which prevented the taking of much food. These annoyances disappeared after a week, to recur within a week. Constipation was marked. Four weeks before admission, during the second gastric attack, severe frontal headaches came on. The patient felt hot at night and she had sweats. She felt chilly during the day, and had a definite chill almost daily. Simultaneously the abdomen began to increase in size, reaching its maximum distention within ten days and remaining so distended ever since. Pain had always been a marked symptom, being present almost constantly. Though she was nauseated at times, there was no vomiting, but the fullness in the epigastrium became marked even after the taking of only small quantities of food. A week before admission a dry, harsh cough became marked. Her complaints on admission were general weakness, lack of appetite, chills, sweats, pain in the abdomen, and distention of the abdomen, a complication of symptoms which suggested tuberculosis and tuberculous peritonitis. The axillary glands were enlarged. Her lungs, posteriorly and on both sides, showed dullness and flatness, with diminished breathing and voice. Her pulse was 110. The abdominal veins were prominent. The temperature varied between 100° and 104°. On July 2 rectal examination revealed a mass growing up out of the pelvis. On July 3 her chest was aspirated and a bloody fluid containing a large number of endothelial cells was obtained, but no tubercle bacilli were found. On July 9 she was again aspirated and the same fluid was obtained, showing a large number of endothelial cells, actively mitotic. On July 17 the circumference of the abdomen at the level of the umbilicus was thirty inches. On July 18 an axillary gland was removed and showed on examination no signs of malignancy. Operation was considered useless, but at the earnest solicitation of the family the abdomen was opened on July 23. A six-inch median incision was made two inches above and four inches below the umbilicus. When the peritoneal cavity was entered there was an escape under great pressure of a large amount of dark serum. The greater part of the pelvic and abdominal cavity was occluded by a large mass the size of a water melon, very irregular in outline and seemingly composed of a number of smaller masses. The tissue was friable, and large bits of it broke off under manipulation. The tumor was quite adherent, not vascular, of a grayish-white color, and necrotic in various areas. The right ovary was somewhat more distinct, with a surface somewhat smooth, and its color more white than the other areas of the growth. The pedicles of the mass were clamped and ligated with chromic gut, the tumor excised, and the bleeding points ligatured. The abdominal wound was closed, leaving three gauze strips for drainage. There was a continuous discharge of a serous fluid and of very large bits of necrotic tissue from this time forth. On August 8, the temperature varied between 101° and 104°, and the abdomen was rigid and tender, especially on the right side. On August 9, the rigidity was still marked and larger necrotic bits and more discharge were noted. On August 11, a tumor-like mass was felt on the right side extending from the pelvis to the lower angle of the wound. This was incised under cocaine and the peritoneal cavity entered. Numerous adhesions which attached the intestines and omentum were loosened and a large quantity of bloody fluid was drained. The wounds continued to discharge constantly. The temperature varied, the pulse became gradually more rapid and weak, and the child died on October 5 of exhaustion. The microscopical examination in the laboratory furnished a report of sarcoma of the ovaries.

Carcinoma of the Cecum.—Dr. S. W. BANDLER reported a case of carcinoma of the cecum. The patient was a woman, sixty-two years old, who was admitted to the hospital July 7. She had always been well, but for the past two years complained of pain in the lower abdominal region, especially on the left side; the pain was of a sharp sticking nature. There were no renal annoyances, the bowels were irregular, but there was no change in the character of the stools. No mass was noted. There had been no gastric symptoms. There was slight tenderness on the right side. On physical examination a small mass the size of an orange, tender on pressure, was found on the right side, on a level with McBurney's point, but nearer the median line. The case was admitted to the surgical division, but for some reason or other was transferred to the gynecological service. On casual examination the tumor mass was noted and was seemingly present in the abdominal wall. While in a lying position the patient was asked to lift herself up, by this manipulation contracting the abdominal walls. During this manipulation the tumor mass was made more distinct; hence the diagnosis of dermoid tumor of the abdominal wall was made. As a rule intraabdominal tumors became less distinct under this manipulation, but in this case, as was seen at operation, the tumor was so closely attached to the anterior abdominal wall that this method of diagnosing intraabdominal tumors from tumors in the abdominal wall led to error. An incision was made directly over the tumor and the mass was found to be about the size of a large orange, closely attached to the anterior abdominal wall. The adhesions over an area nearly as large as the palm of the hand were loosened and a large hard mass involving the ileocecal region was noted, resembling the appearance noted in lymphosarcoma. As more adhesions were loosened the entire ileocecal tumor was brought out into the abdominal wound and a diagnosis of carcinoma was readily made. The entire ileocecal region was resected, and the cut ends of the ileum and colon were inverted and closed, and then a lateral anastomosis was done. A small strip of rubber tissue was left in as a drain and the abdominal wound was closed. On the eighth day there was a slight discharge of fluid and fecal matter. The fistula gradually closed within a few

days and the patient left the hospital six weeks after operation. She was then sent to the country and had since gained at least fifteen pounds. The patient looked well, had suffered from no intestinal annoyances, with the exception of a slight attack of abdominal distention, and she had not yet reached the stage at which a recurrence of the growth would bring on a fatal termination.

Strangulated and Sloughing Fibroid Polypus of the Uterus.—Dr. L. J. Ladinski presented this specimen and reported the case. The patient was a woman, forty-six years old, who had been married twenty-two years and had six children, the last sixteen years ago. She had had five abortions within a period of four years, the last eight years ago. She was curretted fourteen years ago. Three years ago her menstrual period beeame lengthened from three to ten days. The flow was very profuse, and at times clots were expelled from the uterus. There was no pain and urination was normal. Three days prior to her admission to the hospital, nine days after her regular menstrual period, she began to have colicky pains in the abdomen and back; this increased in severity and assumed the character of expulsive labor pains. The discharge at first was bloody and then became yellowish, very profuse, and of a foul odor. On September 24, 1908, she was admitted to the hospital. The vaginal examination revealed a large sloughing mass protruding from the dilated cervix into the vagina, and filling the pelvis completely. At operation the tumor could not be removed in mass because of its size; it could not be delivered at the vulvar outlet, for traction on the mass with forceps caused it to break down. The lower portion of the mass in the vagina consisted of degenerated blood clots and sloughing tissue. The tumor therefore had to be removed by morcellation until its base was reached, which was attached to about one-half of the entire length of the anterior uterine wall. The mass was separated with scissors. The uterine cavity was curetted, irrigated and packed with iodoform gauze. The tumor removed was a fibromyoma in a state of acute and subacute inflammation. A very slow recovery followed, the patient being discharged cured on December 5. This case emphasized the possibility of a submucous fibroid becoming strangulated. This fact, Dr. Ladinski said, should be taken as an additional indication for the operative treatment of fibroids.

Dermoid Cyst of the Ovary Perforating the Wall of the Sigmoid.—Dr. L. J. Ladinski presented this specimen and reported the case. The patient was a woman, twenty-nine years old, married ten years and had never been pregnant. Her menstrual history was negative, except for dysmenorrhea. For the past ten years she suffered from pain in both ovarian regions. She was curetted three years ago. Six months prior to admission to the hospital she was confined to her bed because of the pain in the lower abdomen, especially on the left side. Urination was frequent and painful. She was constipated and had pain with defecation. She was admitted to the hospital on May 8, 1908. The vaginal examination revealed an antiflexed small uterus and cystic ovary on the left side. A preliminary curettage was done, and the abdomen was opened. The left ovary was found to be cystic and very intimately adherent to the bladder, coils of intestines, and especially to the sigmoid. With difficulty the adhesions were broken up, several small pockets of pus were entered, but it was not possible to separate the mass from the sigmoid, because the tumor penetrated the wall of the sigmoid and protruded into the lumen. Therefore the mass was excised and the intestinal wall sutured. The patient had a protracted convalescence and was discharged from the hospital with a small fecal fistula. The pathological report stated that the growth impinging on the intestine and springing from the ovary was a simple dermoid cyst, in which were hair follicles, sebaceous glands, sweat glands, etc. There was nothing present which was in any way suggestive of malignancy in the structure.

Tuboovarian Abscess with Interesting Complications. Dr. Leonard S. Rau reported the case of a woman, nineteen years old, married three years. She had had one child who was two years old. Her previous history was negative, except a mild attack of appendicitis, until December, 1907, when she acquired gonorrhea. For some days before Dr. Rau was asked to see her on February 28, 1908, she had complained of severe pain on the left side and she had some fever. The vaginal examination revealed a pelvic abscess which was opened through the cul-de-sac of Douglas, and a large quantity of foul smelling pus was evacuated. The cavity was washed out daily and drained. A pocket of pus formed and another incision was made on March 3. For several weeks she did very well, but on April 1 a very tender swelling appeared on the left side. On April 2 a tuboovarian abscess was found. The left tube and ovary were removed, as well as the appendix. The abdomen became filled with blood which he thought came from the large number of raw surfaces resulting from the breaking up of so many adhesions. Because of the patient's condition, he was compelled to pack the pelvis with gauze and close the abdomen. Two hours later he was hastily summoned and found the patient pulseless and the dressings saturated with blood. He immediately transfused the patient, and when the pulse rate was reduced to 120 he opened the abdomen and removed the packing. After a tedious search the source of bleeding was found to be two very small arteries which were located down in the bottom of the pelvis. Convalescence was rather slow but uneventful. About the beginning of last November the patient had very severe pains, dragging in character, and he again operated. He found the uterus, the right tube and ovary, and intestines all matted together. Having decided on doing a radical operation he bisected the uterus; then and not till then was he able to get out the tube and ovary. In his manipulation he unfortunately severed the right ureter. After removing the uterus, ovary and tube he did an end-to-end anastomosis of the divided ureter. The patient did remarkably well for a time, passing fifty ounces of urine a day, and he was congratulating himself on the result when, on the tenth day after the operation, she began to complain of severe pain and the temperature went to 102.4°. On November 29 he made an incision directly over a mass that had formed and came upon a sac the size of a well filled bladder, which when opened allowed a large quantity of urine to escape. The urine was mixed with some floculent matter. The sac was retroperitoneal. The sac was washed out and packed, and the wound left open. Large quantities of urine escaped and the dressings had to be changed frequently. As the quantity of urine diminished he introduced a tube which he connected to a bottle. The tube was left in and the wound was washed daily with a 10 per cent. aluminium acetate solution. After a few days the discharge became so small that the tube was removed. At present the wound was closing quickly. No urine escaped through it, and the patient was passing about thirty ounces of urine daily.

Dr. John O. Polak reported a case in which he unfortunately severed the right ureter in doing an hysterectomy. He did an end-to-end anastomosis. The patient did well for twelve days and then began to complain of pain and had some elevation of temperature. An incision was made and a large quantity of urine and pus evacuated from a sac. This was drained for a long time. Six months later she developed a pus kidney. This was the third case in which he had to remove a kidney after operation upon the ureters.

Election of Officers.—*Chairman*, Dr. John O. Polak; *Secretary*, Dr. Samuel M. Brickner.

Stated Meeting, Held January 28, 1909.

DR. J. O. POLAK IN THE CHAIR.

Large Multilocular Ovarian Cyst and a Submucous Sessile Fibroid Tumor Showing Marked Circulatory Disturbances.—Dr. A. BROTHERS presented this specimen. A hysterectomy was done at the same time that the tumor was removed. A middle-aged woman was referred to him January 15, 1909. Her chief complaint was of severe uterine hemorrhages. She had a large abdominal tumor on the right side which was intimately associated with a distinctly enlarged uterus. The gaping cervix admitted the index finger, which recognized a submucous sessile tumor which bled on being touched. A diagnosis of multiple fibroids was made. When the abdomen was opened a large, round multilocular cyst was seen and an enlarged uterus showing fibroid nodules on its surface. Both were removed, including both Fallopian tubes. The left ovary was normal and was left to prevent a too sudden onset of the menopause. Upon splitting open the uterus there was found on its wall a sessile submucous fibroid tumor the size of the closed fist. Its mucous covering was intensely congested suggesting a beginning sloughing process. The diagnosis was confirmed by the microscope. While the body of the tumor showed no structural change, the capsule and mucous covering were so intensely congested that it was apparently only a question of a short time when ulceration or sloughing would have ensued. There were two points of interest in this case. First, had this patient been subjected to curettage to control the bleedings, it seemed to him that this process would have expedited the sloughing and the life of the woman would have been jeopardized. Secondly, a feature of interest in connection with this case was the explanation of why a sessile submucous tumor should have such extreme circulatory disturbances as to threaten sloughing or gangrene, when there was no particular reason for it.

Dr. HERMAN L. COLLYER said it was not always possible to make a diagnosis of these cases before operating. Doing a curettage in this case would no doubt have been a serious thing, and he commended the doctor upon his judgment.

A Simple Method of More Easily Detecting Injuries of the Ureter During Operation.—Dr. HENRY DAWSON FURNISS said that the surest method of detecting the ureters during operation was to make them easily recognized by passing into the lumen a catheter or bougie; but many times this was impracticable, on account both of the conditions encountered, and of lack of experience on the part of the surgeon. The ureter might be cut, the cut portion inspected, and then there might be doubt as to its identity. It struck him as a good and simple idea to give these patients methylene blue in one grain doses three times in the twenty-four hours preceding the operation, or to inject into the gluteal muscles twenty minims of a four per cent. aqueous solution of indigo-carmine just before the anesthetic was started, or after the patient had lost consciousness. Should the ureter be cut, the colored urine would quickly stain the intraabdominal gauze pads, and give warning that the ureter had been injured. If the ureter was cut on the distal side of a clamp or ligature, he believed there would be enough coloring of its lumen to show.

Dr. A. BROTHERS said that the suggestions offered by Dr. Furniss were very ingenious. However, injuries to the ureter were very infrequent, and the dangers of injuring it during operation he believed had been exaggerated. In his operative work, covering a period of about fourteen years, he said he had injured the ureter but three times, twice when doing abdominal work, once when doing vaginal work.

Dr. HERMAN L. COLLYER thought the method referred to by Dr. Furniss was especially valuable in those cases with large fibroids of the uterus where the ureters were likely to be distorted.

Dr. HENRY DAWSON FURNISS said this method would not be of aid unless the lumen of the ureter was cut into. He recalled an autopsy performed by him some time ago in which case both ureters were ligated with catgut. He believed that had the patient lived one day longer recovery would have followed because the sutures were so softened that they were just about to give way and so the obstruction would have been overcome.

Sacral Suspension of the Uterus.—Dr. JOHN VAN DOREN YOUNG read this paper. In May, 1903, he read a paper before the Obstetrical Society (see MEDICAL RECORD, October 24, 1903) in which he called attention to the importance of the uterosacral ligaments in the support of the uterus. His experience since that time had served to strengthen his opinion as to their value as factors in the general scheme of uterine support. The broad ligaments on either side prevented lateral displacement and aided in uterine support. He believed that the broad ligaments were only secondarily supportive in their action in the erect position. The round ligaments acted as guy-ropes to the fundus when the bladder was full, when the patient was in the recumbent position, and also in the early months of pregnancy. They could not be considered from their normal course or position as at all supportive in the upright position. When the uterosacral ligaments were taken into consideration, their function, when the body was in the upright position, was particularly supportive. It was his opinion that any operation looking to the relief of retroversion, retroflexion, or either of these combined with prolapse, would fall short of giving the desired relief unless the elasticity and strength of the uterosacral ligaments were taken into consideration. The reason that almost every anterior operation, *i.e.* every operation on the fundus by fixation or suspension, or some form of round ligament operation or broad ligament operation, had had its strong supporters, was the fact that in a large percentage of these cases the uterosacral ligaments were not stretched beyond their elastic limit and, therefore, the operation which held the fundus forward would relieve the condition. If these ligaments were stretched beyond their elastic limit, any operation which held the fundus forward alone would fail. In following out any method of treatment for the relief of retroversion with prolapse, all indicated surgical procedures such as curettage, repair of the cervix, perineorrhaphy, anterior colporrhaphy and removal of hemorrhoids, must be performed as adjuncts to the operation prior to any intraabdominal work. When the abdomen was opened it was wise to investigate first the condition of the tubes and ovaries, and to do whatever work was necessary to these organs and at the same time break up all adhesions which bound the omentum, intestines, or adnexa to the body of the uterus. The patient should then be raised to the extreme Trendelenburg position, the intestines taken out of the pelvis and held above the brim of the true pelvis by pads soaked in physiological saline solution. Then with the contents of the pelvis brought fully into view the operation upon the uterosacral ligaments was performed. The operation consisted in a plication of the uterosacral ligaments, with careful suturing of the three folds made. The stitch should include all three layers of the ligament near its insertion, and both layers of the folded end. The reduplicated fold should be to the outer side of the shortened ligament. A stitch was placed, running through the three layers, beginning at the outer, through the middle and then the inner fold, at the point farthest from the uterine body. In placing these stitches too great importance could not be laid upon the necessity of including all three of the folds of the ligament. A sharp knife was then taken, and the peritoneal covering of the three folds was scarified. A

fine catgut suture overhanded these three layers from end to end of the reduplication. The operation was contraindicated in very stout people and where there was retroflexion of the uterus with little or no prolapse. It was of particular value in retroversion with prolapse and cystocele. The points of advantage in the operation were as follows: The supporting of the uterus in its normal position from the bony structure above; the body and especially the fundus were freely movable for all the functions of the body; it did not distort but reproduced the curve of Carus. In the event of pregnancy there was no possibility of dystocia.

Dr. A. Sturmdorf said that, judged from a purely technical standpoint. Dr. Young's procedure for securing uterine dorsosuspension by pleating the uterosacral folds intraabdominally must accomplish that object, if nothing else. The question was raised, would this operation restore not only the anatomical direction of the uterus, but also the normal physiological poise and mobility so essential to the functions of this organ? Dr. Young's theoretical contentions for attacking the uterosacral folds were based upon his observations that "the sacral attachments of these folds suspended the uterus from the highest point of the pelvis and these folds were usually redundant and lax in retroversions." With regard to the first contention, it seemed difficult from a mechanical point of view to concede greater importance to the suspension of the cervix by the uterosacral folds from the highest point than to the retention of the fundus by the round ligaments at the lowest point. With regard to the second contention, namely, the laxity or redundancy of the uterosacral folds, one could not escape the suspicion that Dr. Young's method attacked a result rather than the cause of the trouble, for it was an easily demonstrable fact that the uterosacral folds were ligaments in name only and not in function. They were in reality only peritoneal folds whose elastic and muscular elements had at the most only a microscopical existence; furthermore, they represented the weakest and most variable structural attachments of the uterus, as shown by the fact that they were the first to yield to the pull of the vulsellum. Uterine displacement represented abnormal uterine support and any corrective procedure must be based upon a clear conception of the mechanism of its normal support, of which the uterosacral folds presented only a single passive factor. In a paper read some time ago (Medical Record, April 1, 1905) he attempted to elucidate the present conceptions on this subject; he emphasized that all muscular and ligamentous uterine attachments, and especially those constituting the pelvic floor, served to support the uterus, not by virtue of their textural resistance to displacements, but by acting as movable and contractile planes that deflected the displacing force of intraabdominal pressure. Paradoxical as it might appear, both the maintenance and the disturbance of uterine equilibrium were the result of the same intraabdominal pressure under the influence of balanced or unbalanced deflection. The deflection might be misdirected by a change in the contours of the pelvic floor, acquired and congenital, or by the abnormal skeletal planes presented by the so-called "Glenard habitus" with its resulting general splanchnoptosis. To attempt the correction of a uterine deviation resulting from such a cause by pleating the uterosacral folds would not reflect credit on this method, and it followed that in a given case the etiological factors and their resultants must indicate the particular line of correction to be followed. No one method could possibly be applicable to all causes and cases. The armamentarium for the cure of retrodisplacements must include orthopedic, mechanical, surgical, and medical means; any or all the operations proposed might find their sphere of usefulness, when they had reached a clear and correct conception of the normal uterine support and based their corrective procedures on such knowledge.

Dr. Sidney D. Jacobson said that in using the vulsellum forceps, it was a matter of every day experience that, upon the withdrawal of the hooks from the uterine tissue at the completion of the operation, blood oozed from the little holes made by the instrument. Sometimes the hemorrhage was quite profuse, and frequently the time lost in checking the flow was considerable, and almost always it was annoying to the operator because it prolonged the time of operating. The same was true if a stout silk thread was passed through the uterus for purposes of traction. If the uterus happened to be abnormally softened by disease or pregnancy, it sometimes occurred that the organ was lacerated. To protect the patient from unnecessary loss of blood and traumatism, a very ingenious little instrument had been devised by Dr. Monae-Lesser called the uterine repositor. This was a jointed rod inserted within the cervical canal by way of the vagina and used as a lever. The uterus was thus elevated into the abdominal incision and held there by an assistant. Dr. Barrows used a steel instrument shaped somewhat like an obstetrical forceps, to hold the uterus forward. Dr. Jacobson used scissors-like forceps armed with two crescentic rubber-covered jaws, which when closed formed an elliptical ring. This enabled one to draw the uterus out of the pelvis and hold it forward at will. The little instrument did the work thoroughly, without injury to the soft parts, saved time, loss of blood, and annoyance, and he recommended it to the members of the profession.

SECTION ON PEDIATRICS.

Stated Meeting, Held January 14, 1909.

Dr. Eli Long in the Chair.

Adenoids in Children.—Dr. Rowland G. Freeman said that adenoid hypertrophy in children was very frequent in New York, and that indications of its presence usually appeared during the first year. It was very important that adenoids should be removed just as soon as they gave symptoms and before mouth breathing became a habit. There were certain symptoms which would call attention to this condition. Perhaps the earliest symptoms occurring during the first year were the snuffles and snoring, particularly occurring at night. In another class of cases there were the frequent colds occurring anywhere from three, four, five, or six weeks apart. Then again there was the paroxysmal cough, the attacks resembling very much those of whooping cough. Dr. Freeman reported a case of a child in an institution who had attacks of coughing occuring in paroxysms reminding one of those of whooping cough. These paroxysms were very severe and prolonged, and during them the child became quite cyanotic. The child was poorly nourished and emaciated. With the cough there was expulsion of whatever food had been taken. Upon a careful examination, adenoids of large size were found and the mother was told that they should be removed, although on account of its desperate condition the child might die during the operation. The operation was done in the morning without any anesthetic. This operation could be done during the first year without any anesthetic and without frightening the child. The use of anesthetics in children should be guarded, especially in those of lymphatic constitution; sudden death might occur in the latter. If an anesthetic were used nitrous oxide gas was preferable. After the removal of the adenoids in this case, relief of the cough was almost immediate. There was no more vomiting, and food was retained, and since the operation, performed on October 24, there had been a gain of three pounds.

Unusual Aspects of Influenza.—Dr. Josephine Hemenway reported these cases:

Case 1.—She was able to follow the course of the disease

in this case from the very onset, the child being an inmate in the Babies' Hospital. The child was small, weighing ten and a half pounds. The history of the feeding was unimportant. The child had never had any acute illness of any form prior to this. Two days before admission the mother stated that she noticed the child was coughing, was fretful and had an evening rise of temperature. The baby was treated as if he had an ordinary attack of bronchitis. On the sixth day the baby developed an otitis media, requiring an incision of both drum membranes. The temperature curve presented by Dr. Hemenway was quite remarkable and was the reason for reporting the case. It ranged for eleven days from 95° to 105°. During the entire time of the illness the child did not look very ill. The influenza bacillus was found in pure culture from the throat. The child did not look at all as one would expect, judging from the temperature curve. The ears were carefully examined and incisions into the drum membranes had to be resorted to at other times. The surgeon strongly suspected sinus thrombosis. The child, however, was treated in a simple way, chiefly with stimulation, and the temperature fell to normal on the twenty-third day of his illness. Seven days later the temperature rose again, but soon fell to normal and had remained normal ever since. The child made a good recovery. This case was apparently nothing but an attack of influenza, showing a remarkable temperature curve, and complicated with an otitis media.

Case 2.—This was a case of acute hemorrhagic nephritis, occurring in a child four years old, an inmate of the Babies' Hospital. The child had had many attacks of acute bronchitis; otherwise she apparently was well. She never had any contagious or infectious diseases. Last December the mother noticed that the child had an acute coryza, an enlargement of the lymph glands and a slight cough. The urine was coffee colored. The temperature ranged from 101° to 103°. The child appeared prostrated, but a careful examination revealed nothing but a slight bronchitis and a systolic murmur at the apex of the heart. The urine was scanty and blood colored, with a large amount of albumen and some granular casts, and a specific gravity of 1030. The cultures made from the throat showed the influenza bacillus. Cultures of this bacillus could not be recovered from the urine. For four days the child showed a temperature; then it gradually fell to normal and a slow recovery ensued. There was a practically clear urine. The child was able to leave the hospital one month after the onset of the symptoms and with an apparently normal urinary condition.

Dr. Charles Herrman, discussing the first case reported by Dr. Hemenway, said that influenza with marked remissions of temperature was not so extremely rare, and recently he had seen some cases of this nature. During an epidemic of influenza, if a child was presented with this peculiar type of temperature curve, he said he would be strongly inclined to the diagnosis of influenza.

A Case of Congenital Blue Baby.—Dr. William P. Northrup presented this case. The trouble with this child was a narrowing of the pulmonary artery and an incomplete septum ventriculorum. Dr. Northrup had seen about twelve such cases. From his personal experience he said that when a child was born blue, and remained blue, there was but one lesion present to cause it, a narrowing of the pulmonary artery, or the orifice leading to the conus arteriosus, with a narrowing of the septum ventriculorum. This was in accord with the statement made by Dr. Brodbent.

Dr. Rowland G. Freeman believed that all the men who had served as pathologists at the Foundling Hospital had been convinced of the wisdom of Dr. Northrup's teaching concerning the common lesion in congenital heart cases. He had at present a blue baby of three months, without any heart murmur. Dr. Morse of Boston reported having followed thirty-two such cases of congenital heart lesion, and several of the cases had heart murmurs which disappeared later in life. This seemed to indicate that they had recovered from the condition.

Congenital Pyloric Stenosis; Operation; Death.—Dr. Henry Dwight Chapin reported this case. The baby was first seen at the dispensary when two months old, and a diagnosis of pyloric stenosis was made. The baby was breast fed for three weeks after birth. The labor was normal. The child had projectile vomiting. One hour after each feeding the baby would vomit whatever food had been taken. She had six stools a day. The physical examination showed an enlarged abdomen, and the peristalsis was noted over the stomach. The child was fed with barley water, but vomited that. She was then given 3-6-1 and that was regurgitated. She then was given 2-6-1 but the regurgitation continued. After a large dose of bismuth an *x*-ray was taken; this showed on the plate a light color in the region of the stomach, but the organ could not accurately be mapped out. Dr. Putnam was called in and concurred in the diagnosis of pyloric stenosis. An operation was advised and Dr. Putnam did a gastroenterostomy. The child lived but a few hours after operation. The stomach was shown, together with slides. There was found an increase of connective tissue and infiltrating cells at the pyloric end of this organ.

Dr. Charles R. L. Putnam said the baby weighed only five and a half pounds at the time of operation and was extremely anemic and weak. They had tried to feed the child for three days, but the vomiting was persistent. He did a pyloroplasty operation. The stomach was found to be much distended with gas. A tumor presented at the pylorus. Dr. Putnam described the operation. In these cases of pyloric stenosis, Dr. Scudder of Boston believed in the operation of gastroenterostomy. Dr. Nicoll of Glasgow had had success in these cases in doing a submucous pyloroplasty. The best end results were obtained, on the whole, when the pylorus was left as nearly normal as possible.

Dr. Dennett said that he had seen during the last year three such cases of pyloric stenosis and in all the peristalsis was noted as going from left to right. There was no reverse peristalsis in these cases. Tumor was not felt at any time.

Dr. Putnam said that the tumor was felt only when the child was under ether.

Dr. Charles Herrman said that some authors had endeavored to differentiate sharply between cases of pyloric stenosis and pyloric spasm. The case described by Dr. Chapin showed how difficult this might be. At one time the bowels were loose, and no tumor was palpable until the patient was under the anesthesia at the time of operation.

Dr. Godfrey R. Pisek believed that by distending the stomach with a considerable amount of pabulum and endeavoring to get some of it through the stenosed orifice, some relief might be obtained. By getting some food through there would follow an increase in nutrition, thus increasing the child's chances. Further the method might possibly aid in making the diagnosis.

Dr. Eli Long said that because of the high mortality which attended these operations in infants, an early and exact diagnosis should be made before operation was considered.

A Case for Diagnosis.—Dr. Edward D. Fisher presented a boy, thirteen years of age. The father was healthy, but the mother had pulmonary tuberculosis. An older brother was ill at present with pulmonary tuberculosis. The patient was a premature child, born at the seventh or eighth month. When born he was very feeble, and weighed about two and a half pounds. For one month he was fed with a medicine dropper. After he was one

month old he gained flesh and strength rapidly. He had his first tooth when two years old, and was first able to sit up alone then. With each double tooth he had convulsions. He did not talk until he was five years old. At this age he had a mild attack of measles. Otherwise he was well up to seven years, although mentally deficient and undersized. Then he had scarlet fever, with convulsions, and was confined to his bed for about three months. After one convulsion of great severity he was blind for one week. At this time he complained of great pain in the back of his head at a point where the mother said she could feel a protrusion and throbbing. At this time the patient began to pass large amounts of urine, averaging nineteen pints daily, and to drink correspondingly large amounts of water. Otherwise he remained well up to last summer when he had one convulsion in the night. He was up and about the following morning, but complained of pain in the leg. The mother then noticed that he walked unsteadily, throwing the leg outward. During the past few months he had gained in flesh and strength, walked without assistance, which was an impossibility three months before. For the first time he went to school and seemed mentally brighter. Repeated examinations of the urine showed nothing abnormal except the large quantities of urine passed. An examination of the eyes showed a slight cloudiness of the optic disc. On examination there was noted nystagmus, intention tremor, a spastic gait, exaggerated reflexes, and a peculiar hesitating speech. The patient was very emotional, mentally deficient, and was poorly nourished. The diagnosis was cerebral diplegia. A possible diagnosis of mutiple sclerosis was suggested, but it should be remembered that while this disease did occur in children, it was comparatively rare, and Dr. Fisher said he never knew of a child who was born with that condition. In this case he thought that it was possible that the cerebral diplegia, followed by an attack of scarlet fever, had resulted in a multiple sclerosis. Another diagnosis possible was a basal growth near the floor of the fourth ventricle of tuberculous origin. This might explain the diplegia and the polyuria. It was interesting, Dr. Fisher remarked, to note that the child had lately developed mentally, which was opposed to the diagnosis of multiple sclerosis, which as was well known, was a progressive disease, marked by increasing mental weakness.

Dr. Alfred F. Hess said that some years ago he had seen a similar case, with the same kind of gait, staccato speech, and a backward mentality. After following the case for some time he asked a prominent neurologist to make an examination; this he did, but he refused to give any positive opinion regarding the nature of the disease, but thought it might be one of multiple sclerosis and cerebellar ataxia of the Marie type. The child had difficulty in walking, and especially in going up stairs. The child was of premature birth.

Dr. William Van Pelt Garretson said that the patient presented was seen at the Vanderbilt Clinic and there they concluded that it was a case of multiple sclerosis. The early history of the child was indicative of delayed development. There was a distinct pulsation, as the mother stated, not over the posterior fontanelle, however, but over the site of the torcular Herophili, where the bony covering was imperfect. There was some involvement, which still persisted, of the peroneal group of muscles of the right leg, noted after the convulsion during the attack of scarlet fever. Since the attack of scarlet fever the boy had developed the classical picture of multiple sclerosis, which occasionally occurred after severe infections. The examination of the fundus showed the characteristic eruscentic haziness which was frequently present in disseminated sclerosis. Nystagmus was also present. The syllabic-staccato-scanning speech, the very marked intentional tremor, and emotional instability were present. There was a spastic condition of the extremities and a very ataxic gait. Romberg's sign, very active patellar reflexes, ankle-clonus, and Babinski's sign were also present, but there were no sensory disturbances which represented the unmistakable symptoms pictured in multiple sclerosis. The polyuria, Dr. Garretson said, was to be explained by the irritation of the diabetic center in the medulla by a placque of sclerosis.

Miliary Tuberculosis.—Dr. Alfred F. Hess reported a case of miliary tuberculosis in which the tubercle bacillus was found in the blood, thus enabling him to make the diagnosis. He also found the tubercle bacillus in the cerebrospinal fluid, although there were no symptoms of meningitis. The child was three and a half years old. The family history was negative. He was one of five children. There was no hereditary disease. The past history was also negative. The patient was brought to the hospital on December 10 with the history that for three weeks he had had pain in the abdomen, elevated temperature, etc. There was no headache, vomiting, or other symptom. The boy appeared to be in fair condition. The physical examination showed some cyanosis. The boy was fairly well nourished. The respirations were 60, pulse 160, and the temperature ranged from 101° to 104°. The diagnosis then could not be made. Typhoid fever, however, was thought of. The Widal reaction was negative, while the diazo was positive. The blood count showed 3,000,000 red cells, and 65 per cent. hemoglobin; there were 7,600 leucocytes, and 65 per cent. polymorphonuclears. A positive diagnosis could not be made. There were some râles in the chest. On December 12, 2 c.c. of blood was taken from the finger. Smears were made from the sediment of the blood, and tubercle bacilli were found in them and a positive diagnosis made. A lumbar puncture was also done, 30 c.c. of the fluid being taken. In the smears he found no tubercle bacillus. The fluid was injected into a guinea-pig that was killed after twenty days; tubercle bacilli were found in the omentum and in the glands. In the sediment of the cerebrospinal fluid he later was able to get tubercle bacilli. No bacilli were found in the sputum nor in the stools. The patient was removed from the hospital and died on the day following. This case was of interest because of the finding of the tubercle bacillus in the blood. No sings of meningitis were present, but nevertheless the tubercle bacillus was found in the cerebrospinal fluid.

A Case of Infantile Paralysis Involving the Muscles of the Face and Extremities.—Dr. Henry W. Frauenthal presented a boy who was first seen at the age of fourteen months. He was at that time suffering from infantile paralysis which involved the muscles of both extremities as well as all the muscles of the right side of the face and right eye. The chief facts of interest in this case were that up to six months ago he could not close the right eye, and had no vision in that eye, and all the muscles on the right side of the face were paralyzed. Two physicians who examined him declared that he gave no positive reaction of total degeneration and that there was no hope for any improvement. However, under skilled massage, combined with the high frequency and sinusoidal electricity he had slowly improved and was able to close his eye completely and distinguish objects clearly with his right eye. The location and character of the lesion in the brain for these facial involvements was not known, and no autopsy had been obtainable. This case was interesting for the following reasons: (1) It was stated in all textbooks on anterior poliomyelitis that, if paralysis existed for six months or a year without improvement, none would take place under any form of treatment. (2) That when positive reaction of degeneration in the paralyzed muscles existed, there could be no hope for improvement or recovery.

SECTION ON GENITOURINARY SURGERY.

Stated Meeting, November 18, 1908.

Dr. MARTIN W. WARE, CHAIRMAN.

Encysted Calculus Removed from a Female Bladder.—Dr. H. N. VINEBERG reported a patient with cervicovesical fistula, operated on once or twice by the late Dr. Paul F. Mundé, who finally sutured the cervix uteri into the bladder, thus closing the fistula. The menstrual fluid was now diverted into the bladder. Following this she suffered severe dysmenorrhea with vesical irritation. Cystoscopy (Kelly method) revealed a thick calcerous incrustation matter encroaching on the trigonum where the cervix projected. Most of this deposit was removed with forceps, and the patient obtained relief, but temporarily only. In April, 1904, Dr. Vineberg did a supravaginal hysterectomy to arrest menstruation, so that with its cessation new calcerous incrustations would cease, but the relief was not as anticipated. Examination of the bladder revealed an area the size of a half-dollar, hard as flint, which could not be dislodged. Accordingly the vesical wound was drained. The suprapubic wound closed in about three weeks, and for several months the patient was relieved. The symptoms recurred, and cystoscopy disclosed new deposits of calcareous matter at the old site. On August 10, 1908, the base of the bladder was found infiltrated with a hard mass the size of a hen's egg. This was everted into the cavity of the bladder, and the projecting circumference was broken off with bone forceps; then the removal of the remainder was comparatively easy. The mucous surface of the bladder exposed was quite smooth, and presented a small polypoid fibroid which was snipped off with the scissors. Convalescence was uneventful; the bladder symptoms gradually improved, and in about two months the patient was practically cured.

Nephrectomy for Nephrolithiasis, Followed by Extraordinary Complications.—Dr. L. BOLTON BANGS reported this case. The man, fifty-three years old, came under observation first in November, 1907. For the past two years he had been treated for nervous indigestion, and pus was discovered in his urine. A radiograph by Dr. Cole showed a stone in the right kidney pelvis and a second stone in the right ureter, low down or near the bladder. The kidney, exposed on December 14, 1907, was so disorganized that nephrectomy was done. On account of the man's condition the removal of the ureteral stone was postponed. The patient left the hospital seventeen days after operation in fair general condition. On January 3 he had severe pain in the region of the left kidney; on the following day he was unable to void urine and the bladder was found empty. That evening his temperature, which had been normal, rose to 103°. Palpation disclosed a vague fulness, but the left kidney could not be distinctly palpated. Anuria persisted forty-eight hours, and on January 5, after consultation, the left kidney was exposed and incised; it was much enlarged, but no stone or other obstruction could be found. On the following morning ten ounces of bloody urine were withdrawn from the bladder, and the next day he voided normally thirty-six ounces of urine, and the urinary excretion was evidently reestablished. Subsequent to this the patient developed a prostatic abscess, which was opened after delay, owing to objections of the family to further operation. Later on, he developed a suppurative orchitis and funiculitis, all of which had to be incised, and also, still later, pus appeared in the original nephrectomy wound, which had been healed for several months. At this time the patient had pus coming from five different sinuses, including the site of the original nephrectomy wound over the left kidney. He steadily lost ground, and died on April 11, 1908. Reviewing the case carefully, Dr. Bangs said that in his opinion the unwarranted delay in permission to evacuate the prostate created sepsis, which the patient, in his enfeebled state and with one kidney, was unable to withstand.

Dr. F. TILDEN BROWN referred to the not infrequent occurrence of serious infection advancing a long way before subjective or objective symptoms manifested themselves when the prostate was the focus.

Dr. WARE suggested that the stone impacted low in the dead ureter was possibly the starting point of the infection.

Dr. WILHELM KARO of Berlin said that the failure of the left kidney to secrete urine, which came on about two or three weeks after the opposite kidney had been removed, was probably the reflex origin and due to the calculus that had been left behind in the right ureter. In a number of cases of reflex anuria reported by Apolendt, Casper, and others, the condition had been relieved by catheterization of the ureter. He himself had recently observed such cases of anuria due to stones in the kidneys, and cured the anuria by catheterization of the ureters. Therefore, he emphatically advised in all cases of anuria to perform this procedure, and said one was justified in performing a nephrotomy only when the catheterization of the ureters did not relieve the condition.

Dr. VINEBERG asked if reflex anuria from a stone in a dead ureter was common. He himself did not think it was.

Dr. F. TILDEN BROWN asked whether it was considered essential that stones left in a dead ureter should be removed. Were they generally looked upon as a source of danger? While the one in the case reported by Dr. Bangs might have acted as a foreign body and a focus of infection, personally, the speaker said, he would not have anticipated trouble from it.

Dr. VICTOR C. PEDERSEN mentioned the case of a classmate who had a suppurating kidney after measles. The kidney was operated on by Dr. McCosh. Several years later he underwent another operation, whose precise nature Dr. Pedersen did not know, and in the after-treatment he suffered attacks of anuria, with high temperature and almost maniacal symptoms. At the suggestion of Dr. Pedersen, an *x*-ray examination was made, and revealed a small calculus about the brim of the pelvis. The stone, which was in the dead ureter, as in the case reported by Dr. Bangs, was removed. There was no pus surrounding it, and yet it was apparently the source of severe anuria.

Dr. BROWN said the conditions in this case were not strictly analogous to those in the case reported by Dr. Bangs. The original operation done by Dr. McCosh was the evacuation of an immense abscess connected with the kidney, and in that case one had not to deal with a dead ureter.

Dr. JAMES PEDERSEN suggested that the position of a calculus, whether low down in the ureter or high up, might determine for or against the occurrence of reflex anuria.

Litholapaxy in a Woman of Advanced Years.—Dr. JAMES PEDERSEN reported the case of a woman eighty-two years old, first seen by him June 11, 1908, under the care of Dr. A. L. Robinson. During the previous January she fell and fractured a thigh. During her forced confinement in bed frequency of urination, with some tenesmus, developed. After her return to New York the symptoms increased so that intervention became imperative. Cystoscopy disclosed two vesical calculi of moderate size. After preliminary treatment, litholapaxy was performed under chloroform interrupted by a few drops of ether. The duration of the anesthesia was thirty minutes, and was well borne. The calculi proved to be mere

shells surrounding globules of mucus. Mere contact of the lithotrite crushed them, with the exception of one fragment. The bladder was completely evacuated. The operation gave the patient immediate comfort; she had neither pain nor tenesmus after it. Six days after the operation she became unconscious during the night and developed slight paralysis. From this seizure she recovered in large measure, but she had two subsequent attacks, the second proving fatal on July 21.

Dr. Vineberg suggested that the calculi might have been removed through the vagina under cocaine. That would have been even simpler than litholapaxy, and would have obviated the danger of a general anesthetic.

Infected Hydronephrosis, Characterized by Hematuria; Nephrectomy.—Dr. Martin W. Ware reported the case of a man twenty-seven years old who was referred to him for attacks of renal recurrent colic so severe as to call for morphine. This history dated back three years. At times the urine was slightly bloody. Examination revealed tenderness in the left kidney. Macroscopically the urine seemed normal, but microscopically it showed a few red blood cells. The cystoscope revealed nothing abnormal save a markedly injected trigone. Upon synchronous catheterization of the ureters, apparently perfectly normal urine drained from both sides for the first ten minutes, then that from the left became blood-tinged, and subsequently that from the opposite side also showed blood in smaller amount. Upon laboratory examination, both specimens were reported sterile. Following this ureteral catheterization, the hematuria persisted for three or four days. About ten days later, while in Dr. Ware's office, he had another severe attack of renal colic. The urine during this attack was clear, and microscopically showed nothing abnormal. The following morning he was passing blood which, upon cystoscopy, was seen trickling from the left ureter. He also had pain and tenderness referred to the left kidney region. Another *x*-ray was negative. An exploratory nephrotomy was then done. The kidney was enlarged, and showed evidences of extensive inflammation around it, with numerous adhesions. In order to deliver the organ it was necessary to resect the last rib. Its upper pole was disintegrated and very friable. Upon incision of the kidney there was a free gush of blood and turbid urine, which had apparently been pent up. The interior of the kidney was thoroughly explored, with negative results. A drainage tube was then introduced, and it was decided to await subsequent developments. At this time a nephrectomy was not deemed justifiable, particularly because of the fact that the previous double ureteral catheterization had shown blood coming from both sides, this raising the suspicion that both kidneys were involved. After a week's drainage the urine cleared up entirely. After an injection of indigo-carmine the characteristic colored urine appeared in the usual time on the right side, while on the other side there was no response whatever. The same was true of methylene blue. As the left kidney apparently did not functionate at all, it was again exposed, and on cutting through its upper pole a distended sac was found intertwined with an abnormal arrangement of blood vessels about which the ureter was suspended. A clamp was applied and left in situ for four days, when the nephrectomy was completed. The patient made an uneventful recovery, and since the operation his health had much improved. An examination of the removed kidney showed a nodule resembling a supernumerary kidney. The pathologist reported that the parenchyma showed signs of compression and recent inflammation. Tuberculosis was absolutely excluded.

Dr. F. Tilden Brown said the case shown by Dr. Ware demonstrated the inadvisability of leaving in the ureteral catheters when collecting specimens for a differentiating test between the urines and kidneys. This practice was usually resorted to by the examiner as a time or labor-saving measure, and to get needlessly large quantities, and on account of the duration of this procedure the danger of trauma to the ureter was very great, and might reasonably be expected to obscure the true condition, especially in cases where one was on the lookout for the source and cause of a mild hematuria. In the majority of cases it was better to demand more of the laboratory worker and less of the patient. In other words, the speaker believed it far preferable for the examiner to supervise the synchronous collection of only so much urine (10 c.c.) as was essential for a complete analysis. At its termination the examiner should take advantage of the opportunities afforded on withdrawing each catheter to satisfy himself by cystoscopic inspection that the catheter is being withdrawn from a ureter, and, secondly, to note any phenomena appearing at this moment.

Dr. Karo asked Dr. Ware why he had not examined the kidneys by the modern methods of functional examination. These methods enabled us to determine whether or not we were justified in performing a nephrectomy.

Healed Chancroid, with Extensive Ulceration.—Dr. George K. Swinburne showed this case. The man, twenty-six years old, consulted the speaker in November, 1906, for a chancroid of the glans eleven months old, during which he had been under constant treatment. All ordinary means had been used. One physician had employed daily injections in the buttock of a 2 per cent. solution of bichloride of mercury for thirty days for an underlying lues. During that time there had been a steady extension of the disease, comprising an extensive ulceration on the under surface and side of penis and glans; the urethra had been perforated, and the patient passed all of his urine through the wound. The constant pain was rendered worse on urination; so that he passed urine only twice in twenty-four hours. After a week of ineffectual treatment, Dr. Swinburne painted the surface with equal parts of ichthyol and an organic silver salt, first applying a cocaine solution. The application was made after urination, so that he could go as long as possible without removing the dressing. From that time pain diminished and the ulcer began to heal, at first rapidly, then more slowly. The applications were frequently repeated. The ulcer showed a tendency to break down at the angles when the applications were stopped, or when any other preparation was substituted. The ulceration finally healed entirely, but the urine still passed through the gap, and the patient was now anxious to have something done to repair the condition. Behind the false opening, in the spongy body and the corpora cavernosa, was a thick indurated mass which interfered with erection, the glans penis remaining soft. The patient had a chronic urethral discharge without gonococci. Dr. Swinburne said that his own advice was to let the condition alone or else amputate the penis behind the indurated mass.

A Case of Healed Chancroid, with Destructive Ulceration, of One Year's Duration.—Dr. Victor C. Pedersen reported the case of a man thirty years old, single, a chauffeur, first seen in the summer of 1907. About two weeks after illicit intercourse a painful sore appeared on the glans. A physician applied a wet bichloride dressing. In spite of this, rapid extension followed, and when Dr. Pedersen saw him the ulcer involved the foreskin and the meatus. Numerous pockets exuded pus. The depths and angles of the pockets were filled with a necrotic tissue of jelly-like consistence, closely resembling soft boiled cartilage. No definite organisms were in the pus, and Dr. F. M. Jeffries of the New York Polyclinic did not make a positive diagnosis as to the character of the slough. Part of it suggested syphilis, part tuberculosis. On September 12, 1907, under ether, the foreskin was divided,

the sinuses and pockets exposed, and the entire area cauterized with a weak solution of bromine water. All sloughing and edematous tissue was cut away as far as possible and a wet dressing of black wash applied. At the end of six days no great improvement had taken place, and it was then decided to cauterize the sloughs lightly with nitric and open the sinus passing around the urethra by a transverse incision at its base. This was done, and iodoform powder was then liberally applied. Five days after the cauterization a slough was cast, opening into the urethra. With the exception of this, the patient made an uneventful recovery, and excepting for the loss of the skin sheath of the penis, the only deformity of the organ occurred at the terminal part of the urethra, where the glans had been largely eaten away; here there was a peculiar doubling of the canal upon itself toward the left. The defect in the urethra caused by the slough still persisted. To repair this a plastic operation would be necessary.

Dr. BANGS said that during his service at the old Charity Hospital on Blackwell's Island these cases of extensive destruction of the various tissues of the penis were comparatively common, and his experience had taught him that in the course of time nature accommodated itself to the functions of the organ, and that it was not wise to attempt operative correction of the deformity too early. The speaker said he could confirm the observation of others that the use of mercury in these cases, internally, would light up the chancroidal ulceration and was apt to prolong the process of repair.

Dr. WARE suggested that thiosinamine might be employed in some of these cases, with the view of causing a disappearance of scar and granulation tissue.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

HUMAN FOODS. By HARRY SNYDER, B.S. 12mo, 362 pages; cloth; illustrated; $1.25. The Macmillan Co., New York.

MILITARY HYGIENE. By R. H. FIRTH, R.A.M.C. 299 pages, 12mo; cloth; illustrated. P. Blakiston's Sons & Co., Philadelphia, Pa.

BIBLIOTHÈQUE DE THÉRAPEUTIQUE. Publiée sous la direction de A. GILBERT et P. CARNOT. 12mo, 400 pages; cloth; illustrated. J. B. Baillière et Fils, Paris, France.

THE FUTURE OF MEDICINE. By SYDNEY W. MACILWAINE, M.R.C.S., L.R.C.P. 8vo, 44 pages. P. S. King & Son, London, England.

TRANSACTIONS OF THE MAINE MEDICAL ASSOCIATION, 1908, Vol. XVI, Part II. 8vo, 444 pages; paper. Stephen Berry Co., Printers, Portland, Me.

LEITFADEN ZUR UNTERSUCHUNG DER TIERISCHEN PARASITEN DES MENSCHEN UND DER HAUSTIERE FÜR STUDIERENDE, ÄRZTE UND TIERÄRZTE. Von Dr. M. BRAUN und Dr. M. LÜHE. 186 pages, 8vo; paper; illustrated; Brosch, M. 5.20; Geb., M. 6. Curt Kabitzsch (A. Stuber's Verlag), Würzburg, Germany.

TRANSACTIONS OF THE 6TH ANNUAL CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICERS WITH THE U. S. PUBLIC HEALTH AND MARINE HOSPITAL SERVICE, Washington, April 27, 1908. 79 pages; cloth. Government Printing Office, Washington, D. C.

LABORATORY GUIDE IN HISTOLOGY. By CHARLES H. DEWITT, M.B. 8vo, 174 pages; cloth; illustrated. C. H. DeWitt, Valparaiso, Indiana.

REPORT OF THE COMMISSIONER OF EDUCATION, 1907, Vol. I. 8vo, 522 pages; cloth. Government Printing Office, Washington, D. C.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION, Vol. XXVI, 1908. Edited by RICHARD H. HARTE, M.D., recorder of the Association. For sale by Wm. J. Dornan, Printer, Philadelphia, Pa.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

WISCONSIN STATE BOARD OF MEDICAL EXAMINERS.

Milwaukee, January 12, 13, and 14, 1909.

ANATOMY.

1. Describe the external jugular vein.
2. Describe the sartorius muscle, giving its origin and insertion.
3. What is the cerebellum and where is it situated? What is its size as compared with the cerebrum? Describe the medulla oblongata.
4. Name all the cranial nerves and give their function.
5. Give the boundaries of the axillary space and name its contents.
6. Describe the portal circulation.
7. Name and give origin of the muscles of the posterior tibial region, superficial group.
8. Describe the pleura.

PEDIATRICS.

1. Give the definition, prophylaxis, and treatment of cretinism.
2. Give synonyms, symptoms, and treatment of spasmodic laryngitis.
3. Give synonym, etiology, symptoms, prognosis, and treatment of anterior poliomyelitis.
4. Give etiology and treatment of enuresis.

CHEMISTRY.

1. Define molecule, acid, base, and salt.
2. Give the chemical name and formula for the following substances: (*a*) silver nitrate, (*b*) acetic acid, (*c*) chalk, (*d*) green vitriol.
3. Give, by equations, the chemical reactions when the following substances are combined: (*a*) caustic potash and sulphuric acid; (*b*) sulphuric acid and manganese dioxide.
4. Name three compounds of carbon with oxygen and give their physical properties, explaining the dangerous effect of each on animal life.
5. Name NH_4HO and give some of its common uses.
6. Explain test for total acidity and for the free HCl in contents of stomach.
7. (*a*) Give common name of $CuHAsO_3$ and state its properties and uses. (*b*) What is the chemical composition of Schweinfurth green?
8. Define toxicology, corrosive, narcotic, ptomain.
9. Name five poisonous tinctures, with medicinal dose of each.
10. Describe in detail two reliable tests for albumin in the urine.
11. Describe three tests for the presence of sugar in the urine.

PRINCIPLES AND PRACTICE.

1. Give symptoms and differential diagnosis of gastric ulcer.
2. What are the causes of dilatation of the stomach?
3. Give diagnosis of acute endocarditis.
4. Give treatment of acute tonsillitis.
5. Give medical treatment of simple goiter.
6. Give etiology of acute bronchitis.
7. Give treatment of enterocolitis in children.

MATERIA MEDICA AND THERAPEUTICS.

1. Give the physiological actions of strychnine in poisonous doses and tell why it destroys life.
2. Name the agents affecting the organs of vision when locally applied. Describe, briefly, the actions on the eye of each.
3. What are the principal stimulating diuretics, with the doses of each?
4. What anthelmintics are used against the different intestinal parasites respectively?
5. What is hydrogen peroxide? What are its therapeutical uses?
6. What is the therapy of digitalis?

OBSTETRICS.

1. Name and describe the different stages of labor and your management in each stage.
2. What is the amniotic sac? Name its contents and tell what service it performs.
3. State the kind and proper use of anesthetics in normal labor.
4. How is delivery accomplished in a transverse presentation?

5. What condition of the membranes may complicate labor and render it difficult? Give treatment for condition you name.
6. What is the most common occurrence that may suddenly change a favorable condition of labor into a dangerous one? Give treatment for same.
7. What are the symptoms, prognosis, and treatment for inversion of the uterus?
8. What are the permanent changes in the female sexual organs following parturition?

GYNECOLOGY.

1. Give diagnosis, prognosis, and treatment of pelvic hematocele.
2. State the pathological and clinical features of ectopic gestation.
3. Name the physiological movement of the uterus and the forces by which it is sustained.
4. Give deviations of uterus from the normal position and give treatment for prolapse.

GENERAL SURGERY.

1. What is your treatment of severed arteries, tendons, and nerves, and of punctured wounds?
2. How would you treat a fractured patella?
3. What treatment would you use for the dislocation of the acromial end of the clavicle?
4. Describe the amputation of choice of a leg with a view of the most successful use of an artificial limb.
5. Describe your treatment of infections of the extremities, both local and general.
6. Describe cholecystitis and appendicitis and give the indications for surgical interference.
7. Differentiate malignant and non-malignant growths, and give indications for surgical interference.
8. What principles do you practise in the treatment of shock relative to interference by surgical procedure?

PHYSICAL DIAGNOSIS.

1. Give the physical signs of primary pulmonary tuberculosis.
2. Give the physical signs of pulmonary emboli.
3. Give the physical signs of acute cardiac dilatation.

HYGIENE.

1. What hygienic treatment would you prescribe for a surgical case involving protracted confinement?
2. What hygienic treatment would you prescribe for a case of beginning pulmonary tuberculosis?

NEUROLOGY.

1. What are nerves? Give chief divisions of the nervous system.
2. Through what openings do the cranial nerves find exit from the skull?
3. Describe the spinal cord and its membranes.
4. Give function of white and gray matter.
5. Explain reflex action.
6. Give pathology of infantile paralysis.

DIETETICS.

1. What special use does each one of the following serve the body after ingestion: coffee, tea, alcohol, fats, carbohydrates, proteids?
2. Give hygienic and dietetic treatment of pulmonary tuberculosis.

MEDICAL JURISPRUDENCE.

1. Define (*a*) mania, (*b*) melancholia.
2. What is paranoia?

PHYSIOLOGY, OPHTHALMOLOGY, AND LARYNGOLOGY

1. Describe the pulmonary circulation and the changes which are produced in the blood by aëration.
2. Describe the normal heart sounds, give probable reasons for same, and tell where they are best heard.
3. Enumerate the functions of the spinal cord and its special centers.
4. What physiological process takes place in the capillaries?
5. What are the changes in bread during digestion, and where do each occur?
6. (*a*) Discuss inflammation. (*b*) What are the functions of the skin?
7. Give structure and function of the liver and kidneys.
8. Define myopia, presbyopia, hypermetropia, and astigmatism.
9. Differentiate glaucoma, iritis, and keratitis.
10. Explain the physiology of visual accommodation to light and distance.
11. Differentiate acute laryngitis and croup, and give treatment.
12. Give the etiology, symptoms, and treatment of tuberculous laryngitis.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

WISCONSIN STATE BOARD OF MEDICAL EXAMINERS.

Milwaukee, January 12, 13, and 14, 1909.

ANATOMY.

3. The *cerebellum* is that part of the encephalon which is situated beneath the occipital lobes of the cerebrum; it is located in the inferior occipital fossæ, and is separated from the cerebrum by the tentorium cerebelli.

The *cerebellum* is about 3½ to 4 inches transversely, 2 to 2½ inches anteroposteriorly, and about 2 inches thick in the center; it weighs about 5½ ounces, and its proportion to the cerebrum is about 1:8.

The *medulla oblongata* is the lowest part of the encephalon, and is continuous below with the spinal cord. It extends from the lower margin of the pons to the lower margin of the foramen magnum. It lies in the basilar groove of the occipital bone; its dorsal surface is between the cerebellar hemispheres. It forms the lower part of the floor of the fourth ventricle. It is about one inch long, half inch wide, and half inch thick. It has anterior and posterior median fissures, which are continuous with those of the spinal cord.

4. The special *names* by which the twelve pairs of nerves are generally known are: 1. Olfactory. 2. Optic. 3. Motor oculi. 4. Trochlear or Pathetic. 5. Trifacial. 6. Abducens. 7. Facial. 8. Auditory. 9. Glossopharyngeal. 10. Pneumogastric or Vagus. 11. Spinal Accessory. 12. Hypoglossal.

Functions: 1. Special sense of smell. 2. Special sense of sight. 3. Motor. 4. Motor. 5. General sensation and motor. 6. Motor. 7. Motor. 8. Special sense of hearing. 9. General sensation and special sense of taste. 10. Motor and general sensation. 11. Motor. 12. Motor.

5. The axilla is *bounded:* Anteriorly, by the clavicle, Subclavius, Pectoralis major, costocoracoid membrane, Pectoralis minor; *posteriorly*, by the Subscapularis, Teres major, and Latissimus dorsi; *internally*, by the first four ribs, first three Intercostal muscles, Serratus magnus; *externally*, by the humerus, Coracobrachialis, and Biceps.

Contents: Axillary vessels; brachial plexus of nerves, and branches; some branches of the upper intercostal nerves; lymphatic glands, fat, and loose areolar tissue.

7. The muscles of the superficial group of the posterior tibial region are: Soleus, Gastrocnemius, and Plantaris.

Soleus arises from: back of head of the fibula, and upper part of the posterior surface of shaft of fibula; from oblique line of tibia, and middle third of internal border of tibia.

Gastrocnemius arises from: the condyles of the femur and adjacent part of posterior surface of femur.

Plantaris arises from: posterior ligament of knee-joint, and ridge above the external condyle of femur.

CHEMISTRY.

1. A *molecule* is the smallest quantity of any substance which can exist in a free state.

An *Acid* is a compound of an electronegative element or radical with hydrogen, part or all of which hydrogen it can part with in exchange for an electropositive element, without the formation of a base.

A *Base* is a compound which on entering into double decomposition with an acid produces a salt and water.

A *Salt* is a substance derived from an acid when the hydrogen of the latter has been partially or completely replaced by an electropositive element or elements (a metal or metals).

2.

	CHEMICAL NAME.	FORMULA.
(*a*) Silver nitrate.	Silver nitrate.	$AgNO_3$
(*b*) Acetic acid.	Acetic acid.	CH_3COOH
(*c*) Chalk.	Calcium carbonate.	$CaCO_3$
(*d*) Green vitriol.	Ferrous sulphate	$FeSO_4$

3. (*a*) $2KOH + H_2SO_4 = K_2SO_4 + 2H_2O$.
(*b*) $2H_2SO_4 + 2MnO_2 = 2MnSO_4 + 2H_2O + O_2$.

4. There are only two compounds of carbon with oxygen:

(1) *Carbon monoxide*, CO, a colorless, tasteless gas, slightly soluble in water and in alcohol. It is exceedingly

poisonous, and when inhaled forms a very stable compound with the hemoglobin of the blood.

(2) *Carbon dioxide,* CO_2, a colorless, suffocating gas, with an acid taste; its solubility in water increases with the pressure. It is not poisonous, but produces death by reason of spasm of the glottis; it asphyxiates.

5. NH_4HO is ammonium hydroxide; it is used as a reagent in the laboratory, and also as a cardiac stimulant.

6. *Test for total acidity in the stomach contents:* Titrate 10 c.c. of gastric contents with decinormal sodium hydroxide solution, using phenol phthalein as an indicator. Each c.c. of the decinormal NaHO used corresponds to 0.00365 grammes of HCl. Therefore, the number of c.c. of decinormal NaHO used multiplied by 0.0365 gives the percentage of total acidity expressed in terms of HCl.

Test for free HCl in stomach contents: Add to a few drops of the filtered gastric juice one drop of a solution of dimethyl-amido-azo-benzol; a cherry-red color develops in the presence of free HCl.

7. (*a*) The common name of $CuHAsO_3$ is Scheele's green. It is a bright green powder, insoluble in water, but soluble in acids and also in ammonium hydroxide; it is very poisonous. It is used as a pigment, and as an exterminator of bugs, beetles, parasites, and fungi.

(*b*) The chemical composition of Schweinfurth green is $Cu(C_2H_3O_2)_2 + 3Cu(AsO_2)_2$.

8. *Toxicology* is that branch of medical science which appertains to poisons; it includes their character, origin, actions, symptoms produced, antidotes, treatment, and detection.

A *Corrosive* is a substance capable of producing death or serious harm by its chemical action upon a tissue with which it comes in direct contact.

A *Narcotic* is an agent which is capable of producing profound sleep; or of stupefying.

A *Ptomain* is a basic nitrogenous compound produced from protein material by the bacteria which produce putrefaction.

9.

FIVE POISONOUS TINCTURES.	MEDICINAL DOSE.
1. Tincture of aconite.....	♏vij
2. Tincture of nux vomica..	♏viij
3. Tincture of opium.....	♏viij
4. Tincture of iodin.....	♏jss
5. Tincture of strophanthus.	♏viij

10. *Two reliable tests for albumin in the urine:* "The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent, it is to be treated with a few drops of magnesia mixture and again filtered."

I.—*The heat test:* "The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3."

II.—*Heller's modification of the nitric acid test:* "Place in a test-tube a layer of HNO_3 about 2 centim. in thickness; then, with a pipette, carefully float upon the surface of this a layer of the urine in such a manner that the liquids do not mix. If albumin be present, a cloudy ring appears *at* the point of junction of the two layers, the borders of the cloud being sharply defined. A cloudy ring may be formed by the presence of an excess of urates, but in this case it is not *at*, but *above*, the point of junction of the layers, and its upper border is not sharply defined, but fades off gradually."—(Witthaus' *Essentials of Chemistry.*)

11. *Three tests for the presence of sugar in the urine:* The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

(1) *Fehling's test:* Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of traces of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and solution II of 130 gms. of Rochelle salt dissolved in 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

(2) *Fermentation test:* Three Smith's fermentation tubes are used, each containing a little compressed yeast, one filled with the liquid to be tested, the second with pure water, and the third with a dilute solution of glucose, and the three are put in a warm place over night. If gas collects in the first and third tubes, but not in the second, the liquid contains sugar; if gas collects in the third only it does not; under any other circumstances the yeast is at fault.

(3) *Boettger's test:* Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color.—(From Witthaus' *Essentials of Chemistry.*)

MATERIA MEDICA AND THERAPEUTICS.

1. In poisonous doses strychnine causes: asphyxia, tetanic spasms, opisthotonus, vomiting; the eyes are open, and fixed.

Death is due to asphyxia or to paralysis of the respiratory center.

2. *Agents which affect the organ of vision when locally applied.—Mydriatics* (dilate the pupil): Atropine, homatropine, daturine, hyoscyamine, coniine, cocaine; and probably gelsemine, muscarine, hydrocyanic acid, aconite, and amyl nitrite.

Myotics (contract the pupil): Pilocarpine, physostigmine, and probably nicotine.

Dilators of the pupils, especially atropine and homatropine, are used to dilate the pupil for ophthalmoscopic examination, and to prevent or break down adhesions of the iris. Contractors of the pupil, especially physostigmine, are used to overcome the effects of atropine, to prevent or break down adhesions of the iris, and to prevent too much light entering the eye in painful diseases of it.

Drugs which *impair or paralyze accommodation.*—Atropine, daturine, hyoscyamine, homatropine, cocaine, physostigmine, pilocarpine, gelsemine, and coniine.

Intraocular tension is increased by atropine (large doses), hyoscyamine, and daturine. It is decreased by cocaine, hyoscine, and physostigmine.

Gelsemine paralyzes the external ocular muscles especially the levator palpebræ and the external rectus, by its action on the terminal nerve filaments.

Cocaine, by stimulating the unstriped fibers in the orbital membrane and the eyelids, causes the eye to protrude. Coniine produces ptosis when given in large doses. (From White and Wilcox's *Materia Medica,* etc.)

3. *The principal stimulating diuretics, with dose,* are: Turpentine (oil of), ♏xx; juniper (spirit of), ʒj; buchu (fluid extract of), ♏xxx; cantharides (tincture of), ♏x; and alcohol.

4. ANTHELMINTICS. *For tape worm:* Filix mas; granatum; pepo; turpentine; kousso.

For thread worm: Alum, quassia, eucalyptol, tannin.

For round worm: Santonin; spigelia, chenopodium.

5. As used in materia medica and therapeutics, solution of hydrogen peroxide is an aqueous solution of H_2O_2, slightly acid, and containing when freshly prepared about ten volumes of available oxygen.

Its therapeutic uses are: disinfectant; for cleansing wounds, fistulæ, etc.; to absorb false membranes in diphtheria; sometimes for treatment of leucorrhea, or gonorrhea.

6. *Therapy of digitalis:* Digitalis is indicated in diseases of the heart, (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in nonvalvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is contraindicated in diseases of the heart (1) in aortic lesions when uncombined with mitral lesons; (2) when the heart action is strong, and arterial tension high.

Digitalis is also a diuretic; and it is also used in some forms of nephritis, exopthalmic goitre, pneumonia, chronic bronchitis, etc.

OBSTETRICS.

2. The *amniotic sac,* is the space between the amnion and the fetus. It contains the liquor amnii and the fetus. It dilates the os uteri; and protects the fetus, placenta and umbilical cord from pressure.

5. *Premature rupture of the membranes* may complicate labor and render it difficult. *Treatment* consists in dilating

the cervix, either by the rubber bag or manually, and then delivering by forceps or any other means that may appear preferable.

6. The most common occurrence that may suddenly change a favorable condition of labor into a dangerous one, is probably *uterine inertia*. The *treatment* consists in: removing the cause if possible; the exhibition of chloral, quinine, opium, or bromides; massage of the uterus through the abdominal walls; Walcher's position; rupture of the membranes may be advisable. Oxytocics should not be given.

HYGIENE.

2. Hygienic precautions to be taken in treating a case of tuberculosis: "The patient's quarters should be free from dust and admit of spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapped in a hammock or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spit-cups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practicing lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. * * * The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel nightgown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed by daily sponge-baths of lukewarm alcohol and water."—(Thompson's *Practical Medicine.*)

NEUROLOGY.

1. *Nerves* are protoplasmic structures capable of conveying impulses from one part of the body to another.

The *chief divisions of the nervous system*, are: (1) The cerebrospinal system, consisting of the brain, spinal cord, and the nerves attached thereto. (2) The sympathetic nervous system.

2.

CRANIAL NERVES.	EXIT FROM THE SKULL, THROUGH:
1. Olfactory.	Foramina in the cribriform plate of ethmoid bone.
2. Optic.	Optic foramen.
3. Motor oculi.	Sphenoidal fissure.
4. Trochlear or Patheticus.	Sphenoidal fissure.
5. Trifacial.	
(1) Ophthalmic.	Sphenoidal fissure.
(2) Superior maxillary.	Foramen rotundum.
(3) Inferior maxillary.	Foramen ovale.
6. Abducens.	Sphenoidal fissure.
7. Facial.	Stylomastoid foramen.
8. Auditory.	Internal auditory meatus.
9. Glossopharyngeal.	Jugular foramen.
10. Pneumogastric.	Jugular foramen.
11. Spinal accessory.	Jugular foramen.
12. Hypoglossal.	Anterior condyloid foramen.

4. The *function of the white matter*, is to transmit nerve impulses; of the *gray matter*, to receive or send out nerve impulses.

5. *Reflex actions* are involuntary or unconscious movements due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve.

Reflexes are classified as: (1) Superficial, (2) deep, and (3) visceral.

Example: The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

6. *The pathology of infantile paralysis:* "The disease is an acute exudative inflammation with destruction of tissue, but without suppuration. It affects chiefly the anterior cornua of the spinal cord, especially of the lumbar and cervical enlargements. It is not, as a rule, diffuse, but often the brunt of the trouble is felt only by certain cell groups. These are destroyed, and after a time connective tissue takes their place. In rare cases the larger part of the central gray and some of the white matter are involved. Later a certain amount of sclerosis occurs in the lateral columns. The anterior roots and motor nerves atrophy. The muscle tissue also wastes, and its place is supplied by connective tissue." (Dana's *Nervous Diseases.*)

MEDICAL JURISPRUDENCE.

1. In both melancholia and mania there is a general perversion of the mental faculties, but the former is usually accompanied with more or less depression, and the latter with more or less excitement.

2. *Paranoia* is a primary chronic form of insanity, occurring especially in degenerates, and marked by hallucinations and delusions which are systematized, *i. e.*, exhibit a logical connection and sequence, so that the patient from his perverted ideas, in which he firmly believes, draws logical and coherent influences. (From Duane's *Medical Dictionary.*)

PHYSIOLOGY, OPHTHALMOLOGY, AND LARYNGOLOGY.

1. *The changes which are produced in the blood by aeration* take place in the capillaries of the lungs, and are: (1) The giving up of the CO_2 by the venous blood, (2) the absorption of oxygen during inspiration, (3) the blood is cooled, (4) it also loses a small amount of watery vapor, and (5) the color becomes red.

2. There are two normal heart sounds which follow in quick succession, and are succeeded by a pause. The first, or systolic, sound is dull and somewhat prolonged; the second, or diastolic, sound is sharper and shorter. The sounds may be expressed by the syllables *lubb—dup.*

The first sound is heard best at the apex beat in the fifth left intercostal space; the second sound is heard best over the second right costal cartilage.

The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) the vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

3. The *functions of the spinal cord* are: (1) The conduction of impulses and impressions; (2) as a series of nerve centers.

The *special centers in the spinal cord* are the centers for (1) cilio spinal center, (2) for sphincter of bladder, (3) for sphincter of rectum, (4) for erection, (5) for contraction of uterus, (6) for maintaining tonus of muscles.

4. *In the capillaries:* It is here that all the changes occur which take place between the blood and the tissues of the body. Oxygen and the products of digestion and absorption are conveyed to the tissues, and carbon dioxide and waste matters are taken up and carried away from the tissues.

5. Bread consists of proteid, carbohydrate, and a trace of fat.

The *proteid* is converted into proteoses and peptones in the stomach, and in the small intestine (by the action of pepsin and trypsin, respectively).

The *carbohydrate* is converted (slightly) into dextrin and sugar in the mouth, by the action of the ptyalin of the saliva; also in the small intestine (by the action of amylopsin) into maltose.

The *fat* is emulsified and saponified in the small intestine, by the action of steapsin. Bile also has some slight effect on starches and fat.

6. (*b*) The *functions of the skin* are: Protection, excretion, secretion, regulation of the body temperature, absorption, sensation, special sense of touch, respiration.

7. The *functions of the liver* are: (1) The secretion of bile, (2) the formation of glycogen, (3) the formation of urea and uric acid, (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

The function of the kidneys, is: (1) To secrete (or excrete) urine; (2) the production of an internal secretion.

8. *Myopia* is a condition in which the antero-posterior diameter of the eye is abnormally long, and parallel rays are focused in front of the retina.

Presbyopia is a condition, due to advancing age, in which there is gradual loss of the power of accommodation, and consequently the near-point recedes beyond the distance at which the patient is accustomed to read.

Hypermetropia is a condition in which the antero-posterior diameter of the eye is abnormally short, and parallel rays are focused behind the retina.

Astigmatism is a condition in which owing to a greater curvature of the eye in one meridian than in others, the refractive power of the eye varies.

9.

	GLAUCOMA.	IRITIS.
Age	Over forty.	Any.
Tension	Plus.	Normal.
Congestion	General, especially scleral.	General, especially circumcorneal.
Cornea	Cloudy, and steamy surface.	Cloudy.
Anterior chamber.	Shallow.	Unchanged.
Pupil	Dilated, oval.	Contracted, synechiæ.
Pain	Severe, continuous.	Especially at night.
Vision	Much reduced.	Somewhat reduced.
Treatment	Eserine, pilocarpine, iridectomy.	Atropine.

(From Alling and Griffin's *Diseases of the Eye and Ear.*)

In *Keratitis*, there are: Pain, photophobia, lacrymation, poor vision, the cornea is infiltrated and "steamy." When due to congenital syphilis, the symptoms of the latter are also present.

10. *Mechanism of Accommodation.*—According to Helmholtz, the lens is an elastic structure, and when released from the flattening influence of its suspensory ligament tends to assume a spherical shape. During accommodation the ciliary muscle contracts, drawing forward the choroid and relaxing the suspensory ligament; this diminishes the tension of the lens capsule and allows the inherent elasticity of the lens to increase its convexity.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama	W. H. Sanders, Montgomery	Montgomery	July 13
Arizona*	Ancil Martin, Phoenix	Phoenix	April 5
Arkansas*	P. T. Murphy, Brinkley	Little Rock	April 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April 6
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	April 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	March 9
Delaware	J. H. Wilson, Dover	Dover	June 15
Dist. of Col'bia	Geo C. Ober, Washington	Washington	April 13
Florida*	J. D. Fernandez, Jacksonville	Tallahassee	May 19
Georgia	E. R. Anthony, Griffin	Atlanta	May —
Idaho	W. F. Howard, Pocatello	Boise	April 6
Illinois	J. A. Egan, Springfield	Chicago	April 15
Indiana	W. T. Galt, Crawfordsville	Indianapolis	May 25
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	R. A. Light, Chanute	Kansas City	
Kentucky*	J. N. McCormick, Bowling Green	Louisville	April 27
Louisiana	F. A. LaRue 211 Camp Street, New Orleans	New Orleans	May 20
Maine	Wm. J. Mayburry, Saco	Portland	March 9
Marvland	J. McP. Scott, Hagerstown	Baltimore	June 15
Massachusetts*	E. B. Harvey, State House, Boston	Boston	March 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	April 6
Mississippi	S. H. McLain, Jackson	Jackson	May 11
Missouri	J. A. V. Adcock, Warrensburg	Kansas City	May 4
Montana*	Wm. C. Riddell, Helena	Helena	April 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	May —
Nevada	S. L. Lee, Carson City	Carson City	May 3
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	June 29
New Jersey	J. W. Bennett, Long Branch	Trenton	June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	April 12
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	May 18
N. Carolina*	B. K. Hays, Oxford		June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grandforks	April 6
Ohio	Geo. H. Matson, Columbus	Columbus	June 8
Oklahoma*	F. P. Davis, Enid	Guthrie	April 13
Oregon	B. E. Miller, Portland	Portland, Philadelphia, Pittsburg	July 6 — June —
Pennsylvania	N. C. Schaeffer, Harrisburg		
Rhode Island	G. T. Swarts, Providence	Providence	April 1
S. Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Watertown	July 14
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Cleburne	June 22
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	April 5
Vermont	W. Scott Nay, Underhill	Burlington	July 13
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	K. Turner, Seattle	Seattle	July 6
W. Virginia	H. A Barbee, Point Pleasant	Huntington	April 13
Wisconsin	J. V. Stevens, Jefferson	Madison	July 13
Wyoming	S. B. Miller, Laramie	Cheyenne	

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending February 20, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	457	187
Diphtheria	369	38
Measles	608	20
Scarlet Fever	388	16
Smallpox	—	—
Varicella	210	—
Typhoid Fever	20	5
Whooping Cough	52	5
Cerebrospinal Meningitis	9	6
Malarial Fever	—	—
Totals	2113	277

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending February 19, 1909:

		CASES.	DEATHS
SMALLPOX—UNITED STATES.			
California, Sacramento	Nov. 1–Dec. 31	24	.
Los Angeles	Jan. 23–30	1	.
Illinois, Cairo	Jan. 30–Feb. 6	57	.
Chicago	Jan. 30–Feb. 6	2	.
Palmyra	Dec. 25–Jan. 20	4	.
West Frankfort	Dec. 12–Feb. 13	15	.
Indiana, Elkhart	Jan. 30–Feb. 6	1	.
Evansville	Jan. 30–Feb. 6	1	.
Fort Wayne	Jan. 23–Feb. 6	3	.
Indianapolis	Jan. 31–Feb. 7	1	.
Marion	Jan. 31–Feb. 7	5	.
Iowa, Burlington	Jan. 1–31	1	Imported
Kentucky, Covington	Jan. 30–Feb. 6	3	.
Lexington	Jan. 30–Feb. 6	5	.
Louisiana, New Orleans	Jan. 30–Feb. 6	3	.
Maryland, Baltimore	Jan. 30–Feb. 6	1	.
Massachusetts, New Bedford	Jan. 30–Feb. 6	1	.
Missouri, Kansas City	Jan. 30–Feb. 6	2	.
St. Louis	Jan. 30–Feb. 2	3	.
New York, Rome	Jan. 1–31	1	.
Ohio, Cincinnati	Jan. 29–Feb. 5	15	.
Dayton	Jan. 30–Feb. 6	1	.
South Dakota, Aberdeen	Dec. 14–Feb. 12	40	.
Tennessee, Knoxville	Jan. 30–Feb. 6	1	.
Nashville	Jan. 30–Feb. 6	2	.
Texas, Denton County	Jan. 1–Feb. 8	5	.
San Antonio	Jan. 30–Feb. 6	8	.
Vermont, White River Junction	Jan. 2–Feb. 10	3	.
Virginia, Port Royal	Dec. 27–Jan. 14	3	.
Washington, Spokane	Jan. 16–30	4	2 imported
West Virginia, Weston	Feb. 1	1	Imported
Wisconsin, La Crosse	Jan. 30–Feb. 6	6	.
Milwaukee	Jan. 30–Feb. 6	7	.
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Jan. 2–9	5	3
SMALLPOX—FOREIGN.			
Brazil, Bahia	Dec. 5–26	121	10
Pernambuco	Dec. 1–31	..	24
Canada, Halifax	Jan. 23–30	4	.
Yarmouth and vicinity	Jan. 1–Feb. 13	28	.
China, Shanghai	Dec. 19–26	..	Present
Egypt, Alexandria	Dec. 24–31	..	2
Cairo	Dec. 31–Jan. 7	16	9
Formosa	Dec. 12–26	3	.
Great Britain, Bristol	Jan. 16–23	2	1
India, Bombay	Jan. 5–12	..	7
Calcutta	Dec. 19–Jan. 2	..	61
Rangoon	Dec. 26–Jan. 2	..	1
Indo-China, Saigon	Dec. 19–26	1	1
Italy, general	Jan. 18–24	47	..
Calabria	Jan. 21	15	..
Genoa	Jan. 1–15	2	..
Naples	Jan. 18–24	20	..
Java, Batavia	Dec. 26–Jan. 2	2	.
Mexico, Mexico City	Dec. 12–26	..	10
Monterey	Jan. 24–31	..	3
New Foundland, St. John's	Jan. 31–Feb. 6	1	.
South Coast	Feb. 6	..	Epidemic
Peru, Lima	Dec. 31	6	.
Portugal, Lisbon	Jan. 23–30	5	1 imported
Russia, Moscow	Jan. 1–31	22	15
Odessa	Jan. 6–16	6	2
St. Petersburg	Dec. 26–Jan. 9	13	7
Warsaw	Dec. 5–19	..	6
South Africa, Capetown	Dec. 26–Jan. 2	4	.
Spain, Barcelona	Dec. 19–Jan. 9	.	4
	Jan. 16–23	.	1
Valencia	Jan. 19–23	10	.
Vigo	Jan. 9–16	..	1
Turkey, Constantinople	Jan. 10–24	..	8
Smyrna	Oct. 5–Dec. 31	..	53
YELLOW FEVER.			
Brazil, Bahia	Dec. 5–Jan. 2	18	8
Para	Jan. 9–16	4	4
Columbia, Cartagena	Jan. 7–14	1	1
Ecuador, Guayaquil	Jan. 9–16	..	1
Mexico, Mexcanu, vicinity	Jan. 23–30	1	.
Merida	Jan. 23–30	1	.
Veracruz	Jan. 23–30	1	1

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Original Articles.

THE ZOOPHIL-PSYCHOSIS.

A MODERN MALADY; WITH ILLUSTRATIVE CASES.

By CHARLES L. DANA, M.D., LL.D.,
NEW YORK.

UNDER the general head of constitutional psychopathic states, there is a group of psychoses which have various names and groupings. The list includes what is usually called neurasthenia, hysteria, psychasthenia, phrenasthenia, obsessive psychosis, compulsive psychosis, neurasthenic psychosis.

There stand out among all these conditions, which have the general names of psychoneuroses, three groups which are easily recognized and differentiated: They are neurasthenia, hysteria, and psychasthenia, or obsessive psychosis.

In neurasthenia there is a local or general, but genuine weakness of the psychic and nervous functions.

In hysteria there is a pathological activity of the subconscious mind so that morbid bodily and mental phenomena result.

In psychasthenia, there is a morbid activity of the conscious mind which produces disordered mental and bodily states, but there is no serious loss of control in the relation of the victim to his environment, so that it is not an insanity in its usual sense.

This psychasthenia or obsessive psychosis has been most actively studied in recent years, for it seems to be the disease of our civilization—a kind of occupation psychosis of modern life. It is not hysteria, though hysteria and it are often united. It is not neurasthenia, though this is almost always associated with it at its beginning, at least.

Though there is an unstable constitutional state behind it, yet this may not be very important and most often the disorder is the result of environmental or autogenetic causes. It is produced by bad methods of education and training, acting on minds very sensitive to suggestion and impressions from without and within; minds lacking in power to handle the problems of life, and to see things in their right proportion. Modern activities are too strenuous for this kind of mental organism which is meant for a life of simplicity, moderation, and restraint. The present popular "absorbent" method of education, which lets the mind follow its interests and take the line of least resistance, is a potent factor in the pathogenesis. For through it the power of inhibition becomes weakened or lost; and the mental life is approximated to the conditions of dreaming.

The zoophil psychosis is a modern type of mental disorder belonging among the psychasthenic or obsessive insanities—though really not an "insanity" in the general sense. It is characterized by the tormenting ideas and worrying fears of this psychosis, but it has underlying it a morbid affective state, or as Raymond and Janet call it an "*invraisemblable amour*," toward certain persons and animals. This anomaly of the emotions is not usually referred to as part of ordinary types of this class of disorders; but it is a most important feature; and it may even exist as the dominant thing in the psychosis.

Some phases of this disorder have been incidentally referred to by Raymond and Janet, who have called it a "zoophilie" but it has not been, so far as I can find, specifically presented. They report the case of a woman who became *bouleversée* for three years because her cat had died of cancer of the head. They also give the history of a woman who became obsessed with remorse because she had given away her cat, and the animal had later died. She had the usual train of symptoms going with the obsession: defect of attention, brooding, inability to work, insomnia, etc. "She had another symptom almost as bad as the despair, viz., an impossible love of animals pushed to the degree of disease, a *zoophilie*." She was always surrounded by four cats, which she loved and looked after more than her children. She lost a child but did not much mind it. She lost a cat and was melancholy for eight months. Meantime she became pregnant; had a miscarriage; the joy of this event cured her melancholia. They add that Zoophylie is a frequent symptom among degenerate and psychasthenic patients. Obsessions et Psychasthenie, Vol. II, p. 447.

Magnan, in 1884, wrote an article entitled "De la Folie des Antivivisectionistes" (Soc. de Biol. 27), but this is a different thing.

Ballet in his chapter on "Intermittent Morbid States of the Emotions" describes a "Zoophobia" and its opposite a "Zoophilie," one of the forms of the "voluptuousness of compassion." That which demonstrates the morbid character of this state, he says, aside from the abulia and emotionalism, "is the indifference often complete of the Zoophiles for their own relatives and friends and for human suffering generally—to which indifference there is sometimes added a veritable cruelty. A patient of Morel, who would faint at the sight of a sick animal, "did not fail to rent his windows on the days of executions and force his domestics to go and see them." (Traité de Pathologie Mentale, p. 726.)

In order to show correctly what I mean, and to prove at once that the condition is most real, I will cite the following cases:

CASE I.—*Zoophilic Anxiety Obsession.* A man aged 35, married, no children, came to me suffering from general neurasthenic symptoms. His early history was that he had been always in fairly good health though of a nervous temperament and subject to migraine. His habits were good and he had had no infection. He had lived much of his time in the country, keeping a stable, hunting, breeding dogs, and having many pets. In the last two or three years he had had a great deal of business and family trouble. This wore on his health, and when he came to me he had what is usually called neurasthenia. He could not sleep well; nor do any work

without great fatigue and an ensuing headache. He could not read or use his eyes for any long time. He was easily tired and had lost his interest in his work and pleasures.

He had always been very careful of the comfort of animals and disliked to see them badly treated in the slightest degree; this was especially so of horses. He did not care so much about the dogs. His concern for horses, originally a natural and humane one, grew on him as his health failed; so that he finally gave up keeping them or using them, because their possible discomforts worried him so much. A little trouble with his horse would keep him awake nights. He came to the city, but now the horses of other people bothered him. It gave him real suffering to see a horse checked up, or whipped, or docked, or driven fast. At last he could not travel about in the city with any comfort; the sight of a horse with his head up would give him so much distress; and the chance stroke of a whip by a cab driver was like a blow on his own body. Being a man of leisure, he traveled a good deal, but he finally had to avoid regions where there were horses, altogether, for he would be sure to see something to distress him and then he could not sleep. He had been fond of Italy but he did not dare to go there now on account of his sensations about horses, and the cruel way in which as he remembered they were treated by the Italians. Certain parts of the South he would not visit for the same reason.

His neurasthenic state was not due to this mental condition, but was rather the result primarily of family and personal troubles. But having got into an asthenic state his obsession grew steadily worse. It interfered with his comfort in life. He could only live in certain places and only travel under certain conditions. Away from the sight of a horse he was not distressed by his anxiety for the general welfare of the horse. In fact, he had not even joined an antivivisection society, though he did carry the badge of the S. P. C. A.

He would discuss his feelings with great candor, and recognized that it was an unnatural and unreasonable state of mind. But he could not shake it off. It was his only morbid psychosis, and in every other line he was an intelligent and cheerful sort of person.

In the course of two or three years he got stronger and better, and finally to a large extent mastered his morbid worry; so that he could even go to Italy.

Case II.—*Zoophil-Obsession.* A lady about 40 years old, married but childless and not desirous of children, lived with her husband and sister in a quiet suburb of a large city. Her interest in life lay, to some extent, in her sister and husband and house, but it was mostly in sick cats. She could not bear to have a cat suffer. She made her home a hospital for stray sick cats; and the house was always full of them. If she heard a "meowing" at night she was unhappy and would wake her husband and make him go out and catch the animal, if he could and bring it home. The man's life was made utterly wretched by this condition of affairs, and I was consulted.

The patient herself was a woman in good general health, fairly intelligent, but unsocial, unsexual, and interested only in her domestic and animal affairs, and the conduct of her husband, for she was of a very jealous and exacting disposition, ruling the situation by her selfish querulence. The cat obsession was only one phase, though the most disturbing one, of an unstable constitution; it dominated the situation. Her views on animal suffering were in the abstract, on a high ethical plane, while her conduct was on the lowest possible. She did not, like my other patient, have any "insight" or appreciation of her lack of consideration for the human side of her household, or of the real folly of her point of view. The mental state was more of a quasi-delusional type, yet it led to the same anxious worry and apprehension characteristic of the obsession. She naturally belonged to some kind of zoophilic society, and even organized a little society of her own.

This condition had gradually developed during a period of about five years; until she had become the chronic victim of the cat obsession. She was advised treatment by a gynecologist, for there was some absence or perversion of instinct in her case.

This patient had a sister living with her who had been insane twice, but was now well. She was, if possible, a little more affected by the cat-love than my patient. It would be difficult to imagine a more morbid household.

These cases are examples of fine feelings gone wrong; in the one case involuntarily as the result of an overgrown sentimentality; in the other as the result of a habit selfishly and foolishly nursed into an unmoral mode of life.

The attitude of the civilized communities to animals has undergone great change in the last century. We breed them with greater care for our own practical use or pleasure. We train them better; we kill them less ruthlessly, and exterminate them with some intelligence; in general, there is an enormous advance in the concern for their welfare. Along with this beneficent and creditable advance, there have developed radical changes in our view of animal intelligence. We assume that this intelligence is not of a special animal brand, but is somewhat like our own, though working more automatically. Its greatest asset is the instincts and instinctive feelings; it has acute perceptions in a narrow range; it has the power to remember concrete things and to associate the memories with some result; hence a kind of reasoning exists; but it lacks the power to form concepts or abstract ideas. It has the simpler emotions, *i. e.* those associated with agreeable surroundings, satisfaction of needs or punishment. It has the instinctive passions brought out in defense of life and for the propagation of species. It has not the higher feelings that go with ethical and esthetic concepts. There is a dim and dreamy consciousness, but it is doubtful if the dog, for example, feels a special sense of personality, or (as a man does) consciously separates himself from the world about him. As the automatic and instinctive activities are the main thing, consciousness and with it sensibility are necessarily less acute. Thus we now recognize in animals an intelligence which has a close kinship with our own.*

*About three hundred years ago an oration was delivered at the University of Padua in "Praise of the Dead" whose bodies had been dissected by the anatomist, Professor Julius Casser. Their was then very acute sensitiveness on the subject of dissection of human bodies. Incidentally, the orator shows how far beneath the human body was the animal. "The bodies of animals," said the speaker, "are the neglected domiciles of the brute mind. The body of man is the habitation of the Divine Spirit made beautiful by God himself. They have the composition of Brutes; man reveals the admirable and orderly construction of a being who is the end of all things, the Epilogue of Nature." "Collaudatio Mortuorum," Pisa, 1618.

But when new things are added to our civilization we do not always assimilate them properly, for there is a large class of the unstable, and of the uneducated or over-educated who eagerly seize on what most appeals to their sensibilities, which are developed in excess of the judgment.

In one of Joseph Conrad's stories he describes the character of a gentle but very feeble-minded youth, who while rather unmindful of human trouble, was exquisitively sensitive to the suffering of animals. When the cabman casually whipped his tired horse, "Stevie" gets down promptly from the box, quivering with distress, and insists on walking. He is not worrying at all about his paralyzed mother who is inside the carriage; but the lash on the horse's hide makes him sick with distress. It is not uncommon in mentally defective children to see them show an abnormal sensibility towards animals. It may take the form of passionate interest in and devotion to them; or perhaps of cruelty and absence of any pity at the sight of suffering. Both the excess and the defect are found in this same kind of mentally defective. And Mr. Conrad's character is correctly drawn, and from perhaps some living model.

However, it is really more often in another class that we find this morbid mental state, which can be called *zoophil psychosis*. Speaking very generally, there are three forms of mental defect which are of congenital origin; idiocy, imbecility and "constitutional psychopathy." This last is a vague and not a very good term, and includes among other things that class in which there is not necessarily a lack of intelligence, but, there is lack of stability; the subjects have a mental constitution in which there is a constant tendency to a morbid misdirection of thought, feeling and will. They are persons, often of correct ideals, but they are the victims of fixed and often tormenting ideas (obsessions) of morbid fears, and scruples, of worrying anxiety over trifling details; and of excesses in the affective life. All this is worse when they become run down and neurasthenic.

So far as the zoophil psychosis is concerned, it shows itself both in (1) fixed and tormenting ideas and (2) an emotional hypertrophy which carries a naturally noble sentiment to the point of disease. With both states there are morbid fears and worries.

(1) The fixed idea takes usually the form of a kind of quasidelusion that the animal world is constantly suffering from or in danger of the brutality of man. To an extent this is true, but not to such extent as to lead an individual to acts of oppression and feeling of alarm.

(2) The hypertrophy of affection leads to a continual state of alarm, jealousy, and concern for the object beloved, whether it be a baby, a dog, or the cause of religion. The psychosis is really the expression of a selfish and weak nature.

A very kind-hearted person, for example, may be also very indolent and very selfish—the combination is not uncommon. Now, it is much easier to pet a dog or nurse a kitten, than to tell the exact truth, or speaking more concretely, to nurse the sick; provide thoughtfully for the poor; or keep watch over the temper and make a household comfortable. Thus the kindly feelings of the indolent and unintelligent often take this line of least resistance; and then the feelings and interests grow, until the care for the pets vastly exceeds that in any other unselfish work. The dog is plump and over-cared for; and the cat is more happy than the husband. As Janet says: It is easier to love a cat than a man. Its nature is more simple; its demands more limited; its responses are definite.

In not very stable minds, it becomes especially frequent nowadays that the emotional interests overshadow the judgment and the power of control; so that worry and concern are the complements of love and devotion. Black care sits not behind the "horseman" nowadays, but hangs upon the mother and housekeeper; the father and the bread earner; and the amateur philanthropist. When there is deep affection there should be concern, but in these patients there is more; there are the ever present worry and irritability, and restless anxiety to do something.

It happens that many people cannot nowadays go out into a city's streets and not be distressed continually at the sight of tired, overworked and badly driven horses; or over some very thin looking and ungroomed dogs. They are so eager to observe the unhappy horse that they do not see the human suffering. I confess that after 20 years of experience with cab-driving in this city, I have grown sympathetic to the driver more than to the horse, for on the whole the driver is good to his horse and has a harder lot.

It having been my lot to look after the human sick, I feel that their needs are immensely greater than those of the dog, because their capacity for suffering is so immensely greater, and the suffering of one human being involves a group of others; thus the sick or invalid mother cripples a whole household and her death sends a whole group into mourning.

The animal being dumb is helpless, but so is the baby; and so practically are the sick poor, while the defective child is vastly more the slave of circumstance than the dog or cat, which have chances everywhere.

This all seems very common-place, but it has its application. I plead for sick humanity, and against the excesses in such sentiment for animals, as leads to selfishness and injustice and the development of more psychopathic states. There is growing up an enormous mass of artificially cultivated tenderness towards a supposititous suffering. There will come next tears over the suffering of a fading flower, and sorrow over the unquenched thirst of the withering plant.

This lack of proportion in the kindly sentiment is harmless enough generally, but it develops by mutual encouragement among the unstable and by self-indulgence, until the individual becomes the victim of a psychosis and a source of distress to self and friends, or demoralization to family and of serious social injustice.

DANGERS ASSOCIATED WITH REMOVAL OF THE TONSILS AND ADENOID GROWTHS.

By F. C. ARD, M.D.,

PLAINFIELD, N. J.

Recognition of the evil results due to the presence of adenoids and diseased tonsils is now general. The campaign of education carried on for the past fifteen years or more has resulted in a widespread knowledge of the symptoms indicating their presence, popular articles in the magazines have spread this knowledge among the laity, and it is now not an unusual occurrence for mothers to bring their children for operation, having made the diagnosis themselves.

As a result, the operation is now done generally and often with but a vague idea of the risks involved and the accidents which may occur. A study of the literature will soon satisfy one that the procedure is not trivial, and there is much to substantiate the claim of some writers that the modern operation for the removal of tonsils and adenoids should be considered a major, rather than a minor one.

The ease with which chloroform is administered, together with the belief among medical men that children bear chloroform well, makes it naturally the anesthetic of choice. Careful investigation, however, proves that many deaths have resulted from its administration, and it is now becoming generally recognized that children having what is known as the status lymphaticus are not good subjects for chloroform anesthesia. Few of the deaths following its administration are reported. I have personal knowledge of two unreported cases, where death resulted before the surgeon had an opportunity to begin the operation. Two or three narrow escapes in my own practice led me many years ago to give up the use of chloroform in these cases, and I cheerfully endure the inconveniences of ether, knowing it is associated with far less danger to my patient. Alarming or fatal hemorrhage following the operation is sufficiently frequent to require preparation on the part of the operator for this complication. In a rather extensive search of literature I find eighty-five cases reported. Death resulted in fourteen of these cases and recovery in seventy-one. I have a report of three cases ending in recovery in my own practice to add to the list. It is undeniable that only a small percentage of cases are reported. Dr. Chevalier Jackson stated in 1906, at a meeting of the British Medical Association, that he had tied the carotid artery in postoperative tonsillar hemorrhage six times, yet no report of any of his cases was found in my search.

The causes of hemorrhage may be divided into constitutional and local. The constitutional causes include hemophilia, all forms of anemia, exophthalmic goiter, valvular disease of the heart, and operation during menstrual period. The local causes are abnormal distribution of blood-vessels, incomplete operation or operating in the presence of an acute inflammation. In the fourteen deaths, a history of hemophilia was secured in seven. This large percentage in the fatal cases does not obtain in those where recovery resulted.

Damianos and Hermann give hemophilia as a cause of severe postoperative hemorrhage in only 4 per cent. of the cases reported. This is obviously incorrect, although due allowance must be made for a natural tendency on the part of an operator to consider a "free bleeder" as a hemophiliac. Among the number of cases of alarming hemorrhage, several were operated on about the time the menstrual period was due. Knowing the constitutional causes, we can eliminate these cases by securing a careful history.

Among the local causes abnormal distribution of blood-vessels is considered by Barrell and Orr as a more frequent cause of hemorrhage than is hemophilia, and they mention particularly large pulsating vessels, situated on either side of the pharynx behind the posterior palatine arch. Dupuy states that he has several times observed a vessel the size of a crow quill, superficially situated and pulsating, coursing along the junction of the posterior and lateral walls of the pharynx. I have observed this anomaly once. The much dreaded injury to the carotid has occurred but once, and then due to an anomaly in its course. The source of arterial bleeding is almost invariably the tonsillar artery.

Hacking observed six cases of severe hemorrhage after tonsillotomy, in all of which the cause of the bleeding was injury of the posterior pharyngeal pillar. These tonsils were attached to the floor of the tonsillar niche with a broad base, the lower end reaching deeply below the level of the root of the tongue, and were closely applied to the pharyngeal pillars. The injury was due to the choking movements of the patient crowding the posterior pillar into the instrument.

Hemorrhage calling for interference may be immediate, belated, or secondary, the direct belated hemorrhage being most common, according to Burger. A comparatively large number of cases occurring on the fifth day is noticeable in these reports, indicating that one of Nature's methods is exhausted before another method becomes effective. Secondary hemorrhage may occur even later, as Brown reports a case fifteen days after operation.

For control of hemorrhage following the removal of adenoids, persistent spraying with solution of adrenalin or hydrogen peroxide may result in some of the solution reaching the bleeding surface. These remedies may be applied by means of cotton on applicators passed through the nose or mouth, but the most effective method is by packing the upper pharynx. This is the measure most frequently resorted to and with satisfactory results.

The faucial tonsil is more readily accessible, and here other methods may be employed. Pressure with the fingers has repeatedly controlled hemorrhage; the applications of various remedies, such as solution of iron, tannic and gallic acid, adrenalin, hydrogen dioxide, and the electrocautery, have been successfully used.

To combat the persistent forms more radical measures are indicated, and a very effective procedure is suture of the palatine arch. Escat describes the method as follows: A strong ordinary curved needle is employed for the purpose, held in a needle-holder and armed with a strong silk thread, 40 cm. long. The two pillars are pierced from the anterior to the posterior in case of the left tonsil, and from the posterior to the anterior in case of the right tonsil. In the vicinity of the supratonsillar fossa, the two pillars may be transfixed together. One suture is not sufficient as a rule to close the space, and another may be placed one or two centimeters below the first. As the ends of the silk thread are outside of the mouth it is very easy to conduct the loop as far as the pillar with the fingers. In certain cases, however, the suture has only the effect of transforming the tonsillar groove into a canal, the hemorrhage continuing behind the suture, as in a case observed by the author. Under these conditions, it becomes necessary to slip a tampon, made of absorbent cotton, into the canal. This tampon should be made the size of the little finger and may be imbibed with a hemostatic, such as hydrogen peroxide, antipyrine solution, ferropyrin, or adrenalin. It is inserted into the supratonsillar fossa from above downward, with the aid of curved forceps, and is pressed into the space until it emerges below the inferior suture; traction is then made on the lower end, in order to wedge the tampon in firmly; the tampon can be removed at the end of twenty-four hours; the sutures are to be removed only provided the withdrawal of the tampon does not give rise to hemorrhage.

Nicoladoni's suggestion to render the bleeding tonsil accessible from the outside in desperate cases of tonsillar hemorrhage, to remove the organ and to close up the pharynx by suturing the pharyngeal pillars to each other, is described in the *Wiener klinische Wochenschrift*, No. 9, 1902. The operation is recommended because ligature of the common carotid is much too dangerous and moreover not absolutely reliable, in view of the anastomoses from the other side, and because it is not always positively known that the tonsillar artery is the bleeding vessel in every instance. I find no instance where this method of controlling hemorrhage has been applied, but the ligature of carotid, either common or external, has been done frequently. Three of these cases occurring in my own practice are as follows:

Case I.—A. D., male, age 8. Adenoids removed with forceps and curette, ring knife used in removing submerged tonsil; more or less oozing from the surface of the tonsil on one side after operation. I left directions to spray the throat with hydrogen peroxide if the bleeding continued. On the same evening I was called to see the patient and was informed that bleeding had been continuous since the operation; on inspection, blood could be seen trickling down the side of the throat and the patient's general appearance indicated loss of considerable blood. With a long shaft needle used that day in a case of cleft palate, I sutured the palatine arch and packed the cavity so formed with gauze soaked in adrenalin solution. Twenty-four hours later the gauze was removed, and forty-eight hours from the time of operation, the sutures were removed with no recurrence of bleeding.

Case II.—M., female, age 15. She had been subject to frequent attacks of inflammation of the tonsils. Submerged tonsils removed with ring knife. Bleeding shortly after operation assumed alarming proportions and the palatine arch was sutured in same manner as in Case 1, which promptly controlled the bleeding; the packing was removed in twenty-four hours, the sutures in forty-eight hours. Three or four days later, I was summoned to the house on account of hemorrhage recurring, but it ceased spontaneously before my arrival and required no treatment.

Case III.—Adenoids removed with forceps and curette in the early afternoon. That night the family physician was called on account of hemorrhage. Monselle's solution of iron used in the nose arrested hemorrhage. I saw the patient, who lived in an adjoining town, the following morning, and she showed the effect of the loss of blood, being very anemic and prostrated. There was no further recurrence.

In these three cases there was no history of hemophilia and the patients were all apparently in good health. In the first two cases, the method employed was similar to that described by Escat, although I had not then seen his article. The gauze strip, I believe, will be found quite as satisfactory as cotton.

One author, Wingrave, has observed thirty cases of rash, after removing tonsils and adenoids. The rash appears as a rule on the second or third day and may be papular, roseolar, or erythematous in character, sometimes involving the face and extremities; it may persist for two or three or even five days when it rapidly subsides. Desquamation follows in certain cases. General symptoms are insignificant.

Acute articular rheumatism and endocarditis have been reported as following operation. Hemnebert reports five cases of diphtheria subsequent to operation.

Various septic diseases have occurred. Coley reports three cases under his own observation, where septic infection of the serous membranes resulted. Severe inflammation of the cervical glands, giving rise to severe and persistent symptoms, was observed by Gronbeck in four cases. Putnam has seen two cases of meningitis follow operation. Injury of the posterior pillar, uvula, vomer, vertebra prominens, and even the Eustachian tube, may occur when the operator is unskillful, and two cases of fracture of the end of curettes are reported, in one case the broken end was removed with much difficulty, and in the other case the fragment passed through the bowels.

Middle-ear inflammation, occasionally complicated with mastoiditis, has frequently developed after tonsil and adenoid operations.

I have added to my paper a condensed report of a large number of cases of fatal and non-fatal complications. These cases represent but a small percentage of those that have actually occurred, but there are a sufficient number to warrant the statement that due care is not taken in securing a history; too little time is given to preparation for operation and often times insufficient knowledge and experience are possessed by the operator.

Stucky, F. A.: Sudden deaths following the removal of tonsils (*Memphis Lancet*, June, 1899). Death occurred nine hours after the removal of tonsils and adenoids, as the result of hemorrhage. The fatal outcome is referred by the author to sepsis and hemorrhagic diathesis.

Stucky, F. A.: Removal of tonsils and adenoids, followed by fatal results (*American Practitioner and News*, March 1, 1899; *Annals of Otology, Rhinology, and Laryngology*, May, 1899). The operation, which was urgently required, was unattended by complications, until profuse hemorrhage set in two hours later, but this could be readily controlled. However, the patient (a young child) died at the end of seven and a half hours after the hemorrhage, presumably as the result of shock.

Schuchardt: Sudden deaths after excision of enlarged tonsils, due to hemorrhage, asphyxiation, or shock (*Aerztliche Sachverständigen Zeitung*, No. 7 1900). The patient was a girl thirteen years of age, of lymphatic chlorotic constitution, who died suddenly during the removal of the right tonsil (the left had just been ablated without trouble), presumably as the result of heart failure, a not uncommon occurrence in individuals of this type.

Thompson, W. B.: A case of sudden death after an operation for adenoids (Medical Record, Aug. 18, 1900). The patient, a child of twelve years, was operated upon under chloroform anesthesia for adenoids and enlarged tonsils. Death occurred a few minutes later, preceded by cyanosis, weak pulse, enlarged pupils, and shallow respiration. The customary stimulants, traction of the tongue, and finally tracheotomy, were employed, but without success, and the cardiac action and respiration did not return, although artificial breathing was kept up during an hour and a half. The death is referred to heart failure.

Thurly, E. L.: Remarks on the after effects of operation for removal of adenoid tissue at the vault of the pharynx (*Journal of the American Medical Association*, May 1, 1901). The author says that a

few cases of general sepsis have been noted after interventions of this kind. A case of subsequent fatal meningitis occurred in his personal experience. Adenoid operations have been known to be followed by inflammation of the middle ear and the accessory sinuses, sometimes subsiding at the end of a few days, but sometimes followed by purulent catarrh. It is advisable to avoid similar operations during epidemics of influenza, diphtheria, or other infectious diseases.

Stewart, F.: Death after the removal of tonsils and adenoids in a hemophilic child (*Lancet*, November 15, 1902). The patient, a boy seven years of age, was operated upon under ether anesthesia. Severe hemorrhage followed, but was promptly arrested. In the course of the next four hours, both sides of the neck and the left cheek became swollen by bloody extravasates. These swellings extended as far as the sternum and clavicle. Dyspnea appeared, and intubation was performed, followed by tracheotomy. The patient died at the end of thirty-two hours. The pharynx, larynx, and cervical tissues were found to be infiltrated with blood. There was nothing to be elicited in the personal or family history concerning hemophilia. No further hemorrhage from the sites of the operation had occurred after the interference.

Goldsmith, Perry G.: A fatal case of secondary hemorrhage four days after the removal of adenoids (MEDICAL RECORD, September 27, 1902). The patient was a child who was operated on for obstructive deafness due to enlarged faucial tonsils. The operation was not unusual, and the condition of the patient on the second and third day after the operation was apparently satisfactory; on the fourth day, however, repeated and alarming attacks of hemorrhage set in, resulting fatally in a few hours; there was no history of hemophilia. The patient was under the care of the family physician at the time of death, and as no postmortem could be obtained, the cause of the hemorrhage remained unknown.

Damianos and Hermann: Fatal secondary hemorrhages, following tonsillotomy (*Wiener klinische Wochenschrift*, No. 9, 1902). The patient was a man twenty-three years of age, in whom a fatal hemorrhage occurred about an hour and a half after the ablation of a hypertrophied tonsil with the Fahnestock tonsillotome. The bleeding immediately after the operation was inconsiderable. There was a certain tendency to hemophilia. The incision passed in the plane of the external capsule of the tonsil, where the trunks of the tonsillar arteries are as yet undivided, and one of the trunks was shown at the autopsy to have been injured in its lateral wall. The author cautions against overradical ablation of the tonsils.

Burger, H.: Fatal hemorrhage after adenotomy (*Tijdschrift voor Geneeskunde*, No. 2, 1903). The patient was a boy eleven years of age, who succumbed to hemorrhage twelve hours after amputation of the three tonsils in spite of tamponing of the nasopharyngeal space. At the autopsy it appeared that the patient had suffered from fully developed leukemia.

Putnam: Adenoid operations and mortality (*New York Medical News*, March 12, 1904). The author observed a case in which an operation upon adenoid vegetations was followed by purulent meningitis, with a fatal outcome. He believes that similar fatal sequelæ after adenoid operations are of more common occurrence than is usually assumed. Some time ago he had occasion to observe the outset of meningitis after this operation in another patient, a young man twenty years of age. It is probable that in these cases infectious material was absorbed by way of opened lymphatic channels.

Wales, A. E.: Cavernous Sinus Thrombosis after Adenotomy. (*Archives of Otology*, February, 1908.) The following case was observed by the author at the Massachusetts Charitable Eye and Ear Infirmary, Boston. A boy aged seven entered the Infirmary February 2, 1906, for the removal of adenoids. Operation under ether. Too great force with a Beekman curette, in the hands of an inexperienced interne, combined with a thin cortex of the inferior surface of the basilar process of the occipital bone, may account for the following history: Immediately on recovering from the effects of ether, the boy complained of occipital headache, which increased in severity. On the third day he developed tenderness over the right mastoid process with pain; drum membrane slightly reddened; all landmarks visible; redness and bulging of the posterior wall of the external auditory canal. The boy had a septic appearance. A mastoid operation was performed; the antrum was apparently normal. Pus was found in the deep intracranial cells around the sinus and tip. No culture was made. The right infraorbital region began to swell and become erythematous, resembling erysipelas, and the patient was removed to contagious ward. Septic temperature; no improvement after operation; tenderness in back of neck after operation; condition worse; temperature very irregular, ranging as high as 107° F.; tenth day right eye developed exophthalmos, chemosis of lids, and optic neuritis. Diagnosis thrombosis of cavernous sinus. He became comatose and had frequent epileptiform attacks. The left lid and eye began to show the same signs as had appeared on the right eye. Death occurred on the fourteenth day. Necropsy; thrombosis of both cavernous sinuses. Right sinus filled with pus; left clot not broken down; pus in mastoid cells; no clot in sigmoid sinus or jugular bulb. Streptococcic infection. Conclusion: The basilar process of the occipital bone may be injured in removing the nasopharyngeal tonsil. Too much force should be avoided, just enough force to cut the adenoid growth, which depends upon the consistency and sharpness of the cutting instrument. Injury to the basilar process may, by extension, cause infection of the sphenoid sinus, and finally thrombosis of the cavernous sinus.

The following cases of fatal hemorrhage following adenotomy are reported by Dupuy in his article in the *Laryngoscope* for January, 1906.

Preble: (*Boston Medical and Surgical Journal*, Vol. 138, 1898). The patient, a girl of eleven; hemorrhage occurred on the seventh day, postnasal packing, no history of hemophilia.

Schmieglow: (*Centralblatt für Chirurgie*, 1897). Male; death immediately from injury of the carotid, by curette, due to an anomaly in its course.

Sochs: (*Journal of Laryngology*, 1900). Boy aged ten; hemorrhage occurred two hours after operation and continued for two days. Solution of iron and packing applied; positive history of hemophilia.

Bliss: (*Trans. American Laryngological Association*, 1900). Boy aged seven; hemorrhage occurred twelve hours after operation; history of hemophilia on maternal side; postnasal packing, ergot and saline transfusion.

Kenefick: (*Laryngoscope*, 1898). Boy aged four years; postnasal packing.

Delavan: (*New York Medical Journal*, 1892). Hemophilia.

Newcomb: (*American Journal of the Medical Sciences*, Vol. II). Boy aged three; bleeding occurred four hours after operation; no physician called.

Barkan: (*Occidental Medical Times*, 1894). Boy aged six; no history of hemophilia.

Hooper: (*Laryngoscope*, 1890). Pharynx scraped with finger; incomplete operation; hemophilic history.

A sufficient number of non-fatal cases only are reported to call attention to the various complications and the method employed for their control by different operators. Many reported cases are not included.

Huber, F.: Lateral pharyngeal abscess following tonsillotomy. (*Medical Review*, September 30, 1899; *Pediatrics*, September 15, 1899). The abscess developed in connection with excision of the tonsils in a child who had previously suffered from a severe postcervical abscess. In the opinion of the author, the old inflammatory focus was started up again by the traumatism of the operative interference.

Klein: (Danish Oto-Laryngological Society, meeting January 20, 1900). A case of secondary hemorrhage on the fifth day after the removal of adenoid vegetations. The patient, a girl of fourteen years, was operated upon with Gottstein's instrument on January 5, 1900. On the 7th she developed angina, and on the 10th, at 4 P. M., there occurred a profuse hemorrhage (half a liter) coming from the nasopharyngeal space and lasting five hours. Alarming hemorrhage.

Quinlan, F. J.: (*Laryngoscope*, April, 1900). Alarming hemorrhage following the removal of the tonsils. The hemorrhage occurred between two and three hours after the performance of tonsillotomy, and was severe enough to require an infusion of physiological salt solution. The patient, an adult, recovered.

Hope, G. B.: An instance of primary hemorrhage following amygdalotomy (*New York Medical Journal*, March 3, 1900). The patient, a woman of twenty-six years, came out of the anesthesia (chloroform) immediately after tonsillotomy had been performed with Mackenzie's instrument. Bleeding was extremely severe from the first instant, and with slight remissions lasted for over three hours. Large coagula formed in the throat, requiring the forceps for their removal and the patient was almost stifled by the blood flowing down the larynx. The ordinary hemostatics such as local applications of cold, cocaine, solution of antipyrin, hydrogen peroxide, all proved entirely useless and the hemorrhage could be controlled only by energetic application of the thermocautery, after the patient was already highly anemic. During the brief instants in which inspection was possible, the hemorrhage could be seen to originate from an arterial branch on the right side, in the anterior portion of the cut surface. The tonsil had been so radically ablated that the stump was entirely hidden by the pharyngeal pillars, except during contraction of the fauces.

Riviere: Comments on 150 operations for adenoid vegetations. (*Lyon Médical*, July 11, 1900). With special reference to complications, the author observed epistaxis and inflammation of the cervical lymphatic glands. He employed the curette for the removal of adenoid growths. Hypertrophied tonsils removed with the bistury, the tonsillotome or the galvanic knife.

Hagedorn: Severe spontaneous epistaxis after ablation of adenoids (*Bresgen's Sammlung*, II, 1901). The patient was a girl seventeen years of age, who had alarming hemorrhage, from right nostril alone, a few hours after the removal of the adenoids. Rhinoscopical examination showed that the blood came from all parts of the visible mucous membranes in the anterior sections of the nasal cavity. The hemorrhage was controlled by tamponing, but the left side began to bleed, the same findings being demonstrated, and the same treatment proved successful. The hemorrhage in this instance was referred to the fact that the operation was performed three days before the date of the menstrual period; the patient always bled very profusely at that time, so that vicarious menstruation could be thought of; however, the menstrual flow soon appeared in undiminished abundance and lasted the usual eight days.

Getchell, A. C.: Dangerous hemorrhage after the removal of enlarged tonsils and adenoids, with the report of a case. (*Journal of the American Medical Association*, October 5, 1901). The case reported by the author had a favorable outcome. The conclusion is reached by the operator that the tonsils or adenoid vegetations should be removed under the greatest precautions only when the patient is a child less than five years of age.

Wyatt, Wingrave: Tonsillotomy Rash. (*Laryngoscope*, July, 1901). The author reports a series of personal observations, but points out the rarity of this complication. Examinations of the blood, which were carried out in the week following upon the operation, showed with few exceptions an increase of the mononuclear leucocytes. The leucocytosis is rarely demonstrable after the tenth day, and certainly is more than accidental.

Dr. B. Van D. Hedges of Plainfield, N. J., has observed two cases of torticollis following operation. The first was in a boy fourteen years of age. Symptoms appeared on the third or fourth day and lasted two months; the attack was quite severe with some elevation of temperature in the early stages. In the second case, in a girl aged ten, symptoms appeared on the third day after operation and lasted one month. Both patients made a perfect recovery. Dr. Hedges attributes this complication to mild sepsis.

Beveckhaert: Rheumatic complications following ablation of adenoids (*La Belgique Médicale*, No. 46, 1901). The author reports two cases in which the ablation of adenoid vegetations or the nasopharyngeal tonsil was followed, four and five days respectively after the operation, by an attack of acute articular rheumatism, which persisted from two to three weeks.

Christian R. Holmes: (*Journal of the American Medical Association*, March 23, 1901); E. Lowe Farlick (*Laryngoscope*, May, 1901). Holmes reports a case in which the sharp blade of Gottstein curette was broken off at the beginning of the operation for adenoids and could be removed under the greatest difficulties only. Farlick observed a case in which the blade broke off and was swallowed by the patient. Three days later it reappeared per rectum without having caused any damage.

Edgar A. Forsythe: Amygdalotomy Rash (*New York Medical Journal*, December, 1901). The author observed a case of amygdalotomy rash after

removal of a pharyngeal tonsil, in a boy eleven years of age in May, 1900.

The rash appears as a rule on the second or third day following operation, and it may be papulous, roseolar, or erythematous in character. It spreads along the neck, chest, and abdomen, sometimes involving the face and extremities; it may persist for two or three, or even five days, when it rapidly subsides. Desquamation follows in certain cases. The general symptoms are very insignificant. This eruption has the same characteristics as the rash described as surgical or traumatic scarlatina.

W. Wingrave: Tonsillotomy Rash (*Lancet*, August 31, 1902). The author observed thirty cases of rash after removal of the tonsils or adenoid vegetations, in the last seven years, including twenty female and ten male patients.

Lunin: Hemorrhage after the removal of pharyngeal tonsil (*Boln. Gazette*, No. 3, 1902). The author reports five personal observations upon hemorrhage, which occurred at variable intervals after the operation (four and six days later) respectively (in two cases) leading to more or less anemia.

Chappell, W. F.: Operative accidents in the treatment of adenoid vegetations, New York Academy of Medicine, Section of Laryngology (*Laryngoscope*, December, 1902). The speaker observed a case of complete rupture of the palatine velum as the result of adenotomy. Ten days after the operation the child presented an irregular laceration of the velum extending at the free margin upwards to the left as far as the roof of the palate. In swallowing, fluids escaped through the nose.

Abrams said that during his attendance in one of the large Berlin clinics, an assistant had to operate upon a child thirteen years of age. No anesthetics were employed. The operation was performed with one of Gottstein's curettes. Immediately after the introduction of the instrument, the child made an effort to escape and the result was a rupture of the velum, from its free margin as far as its insertion in the hard palate.

Larecky saw in two instances that the uvula was grasped by the operator in the forceps. In one of these cases, it was completely detached.

Phillips witnessed the detachment of a considerable portion of the vomer. The curette usually injures the uvula. He saw a case of laceration of the posterior pillar which required the application of three suture stitches, three days later.

Escat: Treatment of surgical hemorrhage of the tonsils (*Presse Médicale*, August 30, 1902). The author discourses on the treatment of surgical hemorrhage of the tonsils on the basis of a personal observation in a case of severe tonsillar hemorrhage, which he reported in May, 1902, before the French Laryngological Society. The bleeding in this instance was controlled by means of suture of the palatine arches.

Dunbar, Roy: Two unusual cases of hemorrhage following adenotomy and tonsillotomy (*Laryngoscope*, February, 1902). In one of the cases, suprarenal extract was employed prior to the operation for adenoid vegetations, which was followed by hemorrhage, interpreted by the author as vicarious menstruation. The second case was one of hemorrhage three days after the performance of tonsillotomy.

Escat: Tonsillar hemorrhage following the employment of a sharp-bladed morcellator. (*Ann. des Mal. de l'Oreille et du Larynx*, 28, 1902). The patient was a man twenty-seven years of age, in whose case a very severe postoperative hemorrhage lasting four hours was caused by a tonsillotome with a sharp edge. This hemorrhage could only be controlled by the introduction of a tampon into the tonsillar space, after this had been transformed into a canal by means of two sutures connecting the posterior with the anterior pillar, according to Baunn's method.

Three lessons may be derived from this observation: (1) The danger of instruments with sharp edges; (2) the unreliability of the majority of hemostatics; (3) the efficiency of tamponing the tonsillar space after this has been transformed into a canal by suture of the pillars.

Hermann: Hemostasis after tonsillotomy (Fraenkel's *Archiv für Laryngologie*, Vol. XII, 1902). The author reports a case of protracted hemorrhage after tonsillotomy, in a patient forty-six years of age, which was immediately controlled by the application of two sutures, firmly uniting the two palatine arches. This suture is recommended as a prophylactic procedure after every tonsillotomy, when the patient has passed a certain age, or lives at a distance from professional aid, or when the tonsils are of delicate structure.

Homer M. Thomas: Secondary hemorrhage following tonsillotomy (*Illinois Medical Journal*, February, 1902). The author reports a case in which secondary hemorrhage occurred three days after the operation.

Leipziger: Hemorrhage after tonsillotomy (MEDICAL RECORD, 1902). Report of a case in which subcutaneous injections of morphine proved serviceable.

Lee Weber: Secondary hemorrhage on the fifth day after tonsillotomy (*Laryngoscope*, April 12, 1902). The most noteworthy features of the case consisted in the fact that the secondary hemorrhage did not occur until the fifth day after the operation and that the patient was only five years of age.

Mygind, H.: A case of sudden collapse with cessation of respiration and cyanosis (spasm of glottis) as the result of adenotomy; tracheotomy recovery (*Monatsschrift für Ohrenheilkunde*, No. 5, 1902). The patient was a child two years of age, who was operated upon for the adenoid vegetations with Beekmann's instrument, after having suffered from rickets, diarrhea, and bronchial symptoms. The child collapsed at the instant of the operation, respiration ceasing entirely, and the lips turning blue. Digital exploration of the larynx showed it to be free. As the cyanosis increased, inferior tracheotomy was promptly performed and respiration returned at once after the trachea was opened. The operation in this instance was performed without an anesthetic, because the frequent deaths of children nuder these circumstances are referred by the author to the fact that respiratory disturbances occur very readily in this operation. However, he was twice enabled to observe that serious disturbances may appear in cases where no chloroform anesthesia has been employed. Both these cases concerned little children under two years of age, with well-marked rhachitic symptoms. In each instance the operation was immediately followed by laryngoapasm, in connection with stridulous inspiration and cyanosis of the lips. The conditions in these cases lasted no longer than a quarter to a half a minute, after which the passage through the glottis again became quite free. But the situation in both cases was so alarming, while the respiration was arrested that the author

since that time always kept in readiness for instantaneous use the instruments required for the performance of tracheotomy. This measure was found extremely valuable in the management of the case reported above.

Citelli: Acute otitis and mastoiditis after ablation of the pharyngeal tonsil (*Boll. delle Malattie degli Orecchi*, August, 1902). In a case observed by the author, the ablation of the pharyngeal tonsil was followed by the onset of acute middle ear disease and mastoiditis, as the result of improper after-treatment. He concludes that adenoid vegetation should be operated upon and treated solely in the clinics and hospitals, unless there is sufficient guarantee for the patient's rational behavior after the operation.

Hennebert: Clinical remarks on adenoid vegetations (*La Clinique*, Nos. 21-29-30, 1902). The author observed five cases in which operations upon adenoid vegetations were followed by diphtheria.

Montengohl: Complication following removal of adenoids (*Pediatrics*, May 1, 1902). The patient developed chorea and endocarditis subsequent to removal of adenoid vegetations under chloroform anesthesia.

Gronbeck: Some remarks on operation for adenoid vegetations (*Ugeskrift for Läger*, March 21, 1902). In his discussion of the most important postoperative complications, infection and hemorrhage, the author points out the severe inflammations of the cervical glands on both sides as observed by him in four patients and which may give rise to very severe and persistent symptoms. He cautions against the removal of tonsils and adenoids together at the same session.

Weoblews, R.: Complications occurring in tonsillotomy (*Gazeta Lekarska*, Nos. 7-8, 1903). The author discusses in detail a number of postoperative complications, especially hemorrhage, in connection with two cases of peritonsillar abscess, due to tonsillotomy, which were recently reported by Lokolowski.

Bulso, Albert: Alarming hemorrhage following excision of tonsils and adenoids (*Laryngoscope*, March, 1903). The patient was almost exsanguinated eight hours after the operation. An adrenalin solution (1:3000) was sprayed into the nose and throat, physiological salt solution was administered per rectum and finally strong stimulants were employed, with a favorable outcome. The author is of the opinion that the hemorrhages which follow upon tonsillar and adenoid operations may be controlled by the rational employment of adrenalin.

Beady, A. J.: Retrospect of personal experience of the removal of postnasal growths (*Medical Journal of Australasia*, September 20, 1903). The author's experience includes fourteen years with 3,204 cases of operation for adenoid vegetations under employment of various anesthetics. Among these cases there were no deaths. In one instance there was a serious complication on the part of a middle ear; no secondary hemorrhages. Two cases of secondary hemorrhage were observed after operation under local anesthesia; the bleeding was readily controlled in both instances. The hemorrhage was referred to incomplete removal of the growth.

Urban, A. H.: Hemorrhage following tonsillotomy (*American Medicine*, July 4, 1903). The patient was a child, seven years of age, who was admitted to the hospital twenty-seven hours after the performance of a bilateral tonsillotomy. A parenchymatous hemorrhage was visible in the left tonsillar region. The bleeding was controlled with the Paquelin cautery, under chloroform anesthesia. The hemorrhage was distinctly secondary in character, for it began twelve and eighteen hours after the operation. The case was not one of hemophilia and the patient had not previously suffered from acute angina. In all probability, the hemorrhage was referrable to a blood-vessel having an abnormal course.

Ryan, Lawrence R.: Tonsillar hemorrage (*Illinois Medical Journal*, September, 1903). Bilateral tonsillotomy was performed under adrenalin and cocaine, upon a patient twenty-five years of age, and was followed by a severe hemorrhage, but this could be controlled by the local application of tannin and acetanilid. Half an hour later, there occurred a severe secondary hemorrhage, which the author succeeded in arresting by means of the cautery. The bleeding in this instance was referable to hemophilia.

Coley: Endocarditis after adenoid operations (*New York Medical News*, March 12, 1904). One such case came under the author's observation, and he knows of two others in which septic infection of the serous membranes developed after a successful operation for adenoids. This possibility should be kept in mind and the parents should be instructed in regard to precautionary measures for the prevention of septic infection.

Castex: Paris Society for Laryngology, etc.; meeting February 12, 1904. The case was one of paralysis of the palatine velum, folowing operation for adenoid vegetations in a child. Castex assumed the cause to be infection due to imperfect asepsis of the instruments.

Schranum: Sepsis after operation for adenoids (*New York Medical News*, July 23, 1904). The sepsis in this case developed a few days after the operation. The patient was a girl six years of age, suffering from a constant nasal discharge. The anesthetic used was chloroform and every precaution to secure a sepsis to instruments and surroundings was taken. The growth was easily removed, and the bleeding was not excessive, in fact, rather less than usual. When seen four days later, she complained of chilliness and headache; had no appetite and preferred to lie in bed. The whole trouble was considered intestinal, yielding to divided doses of calomel. In the evening, however, she was much worse, with a temperature of 104° F., pulse 140, and respiration 38. She complained of pain in the left ear. On the next day she had a mild conjunctivitis with moderate purulent secretion. Throughout the disease there was nothing abnormal to be seen in the throat; the abdomen continued distended and the bowels sluggish. On the seventh day after the inspection, the symptoms subjective and physical began to subside. The temperature, pulse and respiration were normal on the ninth day. It is remarkable that the medical literature of the past few years contains no similar case.

Cline, L. C.: Grave hemorrhage following tonsillotomy (*Laryngoscope*, December, 1904). Hemorrhage which came near being fatal, occurred in a boy five years of age after tonsillotomy; the case turned out to be one of hemophilia.

Kan, R. L.: A series of hemorrhage after adenotomy and tonsillotomy. Three cases of hemorrhage after tonsillotomy and three after adenotomy, all with favorable outcome. Among the latter, one occurred immediately after the operation, the others at the end of two and six days, respectively.

Wilkinson, Oscar: A case of hemorrhage after tonsillotomy relived by adrenalin (*Journal of Eye, Ear, and Throat Diseases,* July, 1904). The patient was a girl of seventeen years of age, upon whom bilateral tonsillotomy was performed under nitrous oxide. Hemorrhage followed and was controlled by the employment of adrenalin solution and ice. Another profuse hemorrhage occurred at the end of an hour and a half, after the patient had reached her home. Adrenalin was again employed, first externally, then internally (ten drops every fifteen minutes) with successful outcome.

Brown, E. J.: Cases of primary and secondary hemorrhage following removal both with tonsillotome and snare (*Larnyngoscope,* February, 1905). *Case 1.*—Tonsillotomy performed on a man twenty-eight years of age, hemorrhage occurred immediately after the operation and was controlled by long continued compression. *Case 2.*—Removal of tonsils with the snare in a woman thirty-three years of age, fifteen days later, severe secondary hemorrhage ceasing at the end of a few hours. *Case 3.*—Removal of tonsils with the snare, in girl six years of age, followed by hemorrhage two days later.

Henking: The cause and treatment of alarming hemorrhages after ablation of the tonsils (*Archives of Laryngology and Rhinology,* Vol. XVII, 1905). The author observed six cases of severe hemorrhage after tonsillotomy, in all of which the cause of bleeding was referable to a source not hitherto described in detail. As a rule hemophilia, or injury of artery trunks, or vascular anomalies are held responsible, whereas the literature contains but few proofs in support of these arguments. The six cases referred to above all concerned tonsils which were attached to the floor of the deep tonsillar niche with a broad base, the lower end reaching deeply below the level of the root of the tongue and which were closely applied to the pharyngeal pillars; here the source of the hemorrhage was invariably found to consist in an injury of the posterior pharyngeal pillar.

Jackson, Chevalier: At the meeting of the British Medical Association held in Toronto, August 24, 1905, in the Section of Laryngology and Otology, during the discussion of a paper on the employment of the cold snare for the removal of hypertrophic tonsils, Chevalier Jackson states that he had tied the carotid artery six times, on account of postoperative tonsillar hemorrhage. The snare had been employed in one of these cases.

George B. Leland said that he had observed only one case of alarming hemorrhage in the course of the last twenty years. The bleeding subsided after the wound surface had been thoroughly scraped with the finger nail.

Herbert Tilley had noted three severe tonsillar hemorrhages in the course of twelve years.

St. Clair Thompson commented upon the much rarer occurrence of hemorrhage in England than obliged to be the case in America. He was never obliged to tie the external carotid and had observed no more than two cases of severe hemorrhage in thirteen years.

Nettebrock: Hemorrhage after tonsillotomy (Dissertation, Kiel, 1906). The author recommends the following procedure as practised by Helferich, with a favorable outcome, in two cases of postoperative hemorrhage. A long round darning needle, armed with linen thread, is inserted behind the maxillary angle by digital pressure in the buccal cavity. The internal end has attached to it a thick tampon of iodoform gauze, which is firmly pressed against the tonsil by traction from without, tying the threads over a rubber tube.

Cunningham: Hemorrhage after the removal of tonsils (*Southern Medical and Surgical Journal,* January, 1906). Repeated hemorrhage after tonsillotomy in a boy sixteen years of age, controlled by application of clamps.

Chapman, V. A.: Alarming secondary hemorrhage following the removal of the pharyngeal tonsil (*Journal of the Michigan State Medical Society,* December, 1906). The case concerned a boy of sixteen years of age and terminated in recovery.

Barrell, James, and Orr, W. J.: The presence of abnormal blood-vessels in the nasopharynx and the occurrence of hemorrhage after the removal of postnasal adenoids (*International Medical Journal,* December 30, 1906). The authors report three cases of severe postoperative hemorrhage from their practice, which comprised about one thousand operations. Among the cases recorded in the literature, they were enabled to collect seven deaths. The abnormal vessels are large pulsating arteries on either side of the pharynx behind the posterior palatine arch. Upon the basis of their personal observations and the cases recorded in the literature, the authors arrive at the conclusion that abnormal blood vessels constitute a more frequent cause of hemorrhage than does hemophilia.

Avale: A case of secondary hemorrhage after ablation of the tonsils (*Revista Barcelonesa de Laryngologia,* No. 7, 1907). The hemorrhage was controlled by pressing a tampon which had been dipped in hydrogen peroxide, against the tonsillar fossa.

Henkes, J. C.: Hemorrhage after tonsillotomy, and a new method of hemostasis (*Nederlandsch Tijdschr. v. Geneesk.,* 1, No. 4, 1907). The author discusses the cause of postoperative tonsillar hemorrhage, and the methods which have been suggested for their control. His method is based upon the procedure recommended by Hermann and Escat, independently of each other, and consisting in suture of the two palatine arches to each other. Instead of suturing the arches, Henkes employs strong metal clamps or buckles (distance of points, 2 cm.) which are hooked into the two arches by means of forceps constructed for this purpose. After a tampon has been introduced into the tonsillar niche, the clamps are closed. Another forcep serves for the subsequent removal of clamps which can be accomplished without difficulty. The value of this form of interference is illustrated by a case treated according to this method, which the author recommends for adoption.

CONCLUSION.

In Ballenger's new work on Ear, Nose, and Throat, he states that, "In young children, tonsillotomy is not necessarily a hospital operation, as it is rarely followed by either severe hemorrhage or sepsis. In adults it should be a hospital operation on account of the possible hemorrhage and sepsis. A prominent surgeon has said that the tonsil is of greater clinical importance than the appendix; that it causes more suffering and more deaths. If this is true, and I believe it is, the tonsil is worthy of the most serious and painstaking study. The technique of its removal should receive the same careful attention that has been devoted to the removal of the vermiform appendix. In view of the importance of the tonsil from a clinical standpoint, and

in view of the possible complications and sequelæ following its removal, tonsillotomy should be regarded as a hospital operation. If performed in a hospital, the danger from primary and secondary hemorrhage is largely eliminated and infection and sepsis may be diminished in severity and in the frequency of their occurrences."

Subsequent to the reading of this paper, I operated on a boy five years of age. I saw the patient for the first time on the operating table, but my assistant had made careful inquiry as to the presence of hemophilia with negative results. Radical tonsil operation was done with the removal of adenoids. At the time of operation there was free bleeding from the tonsillar region on the left side, which ceased spontaneously. Five days later I was called to see him and found that he had had a profuse hemorrhage, and bleeding was continuous, notwithstanding the efforts of the family physician. Under anesthesia the vault of the pharynx was packed and the child placed on considerable doses of lactate of calcium. The result was satisfactory; the packing was removed twenty-four hours later. The mother was again questioned and she finally remembered that her father had almost "bled to death" on several occasions. The action of lactate of calcium in this case was most satisfactory. Simpson's favorable experience in a case of hemophilia induced me to use it.

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THYMUS ENLARGEMENT ASSOCIATED WITH NERVOUS SYMPTOMS.

A PRELIMINARY COMMUNICATION.

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The thymus is considered a temporary organ which after the second year gradually diminishes until at the end of puberty little is left. In adults a mass of fibrous tissue and fat, containing small nodes of lymphoid tissue in which Hassal's corpuscles persist, represents the gland up to extreme old age. The arteries supplying the thymus are derived from the mammary and inferior thyroid; the veins terminate in the left innominate and the thyroid veins. The lymphatics are large and arise in the substance of the gland and are believed to terminate in the jugular veins. The nerves are derived from the vagus and sympathetic. Nothing positive is known of the function of the gland.

Thymedectomy proves fatal to rabbits in a few weeks, due to intoxication. Removal of one-half will cause hypertrophy of the other. Removal of the thymus in dogs causes increased output of lime salts and deficient ossification. The thymic veins may become distended in chronic passive hyperemia due to cardiac lesions, and the enlargement has been mistaken for persistent thymus. The enlargement disappears. The most severe congestion may disappear at death and leave no trace at autopsy. Stridor and death have been caused by an acute increase in size of the organ due to an acute hyperemia, the enlarged gland pressing upon the trachea, vessels, and nerves. The aperature of the chest contains trachea, esophagus, great vessels and thymus. The distance from the sternum to the vertebral column is very small and the walls unyielding. A most severe congestion may disappear at death and leave no trace at autopsy. That this is a fact has been shown in frozen sections. Thymus hyperplasia is frequently associated with goiter. After the ligation of the thyroid branches of the thyroid arteries the blood goes to the thymus from this artery.

Abnormal atrophy of the gland has been found associated with progressive and fatal marasmus. The enlargement of the organ is due to congestion, edema, and hyperplasia. The possibility of percussing the thymus has been denied by many, though Hochsinger showed enlargement of the gland by percussion in 26 out of 58 children, verifying his results by radiograph.

After giving in the above short outline about all that seems to be known of this interesting organ, I wish to state that the gland can be distinctly and sharply outlined by percussion in adults up to extreme old age. In all individuals I have so far examined, male and female, I have not found any difficulty. The size of the organ when filled with blood and lymph varies from 2 to 3 centimeters to 12 and 14 centimeters at the base, corresponding to the level of the sternoclavicular joints and clavicles. The apex parallel to the base may join the heart dullness. The area of dullness is represented by a trapezoid, the lateral sides of which are slightly curved, and which is sometimes not larger than a half dollar. As a rule one side, the right or left, of the sternum is larger than the other, more frequently the right, and the dullness is rarely uniform over the whole, and varies from light dullness to flatness in circumscribed spots. To percuss the gland it is best to place patient in an upright position with the head thrown back; light percussion and deep percussion may be used; either method will outline the organ distinctly though not always exactly corresponding. Palpating percussion may be used for control. The results obtained by percussion may be verified by the radiograph and fluoroscopic examination. In a large number of patients a more or less pronounced bulging may be noticed corresponding to the percussion figure, in others again percussion dullness gives smaller borders. This is probably due to the filling of a gland with blood and lymph. The area of dulness is frequently red where the gland is enlarged, and shows distended superficial veins. Position alters the intensity of the dullness and the size of the area. Recumbency decreases and the upright position increases it. That this is due to the outflowing and inflowing blood and lymph can be easily shown by putting the patient on the abdomen on a table so that the chest protrudes over the edge and percussing from below decrease of dullness can be observed, and at the same time the increase and decrease of redness and the filling and emptying of the superficial veins may be seen. Besides, it has been found as stated that even the most severe congestion of the gland observed during life cannot be seen at autopsy, the blood having left the organ as frozen sections have further demonstrated.

The symptoms of the enlargement of the thymus are the symptoms of the functional neuroses, hysteria, neurasthenia and visceral neuroses, and probably of the forms of functional insanity, mania, melancholia, and paranoia. This is so much the case that from the enlarged gland we can predict the severity of the symptoms and from the symptoms the size of the gland; the more pronounced the symptoms the larger the gland, the flatter the dullness, and vice versa. Some symptoms may be considered almost pathognomonic, the dilated pupils, and the rapid pulse changing from 100 beats in

the upright position to 80 or less in the recumbent posture, due evidently to stimulation of the sympathetic nerve and the emptying of the gland in the horizontal position. If the symptoms are more pronounced on one side than on the other the gland is found as a rule larger on that side and the dullness more intense. Of pressure symptoms are especially noticed checking sensations, fulness in the head, difficulty in swallowing, asthma and cough coupled with other symptoms of the functional neuroses.

Enteroptosis with nervous symptoms is almost invariably associated with an enlarged thymus. Some enlargement of the thyroid is sometimes seen and occasionally exophthalmos or bulging of one eye, corresponding to the side of greater enlargement and dullness, and the symptoms of exophthalmic goiter resemble the symptoms of thymic enlargement. Tachycardia and tremor are prominent symptoms of both, though the heart beats seldom more than 120 per minute. The pulse is small, the arteries, mostly contracted, may beat visibly, especially the carotids, and sometimes pulsation between the sternoclavicular joints can be seen. The appearance of the skin is sometimes normal, at times brilliant, and occasionally pasty. The heart sounds are loud and the apex heaving. Irritation and irritability of temper, forgetfulness or rather loss of attention, coupled with hysterical stigmata, and the various visceral disturbances, easy fatigue of body and mind associated with normal muscular strength are often found. Underweight is more frequent than the normal or overweight. Hyperidrosis is frequent and sometimes local, especially in the palms of the hands. Increased urination and palpitation and disturbances of the stomach and intestines are almost always present. That the symptoms are due to thymic enlargement seems to be more than probable. The large amount of blood retained in the organ, increased by fright, anger, and exertion, stimulates the fibers of the sympathetic and vagus; this and the disturbances due to pressure upon the large vessels, esophagus, trachea, and nerves seems sufficient to explain the symptoms. Heredity is another factor that finds easy explanation; and so also the measures adopted to treat the neuroses, especially the rest cure, favor the emptying of the organ of the surplus blood and lymph.

The differential diagnosis is not difficult to make. The ever-present nervous symptoms and the area of dullness (trapezoid), cleaning up on change of position, make it an easy task to diagnose the affection. Finally the action of the Roentgen rays and especially of the high-frequency current causes a considerable contraction of the gland. After an application of a high-frequency current for five minutes a large gland will diminish considerably around the margin. This fact will differentiate it from any other cause that might give dullness on percussion over the top and to the side of the sternum, such as a tumor in the mediastinum, enlarged glands, aneurysm, or dilatation of the aorta. The application of this form of electricity given without any danger will prove one of the most valuable means of treatment, for to some extent the effect is permanent. Specific medication on the lines of thyroid treatment and surgical interference in severe cases may be tried and rest and hygienic treatment can be carried out to good purpose.

I believe that this affection is an entity for which I propose the name "Thymokesis" (abnormally large thymus). The following cases are taken from my records to illustrate the affection.

Miss E. 18 years of age. Since two years nausea and occasional vomiting. Discomfort in the epigastrium, fullness and pressure after eating, appetite poor, bowels constipated. Loss of weight. Patient very nervous, dilated pupils; tremor manuum, exaggerated reflexes. Uvular reflex absent. Right kidney palpable. Lower curvature of stomach at navel, splashing over the whole area. Arteries contracted. Pulse 90. Large area of dullness over top and to both sides of the sternum, especially, as usual, to the right.

Mrs. S. 53 years of age. Trifacial neuralgia on the left side for three years. Unable to see well with the left eye, especially after reading and writing. Both eyes normal, glasses do not give relief. Has had several attacks of blindness in the past year, each lasting several hours. Has suffered from fullness after eating and pressure in epigastrium for years. Suffers from choking sensation and the feeling as of a lump in the throat, and feels occasionally as if her heart was stopping. Arteries contracted. Pulse, standing, 100; lying, 70. Dilated pupils, tremor manuum. Suffers from cold hands and feet and excessive perspiration. Area of dullness over thymus large. To the left of sternum area of dullness large and more pronounced than on the right.

Mr. N. 33 years of age. Complains of dry cough and irritation in the throat. Thinks he has consumption. All organs normal. Patient has gray hair. Weighs 128 pounds and is 5 feet 8 inches tall. Contracted arteries; pulse, standing, 110; lying down, 96. Dilated pupils. Area of dulness over thymus 12 x 9 x 6 centimeters.

Mr. M. 28 years of age. Fourteen days ago his child was bitten by a supposed mad dog, and he commenced to worry about his child and himself. Complains of nervousness and nausea, vomiting, and sleeplessness. Bowels constipated. Organs normal. Urine contains traces of albumin. Has lost eight pounds in weight in the last fourteen days. Area of dullness over thymus is 12 x 8 x 6 centimeters. Arteries contracted, pupils dilated, pulse 90. Under treatment rapid improvement and disappearance of albumin.

Mr. C. 45 years of age; 5 feet 5 inches in height; weight 258 pounds. Complains of shortness of breath after exertion, finds it especially difficult to climb stairs. No nervous symptoms, area of dullness not larger than a half dollar. Diagnosis fatty heart.

Mr. J. 5 feet 6 inches in height; weighs 186 pounds. Complains of shortness of breath. Vein of face dilated. No nervous symptoms. Area of dullness over the thymus as small as in the previous case. Pulse 120 standing, 110 lying down. Diagnosis: Debilitas cordis.

Mr. L. 50 years of age. 5 feet 8 inches in height, weighs 175 pounds. He suffers from chilly sensations, nervousness, cold hands and feet, indigestion, and cough. Brother suffers from exophthalmic goiter. Arteries soft and straight. Pulse 100 standing, 90 lying down. Area of dullness over the thymus is 14 x 10 x 6. Rapidly improved under treatment.

Mr. M. 5 feet 11 inches in height; weighs 220 pounds. Gouty. Organs normal. No nervous symptoms. Area of dullness over thymus very small.

These and others have improved under treatment. I had an opportunity to examine eight patients suffering from functional forms of insanity.

In every patient examined I have found dullness over thymus very large and often amounting to flatness. Also the usual symptoms, dilated pupils, tremor manuum, and exaggerated reflexes.

Thanks are due to Dr. A. E. Fessler, who has rendered me valuable assistance in these investigations.

THE PREVENTION OF EPIDEMICS.*

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THE practice of medicine is not, like surgery, an exact science, nevertheless our knowledge of the etiology of infectious diseases is such that fairly well defined principles have been evolved. It is almost uniformly conceded by scientific men that specific microorganisms are the causative factors of these diseases, and with this knowledge at our command, it is not difficult to work out a rational system of prevention. Much has been done along this line with the result that serious epidemics of contagion are becoming more and more uncommon. If energetic measures are carried out, and efficient means provided by the public authorities for the purpose, progress will be accelerated, until the infectious diseases now prevalent, such as scarlet fever and diphtheria, will be as rare as "spotted fever" or the "black plague" which once decimated Europe.

The administration of the laws affecting public health is fairly well performed in the cities, but in the small towns and rural districts the manner in which infectious diseases spread, and the measures that should be taken to prevent them, are but imperfectly understood, and even members of the medical profession at times seem hardly to realize their significance. Inasmuch as the cities depend upon the country for food supplies, and intercommunication is frequent, it follows that preventive measures must begin in the country, and effective precautions must be enforced there to check the spread of infectious diseases, if epidemics are to be prevented in the cities and larger towns. The local boards of health in many of our villages and smaller towns are not properly trained to cope promptly with health emergencies, and their methods of procedure are still extremely primitive. Preventive measures are unknown or entirely neglected, or carried out in a very imperfect and slipshod manner. The methods of isolation, quarantine, and disinfection in many even good sized villages are so crude and imperfect as to be almost useless. Bad as such conditions are for the community where they exist, they assume even more sinister significance because of the danger to which they expose other nearby towns and cities, where modern and up-to-date methods may be in vogue.

The public mind is only beginning to grasp the principle that various diseases may be largely prevented, if not extinguished, if proper measures are enforced, and that the intelligent expenditure of public funds to this end is the surest and wisest economy. The lowering of the death rate in our cities and large towns is due mainly to the precautions now taken to prevent the more infectious diseases from spreading, along of course with the improvement in the sanitary conditions of the tenement districts, the prevention of overcrowding, and attention to pure food and water. As the public health conditions improve the population becomes less liable to infection and better able to withstand attacks of contagious and other diseases. With improved hygiene, pure food and water, and sanitary homes, epidemics will become more mild and consequently less fatal.

In the rural districts, where no intelligent preparation has been made to combat contagion, panic at the advent of an epidemic is the inevitable result. Proper buildings or sites for detention or isolation hospitals cannot be quickly obtained, and unseemly huts, of forbidding appearance, hurriedly erected, badly warmed and ventilated, located in a wilderness, are the result of such lack of preparation. The patient is taken to such a building, sitting upright in an old rickety, ramshackled, jolting cab. The popular dread of the "pest house" under such conditions is no idle fear.*

In the cities, on the other hand, even with active health measures energetically enforced, the seeds of infection are probably never extinct. Thorough disinfection is not always possible. The movements of each individual member of an infected household cannot be controlled, and the possibilities of communication between different persons are devious, intricate, and intimate. The infectious microorganisms are very tenacious of life, they adhere to all manner of things, and thus infection may spread from a small center. Excursionists, tourists, travelers, and summer boarders may carry infection with them, and scatter contagion in the places they visit. Thus one individual case may start an epidemic.

But while the prevalence of infectious diseases in a large city may be a grave danger to the smaller places in communication with it, on the other hand, as already pointed out, the rural districts and villages are a still greater menace to the cities. Epidemics of scarlet fever, typhoid, and diphtheria in cities have been repeatedly traced to infected milk and water and other food supplies. Quarantine is observed in the country either imperfectly or not at all, and the emigration of persons from infected houses may infect towns. Thus they act and react, one on the other. Innumerable centers over a wide country area converge upon and infect the towns and cities, and *vice versa*, infected cases from the towns and cities radiate over the country, creating new centers of contagion from which the disease rapidly spreads to return again to the towns and cities.

To stamp out an epidemic it must be vigorously and promptly attacked in the district where it first appears, and no amount of money should be spared to do this; otherwise the contagion will spread. Quarantine regulations must be vigorously enforced, and the whole repressive force of the municipality must be directed to the spot where the disease is discovered without loss of time. The up-to-date health officer will watch not only his own city or town but also the smaller neighboring places, particularly if they are known to be careless in matters of hygiene and their health officers inefficient, so that if stray sparks escape into his territory, they may be promptly extinguished. We cannot hope to keep free from infection until all municipalities whether large or small adopt the

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*Cf. Dr Roger McNeill's work on "Prevention of Epidemics," page 3.

same standards in health ordinances, and enforce the same remedial measures. The campaign against infection is thus largely educational at the present time, and the country districts must be taught that such measures protect not only themselves, but the urban population as well.

Infectious diseases have been aptly compared, by an English author, Dr. Roger McNeill (Op. Cit., p. 10), to a conflagration, which spreads rapidly in the city, while with slower but equally fatal progress in the country; the distinction being that the spark of contagion cannot like fire be immediately extinguished. But it can frequently be lifted up, removed from other combustible material, and isolated until it spends its force and burns itself out.

The successful prevention of epidemics depends upon the perfect organization of local and State health bodies, the efficiency of school medical officers and sanitary inspectors, thoroughness of quarantine and disinfection, the education of the masses, improved sanitary conditions among the poor, vaccination, prompt isolation, and wiping out of centers of contagion. Before the days of vaccination, prior to 1800, twenty out of every one hundred born died from smallpox. It is now no longer a dread and is easily controlled, providing that health officers observe rigorously the rule in regard to vaccination and revaccination and quarantine in those localities from which smallpox is removed. Health measures applied to other contagious diseases will produce equally gratifying results.

With smallpox, typhoid, scarlet fever, diphtheria, typhus, hydrophobia, we have made a good start, and with the aid of our medical health officers, sanitary inspectors, and bacteriologists, we may hope ultimately to extinguish them, one by one.

With *measles* and *whooping cough* nothing has as yet been done and no efficient provision has been made to prevent the spread of either, yet they are both among the most easily communicated of the contagious diseases, and their isolation should be of the best. The absence of all precautions against these diseases accounts for the almost annual epidemics when whole class rooms in the schools are temporarily emptied. With proper isolation these cases could be limited to their own area and not allowed to spread.* The New York Health Board has been the first to grasp this situation and it deserves praise for what it has already accomplished. Statistics show that these two diseases cause a greater number of deaths than any other infectious disease. Measles causes five times, whooping cough six times as many deaths as smallpox. The mischief is that these little-thought-of ailments, through lack of proper treatment, are allowed to impair the general health, cause permanent lung disease, and even blindness and deafness. Preventive medicine, as applied to these two diseases, has been a failure.

Disinfection must be efficient and should be entrusted to men of intelligence who will observe proper technique and who will be conscientious enough to look for and extirpate all sources of infection. Investigation by health officers must be thorough, and drains, sewers, cesspools, outhouses, domestic animals, rats, insects, etc., all considered as possible factors of contamination. Formaldehyde is at present our most satisfactory fumigant, but this is often used by unintelligent persons. The three important points about formaldehyde disinfection are: (1) to use it in sufficient quantity, (2) to make sure the premises to be disinfected are sufficiently tight to retain the gas, and (3) to have the apartments where it is used heated to at least 60° or 70° F. Special vacuum apparatus has been devised for formaldehyde disinfection, in hospitals and institutions, of clothing, bedding, etc., which has the advantage over steam in not damaging the fabric, in not fixing discharge stains in linen, and in being not only as effective but also more expeditious.

Isolation hospitals prevent the multiplication of infected centers and check the immediate spread of such diseases, hence they are a most important factor in the prevention of epidemics. A large proportion of our population live in one, two, or three room dwellings, where it is impossible to isolate the sick from the healthy. Such small apartments or tenements are as a rule badly built, drained, and ventilated. When sickness occurs, if it is infectious, others get it. When early removal to a hospital is possible, and prompt fumigation is carried out, there is rarely further disease in the house. We see this often even in the case of smallpox. Hospital provision and efficient disinfection reduce the danger of spreading infection to the minimum, and change the infected house from a plague spot and menace to the public for weeks or months, to a healthful abode.

A small town can hardly afford its own isolation hospital, while local jealousies and want of cohesion between neighboring towns usually prevent the erection of a joint or combination hospital. In New Jersey provision is made for county hospitals for contagious diseases, to be erected by the Board of Chosen Freeholders of each county, and managed by a board of six managers, appointed by the director of that body. Under this plan, by providing at the outset for the proper care and treatment of the various infectious diseases, real economy is best conserved. Any other policy is apt to degenerate into parsimony and it must be borne in mind that the work which the County Hospital, when completed, will perform, will be work formerly done and paid for by the separate municipalities of the county, and that they will be relieved of this expense when the County Hospital is available. The care of patients suffering from infectious diseases by the separate municipalities presents greater difficulties every day with the rapid increase of population.

It is more economical to provide a well appointed hospital than to incur all the expense, misery, and death of an epidemic. The primary effect of such a hospital is to prevent infection from spreading by the seclusion or separation of persons suffering from contagious ailments from all other persons who might catch these diseases. Every hour's delay gives infection a chance to spread.

One bed should be provided for each 1,000 population. Isolation hospital zones are not unhealthy, and the danger of atmospheric dissemination of contagion from the hospital to neighboring inhabitants has been greatly exaggerated. Forty feet is considered a sufficiently safe area of air space between buildings. Close observation in cities fails to reveal any increase in the number of contagious diseases in hospital zones.

An isolation hospital should be made up of several buildings of one or more units, each unit to have its independent entrance, serving kitchen, sterilizer, and toilet arrangement. A building of

*Dr. Robert J. Wilson, Superintendent of Contagious Hospitals, New York City.

this type may be made to serve a great many purposes. It can be used for either sex, for straight cases, mixed infections, quarantine, or observation, according to the exigencies of the occasion.

Mixed infections are the *bête noir* of isolation hospitals. A patient suffering from diphtheria is more liable to catch scarlet fever than a well person, because his resisting power has been lessened, and in his weakened condition he is more likely to die. Hence in such an event, if this occurs in a hospital, the death rate is increased and the possibility of damage suits is risked.

Many doors of exit are important in an isolation hospital, because if a case of mixed infection is discovered in a ward, it can be removed quickly with the minimum of exposure to the other patients, and with the least chance of contamination to other parts of the building where it occurs.

Let us consider briefly the complications an isolation hospital is sure to have to contend with. Starting with straight diphtheria, we may have diphtheria and scarlet fever, diphtheria and measles, diphtheria and varicella, diphtheria and pertussis, diphtheria and German measles, diphtheria and vaginitis. Without proper isolation these complications would naturally run on to diphtheria, scarlet fever, and measles; diphtheria, scarlet fever, and varicella; diphtheria, scarlet fever, and pertussis; diphtheria, scarlet fever, and German measles; and then diphtheria, measles, and varicella and diphtheria, measles, and pertussis, etc. The same applies to scarlet fever, making almost countless complications. This is no theory, but each one of these combinations has actually occurred in practice. This shows the necessity of providing for the care of cases of complications.

When a case of one of these various mixed infections is discovered in a ward, not only must this case be promptly removed and isolated, but no new patient should be admitted to this ward until the quarantine period for the disease has expired. Thus you will see that isolation must be provided for the cases of mixed infections as well as for new patients coming to the institution during the quarantine. Again patients will be admitted from time to time with diphtheria or scarlet fever, who, prior to admission, have been exposed to some disease other than the one for which they have been admitted, and in which the incubation period has not been passed. Cases of this kind cannot be admitted in the general ward, but must be held under observation until after the period of incubation for the disease to which they were exposed has passed.

Private rooms or rooms reserved for nurses on the general hall of a hospital cannot be used for observation, for if a disease to which a case has been exposed were to develop, and the patient were removed through such a general hall, the entire service would be exposed to that disease, and the whole building would have to be held under quarantine until after the incubation period had passed. A room used for this purpose should have its own entrance and toilet, and be entirely independent of other parts of the building.

Cases of vaginitis may be safely treated in private rooms, as vaginitis is not contagious in the strictest sense of the word, but is only carried by the attendants taking care of such cases. While vaginitis spreads rapidly in a ward from case to case, on account of their close proximity, when the infected cases are placed in separate rooms and are cared for by separate attendants, it does not spread and there is no need for special isolation.*

It is not necessary of course to provide for the possibility of all these contingencies occurring together because rarely more than one or two of the complications enumerated above occur at one time. But it will be economy to provide at the outset several small buildings in addition to the general wards, suitable for isolation of mixed infections and complications, so constructed that they can be divided into two or more rooms with separate toilet and kitchen accommodations. Such a building may be erected without great expense and all the material necessary could be purchased for about $1,000. This has been done in New York successfully and the construction performed by the Health Department's own employees. The building for observation cases should be divided into several small compartments each a unit in itself, with a separate entrance, each room having a capacity for one adult bed and two cribs.

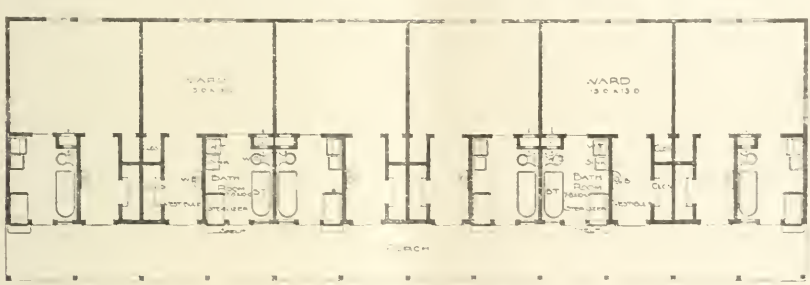

Fig. 1.—Proposed Observation Ward.

It is not necessary for these rooms to have the required amount of air space for the number of patients possible to place in them in an emergency, for the reason that under most conditions there would be only one patient in a room, and that patient there for a very limited time. Each compartment should contain a toilet and children's bath tub, this also to be used as a hand basin, if economy has to be considered.

Plans for an observation building of six compartments, and plans for a building of two wards, suitable for smallpox, quarantine purposes, or cases of mixed infection, are shown herewith. By making the central division absolutely tight in the sec-

*Dr R. J. Wilson

ond plan, this building could be safely used for two diseases, as each ward has a separate entrance, kitchen, and toilet arrangement. Such a building would be well adapted for measles, cases of which will be occurring continually as a complication of other diseases, and unless we provide for its isola-

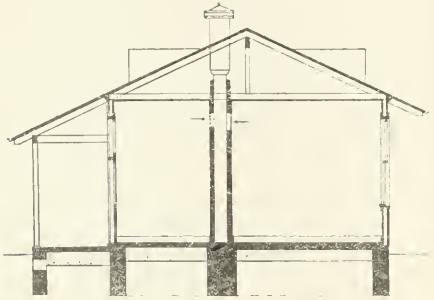

Fig. 2.—Proposed Observation Ward, Transverse Section.

tion, every child admitted with scarlet fever or diphtheria will, in the course of a week or two, develop measles, thus lengthening the time of its stay in the hospital, thereby increasing the cost of maintaining the institution, and adding to the mortality.

The ward space may be increased indefinitely in this plan. A fixed inspection window in the partition between the nurse's room and ward, would be an advantage in enabling the nurse to observe the patients from her room. By enclosing the side porch a dressing room could be improvised for discharging patients.

Smallpox.—It is not necessary to make an elaborate provision for smallpox. At the Kingston Avenue Hospital in Greater New York—one of the largest and finest isolation hospitals in the world—three small rooms, located in the morgue, are all the provision made there for this disease. There will be months of every year when not a single case of this disease will exist in the county.

The writer's judgment and experience in the matter of the construction of isolation hospitals may be summed up as follows: (1) An administrative plant, large enough to provide for growth and development. This should include sleeping rooms for all employees. The nurses and orderlies should not sleep in the infected buildings. It will be found to be economy as well as humane to look after the health of the working staff. (2) At least three general hospital buildings for "straight" or uncomplicated diseases. Each building should contain two wards, entirely independent one from the other, providing for the separation of the sexes, or in an emergency for two diseases. The second plan (Fig. 3) shown herewith is well adapted for this purpose, if the dimensions allowed in it are increased to meet the special conditions of the locality. Each ward in each building should be a complete unit, with independent entrance, serving pantry, and toilet. These buildings need be only one story high, but if built higher, the second floor should be reached by outside stairway, and there should be no intercommunication through elevator or dumb waiter shafts or in any other way. The two floors of a building so constructed could safely be used for different diseases. (3) In addition to the regular hospital buildings, there should be at least two small buildings, one for mixed infections or quarantine, the other for observation purposes. These latter buildings need not be of costly construction, because they will be in use only part of the time, and by a limited number of patients. (See Figs. 1 and 3.) (4) An efficient system of sterilization. A vacuum apparatus for formaldehyde disinfection, large enough to receive an adult mattress, should be installed near the laundry. Small steam or formaldehyde sterilizers should be installed in each unit of each building. These small sterilizers will be useful to disinfect dishes, gowns, dressings, etc.

Tuberculosis.—Only those who have made a special study of isolation and of the necessity for it can be fully impressed with the importance of the

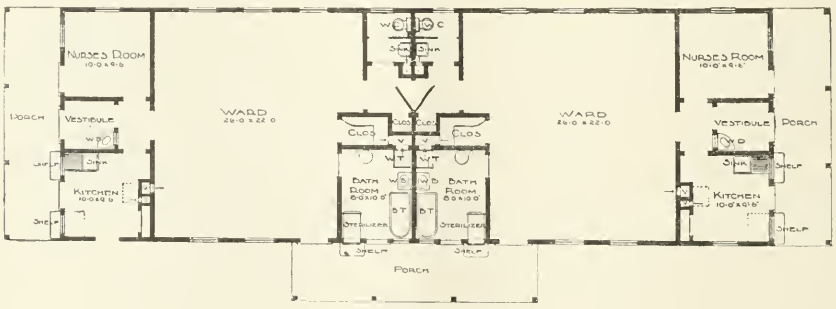

Fig. 3.—Proposed Isolation Ward.

Under normal conditions, a small, but sanitary building, providing for two wards and eight or ten patients, on the plan of Fig. 3, would be ample. When no smallpox exists, this building could be used for other purposes, such as we have enumerated above. It would be a foolish waste of public funds to try to erect a building large enough to provide for an epidemic of smallpox, because during an epidemic hundreds of cases occur. At such times temporary emergency buildings or tents must be provided.

subject. This explains in a way the difficulty in obtaining sufficient appropriations from governing bodies to properly carry on the work. The average public office holder is not qualified by training, education, or experience to understand the requirements of scientific medical hygiene. It has taken years of patient labor on the part of public health officers in the United States to obtain such inadequate and imperfect provision for the isolation of contagious diseases as now exist. Diphtheria and the exanthemata are fairly well provided for, but in the matter

of other of the infectious diseases almost nothing has been done. This is lamentable when we consider the terrible and terrifying ravages made by tuberculosis. In this County of Essex alone, statistics show that more deaths are due to this disease than to any other cause. During the year 1907 there were recorded 899 deaths from consumption, and in the first 6 months of 1908, 536 deaths from the same cause. In the thickly settled communities the percentage of deaths to the population is much greater than in the country districts. This is undoubtedly due to the infectious character of the disease.

Most thoughtful men are convinced that public provision for the segregation and isolation of at least those suffering from tuberculosis who are willing to accept it, is necessary and desirable. The dangerous cases are the ones occurring in the tenement districts, in unsanitary surroundings, among the very poor, and in the crowded quarters where hygienic precautions cannot be observed, and where sunlight, fresh air, and proper food are conspicuous by their absence. Such patients are the ones that often clamor vainly at the doors of our general hospitals for admission, and they would welcome with gratitude the open door of a properly conducted State or county or municipal institution.

The desperate and incurable cases, especially among the aged, are serious dangers to others wherever they exist. And even if their cases are hopeless, hospital segregation at least removes them as foci of infection to the community at large.

If the same number of deaths occurred annually from scarlet fever, diphtheria or smallpox, as occur from tuberculosis, the public would be alarmed, and any sum asked for by the health officers would be readily appropriated by the authorities. This shows what education has done along other lines, and the same may be done for tuberculosis.

It rests largely with the medical profession to bring this about. Concerted action on our part can accomplish much, if only by encouraging discussion among the laity, thus awakening interest, and creating a general demand for public action. Where sentiment, as expressed by the press and individually, is overwhelmingly in favor of action along certain lines the public officials will not turn a deaf ear.

Buildings for tuberculosis need not be expensive. Shacks large enough for eight patients to sleep in, with a warm dressing room and toilet, have been built at White Haven, Penn., and elsewhere for $500 each. Tents are suitable for day camps and in warm weather in places where no mosquitos or flies exist. They are not a success in cold weather, because the patients in them cannot be made to practise personal hygiene. They go to bed with their clothes on, and will not wash or bathe properly. A warm dressing room and toilet are a necessary adjunct, no matter what style of building is adopted.

Many institutions and sanatoria are open for the incipient cases, but the chronic and incurable patient finds all such places closed to him. Here lies the danger to the public health. Provision of adequate facilities for the reception and care of such cases is an imperative necessity. This is the most important single factor in the suppression of the disease. The New Jersey laws give the health authorities power to remove forcibly and detain such consumptives as are for any reason a menace to others and to the public. It would seem that no great difficulty should be met with in inducing county officers to provide funds for the erection of the necessary buildings.

PERITHELIOMA OF THE CAROTID GLAND.

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The comparatively small number of cases of perithelioma of the carotid gland, reported in medical literature, would appear to be sufficient justification for the report of the following case:

A. E., female, age 23, domestic, born in the United States, referred to the writer by Dr. J. A. Heitlinger, noticed a small mass about the size of a marble in the left side of the neck several months ago. The tumor was painless and seemed to increase slowly in size, but at times appeared to be larger than at others. There were no subjective symptoms, except that one week before examination the patient complained of hoarseness, which she attributed to a "cold." Unfortunately no laryngoscopic examination was made at this time. The previous and family history was negative.

Physical examination showed an oval tumor 3½ by 2½ by 1½ cm. in the left side of the neck, at the anterior border of the sternomastoid muscle on a level with the superior margin of the thyroid cartilage. The mass was firm in consistency, the surface was smooth, it was freely movable laterally but not in a vertical direction. The skin was freely movable over the tumor. It was not tender and a slight transmitted pulsation was present. No enlarged lymphatic glands were felt. A diagnosis of tuberculous cervical lymphatic gland was made and the patient was referred to Bellevue Hospital for operation.

Operation.—An incision about 6 cm. in length, parallel with the creases of the skin of the neck, was made over the tumor, which was found to be situated in the bifurcation of the common carotid artery. The posterior portion of the tumor lay between the external and internal carotid arteries, which deeply grooved its surface. Its capsule, which was exceedingly vascular, was quite adherent to the sheaths of these vessels. It was possible to remove the tumor without injury to these vessels or apparent injury to any nerves. However, the patient's hoarseness was more marked after the operation, and laryngoscopic examination showed paralysis of the left vocal cord, and marked congestion of the mucous membrane of the larynx, especially about the arytenoid cartilages. A recent laryngoscopic examination, for which I am indebted to Dr. Cornelius Coakley, shows that the left vocal cord is still paralyzed but that the thickening in the larynx has almost disappeared, which would account for the improvement in the patient's voice.* It is difficult to account for this paralysis as the recurrent laryngeal nerve was a considerable distance from the field of operation; the hoarseness was present before operation, and the increased post-operative aphonia may have been due to the congestion and thickening of the laryngeal mucous membrane, resulting from traumatism at the time of operation.

Pathological examination of the tumor made by Dr. Chas. Norris, pathologist of Bellevue Hospital,

*When seen recently the aphonia had entirely disappeared, and the patient's voice was perfectly normal.

proved the growth to be a perithelioma of the carotid gland.

The most recent and complete review of the literature on the subject is that of Keen[1] and Funcke, published in 1906, in which they report one case and review the literature of twenty-six additional cases. For the report of these cases, as well as an admirable account of the etiology symptoms and pathology of perithelioma of the carotid gland, the reader is referred to this paper.

Keen collected twenty-seven operative cases including his own, one case in which no operation was performed and two cases reported from postmortems. In the twenty-seven cases there were seven deaths, a mortality of 27 per cent., due principally to pneumonia from cutting the vagus, or to brain disturbance as a result of ligation of the carotids. In addition to the deaths as an immediate result of operation, one patient died a year after the removal of the tumor from recurrence, and there were three cases in prospect of death from recurrence which had already occurred at the time of Keen's report. One additional case reported but not operated upon was fatal as a result of malignancy. In 18 cases all three carotids were ligated, the external carotid alone in 2 and the jugular vein in 13. The pneumogastric nerve was injured in 6 cases, the sympathetic in 2, the lingual in 2, and the hypoglossal in 4. In addition, Da Costa,[2] in an analysis of fifteen cases, included in Keen's list, calls attention to injury of the facial and recurrent laryngeal nerves in two cases of postoperative paralysis of the vocal cord, and reports that the superior laryngeal nerve was injured in his own case.

Since the publication of the article by Keen and Funcke the writer has found the report of but three cases, which, together with one unreported case operated upon by Dr. Wm. Downes, and his own case, make a total of thirty-two operative cases. A brief résumé of the reports of these cases follows, they being numbered as they have been reported after Keen's twenty-seven cases, so as to bring the literature on the subject up to date.

Case 28.—Cook.[3] Man, 29 years old, colored. Tumor in left side of neck sixteen years. Operated on nine months previously, but tumor had recurred and at time of second operation was 7 x 5 x 5 cm. in diameter. Diagnosis of aneurysm of the carotid made. All three carotids were ligated and excised with the tumor. Patient died one hour after the operation from hemorrhage and shock.

Case 29.—Rivet.[4] Woman, 49 years old, had tumor opposite angle of jaw for seven years, but rapidity of growth had only been recent. At time of operation was size of egg. Diagnosis made of parotid tumor or aberrant goitre. Operation was followed by aphonia and for two or three weeks there was difficulty with deglutition. Recovery.

Case 30.—Zondec.[5] Man, 63 years old. Had tumor in right side of neck for fourteen years. At time of operation tumor measured 7 x 5 cm. All three carotids tied at time of operation. Recovery.

Case 31.—Coley and Downes.[6] Man, 29 years old. Tumor in the neck of several years' duration. Size of hen's egg at time of operation. Diagnosis. Sarcoma of tonsil. External carotid ligated at time of operation, and hypoglossal nerve injured. Recovery after operation, but death one year later from recurrence.

Case 32.—Author's case reported above.

Therefore in a total of thirty-two cases upon which operations were performed, we find eight deaths as a result of operation, an immediate mortality of 25 per cent., and six cases in which recurrence occurred. There were twenty cases in which all three carotids were tied and three in which the external carotid alone was ligated. And in addition to the nerve injuries reported by Keen, as mentioned above, we must add one additional case each of injury to the hypoglossal, superior laryngeal, and facial nerves, together with three cases of postoperative paralysis of the vocal cord.

Be cause of the high mortality and the danger of injury to other important structures, Keen, in concluding his article, agrees with Reclus and Chevassu when he quotes: "Only rapid growth of an apparently malignant nature justifies operation."

A study of the reported cases, however, shows certain facts. The histories extend over a period of several years, in one case the growth being present for thirty-seven years, in others from four to twenty years. It would appear, then, that in the beginning these tumors are benign in their nature. But the history of the appearance of rapid increase in the rate of growth, the report of enlarged glands in six cases, and of recurrence after operation in six cases, while one patient died of malignancy without operation, shows that a considerable number of these cases become malignant that were apparently benign in the beginning. And if one were to follow the conclusions of Reclus and Chevassu and of Keen and wait to operate until malignancy is apparent and the chance of recurrence greater, as well as the difficulty and seriousness of the operation increased, the prospect of cure is certainly not brilliant.

Moreover in but few of the cases reported was a correct diagnosis made before operation, and it would appear that by calling attention to the existence of these tumors, an opportunity might be obtained of operating before they had attained a great size, and the operator knowing with what he had to deal could by free incision and careful dissection, and an accurate knowledge of the anatomy of the region, avoid injury to the nerves which in several cases has been one of the causes of the high mortality and disagreeable after-results of operation. Examination of the illustrations accompanying Keen's article shows that where the tumor has attained considerable size, its removal without ligation of the carotids would be impossible, but when the tumor is small it can often be removed without this additional risk.

In view of these facts, while recognizing that there may be a certain number of cases where a large but slowly growing tumor, without evidence of malignancy, exists in a patient whose age or whose general or arterial condition would make the danger of postoperative shock, or of brain disturbance after ligation of the carotids, especially great, in whom operation would be inadvisable; it would appear to the writer that instead of advising against operation in all cases until rapid growth or malignancy occurs, more good could be accomplished by an effort at early diagnosis and removal of the tumor while the risk is less, and the prospect of lessened mortality and of an ultimate cure without recurrence greater.

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145 West Eighty-first Street.

A CASE OF RETINITIS DUE PROBABLY TO ACUTE LEAD POISONING.

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H. M. K., age 40, painter and decorator, consulted me in September, 1907, on account of loss of vision in the left eye. Sixteen days before his visit to me he noticed on rising in the morning a fog before his left eye; up to that time he had had no trouble with his eyes.

Upon examination: O. D. V., 20/20; O. S. V., 20/200 unimproved; visual field of left eye contracted concentrically 20°, relative scotoma of lower half of field.

Externally both eyes were normal; in the right fundus a mild neuroretinitis was present, limited to the temporal edge of the nerve head, extending slightly into the retina, and consisting of a blurring of the disc outline by a grayish white exudation with a few small hemorrhages on the disc and in the retinal tissue. Macula and vitreous were normal. In the left fundus were a general retinal edema and congestion of the retinal veins. The disc outlines were clouded by a grayish white infiltration which extended into the retina, particularly toward the region of the macula lutea. About the fovea small white spots of exudation were arranged like a crown. Many small and variously shaped retinal hemorrhages were scattered over the fundus, particularly around the posterior pole.

This was so similar to the classical picture of albuminuric retinitis that a diagnosis of Bright's disease was made from the ophthalmoscopic findings. The urine was found, however, to be normal and remained so upon several reexaminations. The patient never had had any serious illness. He gave a negative rheumatic and luetic history, and no stigmata of the latter disease were found upon his body. There were no headaches, past or present. Heart, lungs, arteries, and other organs were normal. No significant personal or family history was obtained. The urine at no time showed excessive indican and the blood contents were normal. Tobacco and alcohol were used in moderation. Though a painter and decorator by profession, he handled no paints himself. He had, however, for the first time in many years, a few days before the onset of ocular symptoms, mixed with his bare hands a large amount of white lead. No constipation followed this and no abdominal cramps, but at the time of my examination he displayed a faint blue line on his gums.

The patient was advised to stop work immediately. His diet and hygiene were regulated strictly, alcohol and tobacco being interdicted. He received the usual magnesium sulphate treatment for acute lead poisoning, followed by potassium iodide, which was begun at ten drops of the saturated solution three times a day and increased by ten drops daily till he was taking sixty drops t. i. d. In one week the right fundus was cleared up entirely and the vision of the left eye was 20/70, much of the exudation having been absorbed. The left eye improved rapidly until at the end of six weeks the vision was normal, the infiltration and hemorrhages having been absorbed.

At the present time, one year after discharge of the case, the vision of the right eye is 20/20 and the fundus normal; the vision of the left eye, 20/20, with outline of visual field normal. Strice of connective tissue infiltrate the nerve head and atrophic patches remain about the macula. The patient complains of the relative scotoma over the lower half of the visual field of the left eye, through which objects appear as "through breath upon a window pane."

147 East Eighteenth Street.

TRANSFUSION OF BLOOD FOR PERNICIOUS ANÆMIA

By ROBERT LUCY, M.D.,

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Mrs. McK., age 33, came under my care January 29, 1907. Her family history was good. She had given birth to three children, with normal labors, and had been in good health until December, 1906, when symptoms of abscess of the right kidney appeared, with frequent and painful urination. On February 13 I opened and drained the kidney abscess; examination failed to disclose any tubercle bacilli. She was discharged cured on April 13. At this time her general appearance was that of good health. She remained in good condition until January, 1908, when she again became pregnant. Three months later anemia developed and on July 31 she again placed herself in my care. Her appearance at this time was that of one suffering from pernicious anemia, with great dyspnea and swollen face and limbs. A living eight-months child was born on August 5, with no loss of blood or sepsis. The anemia and distress grew rapidly worse. The blood count showed 1,800,000 red blood corpuscles; hemoglobin 35 per cent.; megaloblasts present.

Repeated blood examinations showed a condition of pernicious anemia, which diagnosis was confirmed by several physicians, and in spite of all treatment death appeared imminent. On August 13 the husband's right radial artery was connected with the patient's median basilic vein, and blood allowed to flow for 70 minutes. On August 14 her condition was better, with less vomiting and dyspnea, and on the 15th she developed an appetite and ate a good breakfast. Color returned to the nails and underneath the tongue, and from this time on improvement was very rapid, and she was discharged in good health on September 15. An examination of the blood count taken on October 4 showed the red blood cells 3,200,000, with hemoglobin 85 per cent., no megaloblasts. According to later reports her health is perfect.

February 16, 1909, patient wrote to me, "I am enjoying the best of health."

Hydatid Moles.—G. Durante says the hydatid mole is due to imbibition by the villi, with active hyperplasia of the syncitium, dependent on obliteration and complete disappearance of the fetal capillaries in the villi. Hypernutrition and hyperplasia of the syncitium occur and vesicles are formed by accumulation in the villi of those products of the maternal blood which should go to the fetus.—*Bulletin de la Société d'Obstetrique de Paris.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

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A RETROSPECT.

THE present issue of the MEDICAL RECORD is No. 2000, not an unseemly age for a medical journal, even though reckoned in weeks instead of years, and one that invites to a little retrospection. The journal was established March 1, 1866, more than two thousand weeks ago, for it began as a semimonthly publication. Its first number was a paper of 24 pages, 8½ by 5¾ inches in size, and contained original articles, hospital reports, society reports, descriptions of new instruments, reviews, abstracts of articles from foreign journals, news, and editorial articles. The contributors of original articles to this number were William H. Van Buren, Gurdon Buck, Austin Flint, Alfred C. Post, and T. Gaillard Thomas, of this city, and E. Williams of Cincinnati—a goodly list of great names, showing that from the first the MEDICAL RECORD has been the favored channel through which the leaders of the profession have addressed their colleagues. In his salutatory Dr. Shrady set forth the aim of the new periodical. "Its object," he wrote, "will be to present to the profession a faithful record of the existing state of medical science in every one of its many departments; and, as it is more especially intended to meet the wants of the general practitioner, all the different articles published in its columns will be thoroughly practical in their character. With a wide field and ample facilities for working it up, we earnestly hope to fulfill to the letter this part of our design, thus making the RECORD worthy of the countenance and support of the profession, a journal to which they may at all times look for information, instruction, and edification. The current medical topics of the day will be freely and independently discussed, and no effort on our part will be spared to render ourselves well informed with reference to them, in order that we may be able to present such views to the profession as a body as shall be considered worthy of serious attention on their part. In all this our simple aim shall be after truth; committed to the interests of the profession as a whole, it shall be our constant endeavor to keep the columns of the RECORD free from any element that may savor of cliqueism or party spirit; and in the discussion of all subjects, great and small, to exercise that spirit of charity and honesty which must always attach itself to the side of truth and commend itself to the sanction of every independent thinker."

How well the MEDICAL RECORD has fulfilled the promise then given we must leave to others to say, but it will perhaps be interesting to note a few of the most important discoveries and advances in medical knowledge and practice which, true to its name, this journal has recorded.

The greatest and the most revolutionary discovery of these past 43 years is, of course, that of the cause of infectious disease. Four years before the MEDICAL RECORD was founded Pasteur had established his theory of fermentation and was led by the apparent similarity of the course of an infectious disease to the process of fermentation to regard the two as of essentially the same nature. Lister, in 1867, published his first article on antiseptic surgery, acknowledging his indebtedness to Pasteur, whose germ theory of putrefaction had given him (Lister) the hint from which his own antiseptic system was worked out. It required, however, many years of patient work before these principles were adopted and the science of modern surgery came into being. In 1872 Abbé announced the discovery of the immersion lens, whereby the power of the microscope was so vastly increased, and between 1871 and 1875 the process of anilin staining was developed by Weigert. These two discoveries were necessary preliminaries to the development of the science of bacteriology. In 1873 Obermeyer discovered the spirillum of relapsing fever. Neisser discovered the gonococcus in 1879, and Hansen the lepra bacillus about the same time, and, finally, in 1882, the tubercle bacillus was discovered by Koch and the malarial parasite by Laveran. In 1884 Metchnikoff observed the process of phagocytosis, and in 1897 Ehrlich published his sidechain theory of immunity. In the meanwhile, without the aid of a satisfactory explanation, such as that of Ehrlich, Behring and Kitasato succeeded in 1890 in immunizing guinea pigs against tetanus and the former made his discovery of diphtheria antitoxin which was in a few years to rob childhood of one of its greatest terrors. In 1890 Koch announced his discovery of tuberculin, a piece of news which the MEDICAL RECORD was the first to publish in its cabled report of the Berlin Congress. This was the eighth international medical congress, the first having been held at Paris in 1867, the year following the establishment of this journal, so that the history of all these meetings may be written from our pages. Beginning with the Berlin Congress, the MEDICAL RECORD has regularly published cable reports of the proceedings of these triennial meetings of the medical men of the world.

Space forbids a recounting of all the other great facts of medicine recorded in our pages, and we can only mention, as among the most noteworthy, the Esmarch method of bloodless surgery introduced in 1873; the production of local anesthesia by means of an ether spray (B. W. Richardson) in 1866, and of cocaine (Koller) in 1884; Roentgen's discovery of the *x*-rays in 1895; the confirmation in 1900 by the U. S. Army medical commission of Finlay's theory of the mosquito transmission of yellow fever, and the freeing of Havana from its century old endemic of this disease by Gorgas's practical application of the discovery; and, finally, the establishment of the first training schools for nurses in 1873 in New York, New Haven, and Boston.

For two years after its foundation the MEDICAL RECORD was issued semimonthly, but beginning with the issue of January 2, 1875, it was changed to a weekly and has so remained, except during the meeting of the American Medical Association in New York, in 1880, when a daily edition was issued. In 1873 the increase in the number of pages in each number necessitated the division into two volumes in the year, beginning, as at present, with the first numbers in January and July. With the beginning of volume 23, on January 6, 1883, the page was increased to its present size, and we may state, though the two facts are not related, that the present editor became a member of the editorial staff in the same year. For over thirty-six years the MEDICAL RECORD was edited by Dr. George F. Shrady; he retired and was succeeded by his former associate editor in August, 1904. Two of the first members of the editorial staff were Drs. John Shrady and D. B. St. John Roosa, and among others who rendered valuable editorial assistance at one time or another during Dr. Shrady's incumbency were Drs. T. E. Satterthwaite, C. L. Dana, Wesley M. Carpenter, E. C. Wendt, C. W. Allen, O. C. Ludlow, and Aimée Raymond Schroeder.

At the close of the first volume Dr. Shrady reviewed the work that had been accomplished during the year, and with the publishing of the 2000th number we can but repeat what he then wrote: "A few words concerning the journal proper will not, we trust, be out of place at this time. We have the gratification of assuring our patrons that the RECORD is in every way a success. We are in no danger of shocking our modesty by such an assertion, as its claims for favor have rested upon the aid which its numerous friends, by their valuable contributions, kind suggestions, and judicious criticisms have given it. In its management it has been our aim to be strictly impartial, and every consideration has been second to that of ministering to the more pressing wants of the daily practitioner. If we have in any respect failed in this endeavor it has been more an error of the head than of the heart. Our duties to our readers rendered it incumbent upon us to furnish the best available material, in the shape of contributions, from the most competent men. It is pleasant for us to think that in this regard at least we have discharged these obligations."

THE FUNCTIONAL ORGANIZATION OF THE CELL.

THERE is hardly any necessity nowadays to lay stress upon the great progress in the theory and science of immunity which can be directly traced to the influence of Paul Ehrlich's work and to his side-chain hypothesis of the functional organization of the cell. He conceives the cell to be a complex mechanism consisting of a number of subordinate chemical groups that serve to store and release energy under certain definite conditions of life. A number of these groups maintain the life and the special character of the cell under the usual conditions, while numerous others begin to functionate only under abnormal circumstances such as those of disease. The latter side-chains or receptors are either preformed in the cell or may be produced as the necessity arises, and it is the stimulation of the cell by the presence of toxins that leads to their overproduction and their appearance free in the body fluids in the shape of antibodies or antitoxins. This overproduction of the receptors has formed the central point of the side-chain theory of immunity and is founded upon the well-known fact much emphasized by Weigert that the regenerative impulse in the living organism is usually in excess of the immediate requirements of the organism and leads to the appearance of many more cellular and other elements than is required at the moment. However a number of phenomena in immunity could not be explained by the appearance of free receptors in the tissue fluids, and in his recent Nobel lecture, published in the *Münchener medizinische Wochenschrift* for February 2, 1909, Ehrlich takes up one of these phenomena observed in his study of the trypanosome infection. He has found, namely, that trypanosomes removed from the blood of an ape and reintroduced into its blood after the remaining parasites had been destroyed by chemical remedies were not affected by the antibodies resulting from the infection serum, but produced a disease different from the usual one only in the increased length of the incubation period. These trypanosomes therefore appeared to have become "serum-fast," as Ehrlich terms it; like changes in trypanosomes could be produced by treating infected animals by doses of medicines sublethal for the trypanosomes infecting it so that a number of them escaped destruction. Further observation showed that this change in the functionating groups of the trypanosome was a permanent one and, what is more important, was transmitted from generation to generation though it was only an acquired and not a normal characteristic of the parasite.

Ehrlich's explanation of this phenomenon is very interesting. He divides the "nutriceptors," or the functionating chemical complexes of the organism, into three groups, the first of which assimilates the simplest elements necessary for the life of the cell and is not produced in excess of the requirements of this assimilation; the second is more complex and undergoes hypergeneration in the presence of substances for which it has affinities, such overproduction resulting in the appearance of free antibodies. The third and last group, on the other hand, disappears under certain circumstances: the result of this is that the cell in question loses certain affinities and reactive powers previously evident in its processes of life. The loss of the reaction with the antibodies of the serum of immune animals is an example of such disappearance of receptors. Further experiments led to the conclusion that such artificially produced changes in the properties of the parasites could be caused not only in connection with the antibodies of immune sera but likewise toward the various specific substances which have proved to be destructive for the trypanosomes infecting an animal organism. These changes in the avidity of the organisms for various substances are conceived by Ehrlich to be in the nature of chemical phenomena, which is quite in line with his

interpretation of the whole life process of the cell as carried on by a complex of functionating chemical groups.

The importance of this addition to the theory of immunity is quite evident, for with a working hypothesis accounting for more phenomena of immunity, further intelligent experimentation with the application of the results to human therapy may be expected. Moreover, Ehrlich sees in the results obtained by him not only an explanation of the action of the various protective and curative substances produced in the living organism but likewise a clue to the workings of drugs, to their failure and their successes in special conditions. Specific chemical therapy quite comparable with the specific antitoxic therapy is Ehrlich's great aim and the clearing up of the phenomena of immunity in experimental work is an important step in this direction.

THE MODERN SCIENCE OF SANITATION.

All who had the good fortune to hear the address delivered as the opening lecture in the series being given at the College of Physicians and Surgeons upon the so-called public health movement must have been impressed by the contrast afforded in Dr. Sedgwick's historical review of the rise and significance of sanitary science. In these days when fancies are being so frequently crystallized into facts by the scientific investigator that the world scarcely halts long enough to catch their true meaning, it is refreshing to recall the oft-mentioned "good old days," which, shorn of sentiment, are not to be regretted. Knowledge of the laws of health and their application so that the greatest good shall accrue to the greatest number are scarcely a century old, yet we see the desolate places made habitable, the dread scourges of pestilent disease nearly wiped from the face of the earth, and civilized mankind everywhere becoming emancipated from the early harvest of death.

One need go back only to the age of Milton to behold a most sorry spectacle. Filth abounded everywhere, the streets were paved with slime, rushes, and the bodies of dead animals, and robbers infested the highways everywhere. It is recorded that the noxious odors from the Fleet ditch in London were so potent that they overcame the incense wafted on the air from the many churches and cathedrals along the banks. The houses were made of wood and plaster, mostly a sort of mud paste, and had roofs woven of straw and weeds. Floors were simply the natural soil impregnated with the urine of domestic animals. Under such conditions it is, of course, not at all remarkable that infectious diseases were everywhere rampant, and numbered their victims not by hundreds but by thousands. Typhus fever, leprosy, smallpox, and various malignant skin diseases were in evidence everywhere. When an epidemic broke out in a community it was considered an act of Providence to punish the people for their sins, and was so accepted.

Following out the pioneer work of Sir Christopher Wren, who was the first man of science to study the problems of ventilation in public buildings, we note that public health officers were first appointed in the latter part of the sixteenth century. Their duties were meagre, and the appointment to such a position was somewhat of a sinecure. But, after all, it is probable that the great plague in London did more to hurry onward the march of sanitary science than any other single agency up to the time of Queen Elizabeth. It is unfortunate that the world, like the individual, must learn its lesson from some great calamity.

But what is the significance of these facts in the light of present day knowledge? Simply that we are slowly but surely learning the laws of health and disease and are constantly making strides in the prevention of human misery. Everything that is ugly and repellent to our senses is a perversion of Nature, and it is by assisting Nature in her effort to produce the best that the physician finds his great opportunity. Prevention is fast becoming the chief weapon in the doctor's armamentarium, and to this he must increasingly direct his time and energy.

Fat-splitting Ferments in Lymphocytes.

It is well known that the leucocytosis which attends many infectious diseases differs much in character according to the nature of the infecting organism. Thus, pyogenic organisms and the pneumococcus call forth a polynuclear leucocytosis, while as a rule the typhoid bacillus, the excitant of syphilis, and often the tubercle bacillus cause a relative or an absolute increase in the lymphocytes. It is also quite probable that the so-called physiological leucocytosis that occurs after meals varies in character according to the food taken. Excess of proteid food is said to cause an increase in the polynuclear forms of white blood cells, while a fatty diet results in an increase in the number of lymphocytes. This latter observation has led Bergell to consider the possibility of some relation between the nature of the infecting bacillus and the character of the leucocytosis because of the existence of some ferments in the leucocytes that are best adapted for combating the special infecting organism. Müller and Jochmann have proved that polynuclear leucocytes contain a proteid-splitting ferment and the significance of this substance in attacking the proteids of the bodies of bacilli may be well imagined. In the *Münchener medizinische Wochenschrift* for January 12, 1908, Bergell communicates his experimental studies with lymphocytes which make it quite probable that these white blood cells contain fat-splitting ferments; when the existence of some fatty capsule about tubercle bacilli is remembered a teleological explanation may be had for the appearance of these cells in the blood of tuberculous patients and about local foci of infection. The experiments were quite simple, consisting in the exposure of various solid fats and waxes to the action of lymphocytes obtained from tuberculous foci. The formation of distinct depressions in the fat was evident after a few hours' exposure of such material to the action of these cells at the temperature of an incubator. It was also shown that the fat-splitting ferment was not destroyed by death of the white cells for temperatures that surely resulted in the death of cells did not do away with the chemical changes in the fat. Bergell's results, then, furnish still another cor-

roboration of the well-grounded theory which interprets all phenomena of inflammation in the light of a protective reaction to the effects of the excitants of disease, the nature of the reaction being adapted in each case to the character of such excitant.

The Effect of Baths Upon the Heart

The effects of warm and cold baths upon the size of the heart have been discussed a great deal in connection with numerous attempts to explain the curative action of such mechanical methods of treatment as the Nauheim cure, and lately the orthodiagraphic method of measuring the dimensions of the heart proposed by Moritz has enabled observers to determine changes in this respect quite accurately. Rudolph and Beck have studied by this method the changes produced in healthy and diseased persons by the administration of cold and hot baths, and now report their findings in the *Münchener medizinische Wochenschrift* for January 26, 1909. All patients subjected to these experiments had the size of their hearts measured immediately before the baths, and the operation was repeated as soon after the bath as circumstances permitted, the time between the end of the bath and the estimation of the changes in the heart not exceeding two or three minutes. The results obtained were quite uniform. The effect of the hot bath was to diminish the size of the heart, the amount of the change being quite considerable in most cases. In one case the heart remained unchanged in size. The effect of the cold bath was to increase the size of the heart, no change being noticed in one case only. The diminution in the size of the heart after hot baths was accompanied by an increase in the rapidity of the pulse and in the supply of blood to the skin, phenomena which are, of course, commonly observed after hot bathing. Cold baths, on the other hand, were followed by increased pallor of the skin and diminution in the frequency of the pulse. The limited number of cases examined does not allow final conclusions to be drawn, but the uniformity of the results obtained speaks for the correctness of the findings. Whether the therapeutic indications for the use of cold and warm baths will be modified by the discovery of these changes in the dimensions of the heart with the different temperatures of the water remains to be seen.

News of the Week.

Model Tenements for Tuberculous Patients.—The tuberculosis problem is to be approached, from a fresh side and in a most practical way, by the building of model tenements to house sufferers from the disease. Four such tenements are to be erected shortly on the east side of New York, on the block between Seventy-seventh and Seventy-eighth streets, and Avenues A and B, under the direction of Dr. Henry L. Shively, head of the tuberculosis clinic of the Presbyterian Hospital. The work has been made possible by the generosity of Mrs. William K. Vanderbilt who will spend one million dollars in the erection of the tenements. Architecturally the buildings will be notable in that they will combine the several ideas for the hygienic housing of tuberculous patients which have already been developed, and will offer many of the advantages of the sanatorium without the necessity of removal from home. Each of the four will be built in the form of a hollow square which will be entered by an archway from the street. The apartments will be reached by an open outside staircase, one of which will be placed in each corner, thus doing away with the dark common hallways. The staircases will extend to the roofs and there will thus be no necessity for fire escapes on the fronts of the houses. This in turn will permit of the building of large balconies, large enough to be used as sleeping or eating quarters, which will be connected with the rooms by windows which can be opened from the floor to the ceiling. The roofs will also be utilized to encourage outdoor life. They will be fitted with covered loggias open except to the north side where they will be protected by a glass screen. Interiorly the tenements will be divided into apartments of two to five rooms, and together will house from 350 to 375 families. Each apartment will contain either a tub or a shower bath, and will be equipped with a gas range to do away with the dust from ashes. The new buildings will be only four blocks from the new site of the Presbyterian Hospital and will be closely associated with the work of that institution.

Open Air School.—An open air public school for tuberculous children has been opened on the roof of the public library in Franklin Square, Boston, the experiment being conducted under the direction of the Boston Association for the Relief of Tuberculosis. The course of study mapped out for the children is the same as that for normal pupils in the same grades. The children are kept on the roof from nine until five daily, each child being provided with a heavy ulster and a cloth bag.

Legislation on Tuberculosis Sanatoriums.—The Wood bill, amending the law prohibiting the establishment of tuberculosis sanatoria in towns without the consent of the town board and the board of supervisors, has been reported as a committee measure. Under the provisions of the Wood bill, the person, association, corporation, or municipality proposing to establish such a hospital, files a petition with the State Commissioner of Health describing the character of the proposed hospital, stating the county and town in which it is to be located. The State Commissioner then fixes the date for a hearing on the petition and notices of this hearing are posted in ten conspicuous public places in the town where the hospital is to be located, at least ten days before the hearing. The State Commissioner's determination after the hearing is final and conclusive.

A bill has also been introduced providing for an appropriation of $175,000 for the enlargement of the Ray Brook State Hospital for Incipient Tuberculosis. There are at present two hundred on the waiting list of this hospital.

Chicago Fresh Air Hospital.—A step in advance in the treatment of tuberculosis was recently presaged when nine public-spirited citizens filed with the Secretary of State at Springfield incorporation papers for this hospital, to be conducted in Cook County without pecuniary profit. The Board of Directors includes Drs. Albert J. Ochsner, Ethan A. Gray, William G. Beele, Frederic A. Delano, Samuel Insull, Arthur Meeker, James A. Patten, James Simpson, and Theo. B. Wagner.

Vital Statistics for 1908.—Chicago is able to boast of having been the healthiest city of over 350,000 inhabitants in the United States during

1908. A total of 30,548 persons died during the year—1,595 fewer than in 1907—making a total rate of 14.10 per 1,000 of population. Of these deaths 7 per cent. were due to violence and 500 were suicides, an increase of 101 over the preceding year.

In New York City the death rate as already reported was 16.52, the lowest in its history. For 1907, the rate for Chicago was 15.3, for New York, 18.48, and for Boston, 19.2. These figures on the whole compare favorably with the death rates of some of the larger European cities, which were: London, 14.6; Liverpool, 19.0; Amsterdam, 13.4; Berlin, 15.4; Paris, 18.5; Budapest, 20.2; Munich, 18.1; St. Petersburg, 24.7. The population of New York City is estimated by the Board of Health to be at the close of 1908, 4,222,685, an increase of 137,250 during 1908.

In New York State, according to the Department of Health, there were, during 1908, 203,159 births, and 138,441 deaths, in both cases the males outnumbering the females by several thousands. Tuberculosis of the lungs was responsible for the greatest number of deaths in the State, 14,316; while heart disease caused 11,884; Bright's disease, 8,468; pneumonia, 8,602; diarrhea and enteritis, 9,286; apoplexy, 6,157; bronchopneumonia, 6,210; diseases of the arteries, 2,105; diphtheria, 2,315; and cancer of the stomach and liver, 2,561. There were 321 homicides and 1,506 suicides. As regards social conditions, the deaths among single persons numbered 64,324; among married persons, 45,605; among widows, 18,821; among widowers, 9,387. The deaths from old age were given as 2,502, while there were 9,342 deaths among those over eighty years of age. The total population of the State is estimated at 8,546,356.

Changes in Ambulance Service.—As had been previously announced, the emergency ambulance service which had been maintained by the Roosevelt Hospital for thirty-two years was abandoned on March 1, the managers of the hospital having decided upon this course in view of the criticisms of the service. Because of this relinquishment a rearrangement of the ambulance districts of the city has been necessary, and in the future the New York Hospital will cover the territory from Twenty-seventh to Forty-second street, while the Flower Hospital will answer all calls between Forty-second and Seventy-sixth streets. The district of the J. Hood Wright Hospital has been extended down to Seventy-sixth street. The new automobile ambulance recently delivered to Bellevue Hospital is to be sent to the Fordham Hospital district, which extends as far as City Island.

Dr. L. Duncan Bulkley will give the tenth series of clinical lectures on diseases of the skin in the outpatient department of the New York Skin and Cancer Hospital, Second avenue and Nineteenth street, on Wednesday afternoons, commencing March 10, at 4:15 o'clock.

Psychiatric Clinic.—The gift of $500,000 to Johns Hopkins Hospital made by Mr. Henry Phipps of New York, for the purpose of establishing a psychiatric clinic, has been increased to more than $1,000,000, according to an announcement made at the thirty-third anniversary exercises of the Johns Hopkins University on February 22. It will thus be possible to build and equip a clinic which will not only be the first of its kind in this country, but will rank among the foremost of the world. Dr. Adolf Meyer of New York is to be the head of the new department.

Changes at Yale Medical School.—Beginning with next year, the requirements for admission to the school will include two years' work of college grade, embracing chemistry, biology, and physics. Practically all of the laboratory work will be completed in the first two years at the medical school, and the second half of the course will be devoted to clinical studies.

The College of Medicine, University of Southern California, at Los Angeles, has been transferred to the University of California. Arrangements will be made by which medical students will take the first two years of the course at Berkeley, and the last two here.

Dr. Francis Carter Wood has been appointed an attending physician to St. Luke's Hospital, New York, in addition to the appointment as pathologist which he still retains. A special service is to be created for the study of diseases of metabolism in connection with the chemical department shortly to be developed in the pathological laboratory.

Dr. Charles Jewett is about to retire from the presidency of the Bushwick Hospital of Brooklyn, N. Y., an office which he has held since the incorporation of the hospital. His resignation is due to increasing demands upon his time in other lines of work.

Professor von Strümpell, director of the medical clinic in Breslau, has accepted the appointment as head of the third clinic for internal diseases in Vienna. The position has been vacant since the death of Professor von Schrötter last May. Professor von Strümpell will take up the new work in April, and will begin his lectures during the latter part of May.

Sir Felix Semon, K.V.O., who twenty-five years ago founded the *Centralblatt fuer Laryngologie,* announces in the February issue of that journal his forthcoming retirement from its editorship and his retirement as well from medical practice. He will be succeeded by Dr. George Finder of Berlin who has been the subeditor of the journal for some years. Every writer on laryngological or rhinological topics is in debt to Sir Felix Semon and to the *Centralblatt,* founded by him, which ever since its establishment has furnished each month an accurate condensation of current literature in its own special departments.

Dr. Holmes C. Jackson, at present Director of the Bender Hygienic Laboratory at Albany, has been elected Professor of Physiology and Director of the physiological laboratory at the New York University and Bellevue Hospital Medical College, succeeding Dr. Graham Lusk, who has been appointed Professor of Physiology at the Cornell Medical College.

Dr. Samuel G. Dixon, State Health Commissioner of Pennsylvania, received the degree of Doctor of Laws from the University of Pennsylvania at the Founders' Day exercises on February 22.

Harvey Society Lectures.—The ninth and last lecture in the present course of Harvey Society lectures will be delivered by Dr. C. B. Davenport, Director of the Station for Experimental Evolution, Cold Spring Harbor, New York, on Saturday, March 6, at 8:30 P.M., at the New York Academy of Medicine, 17 West Forty-third street. The subject of the lecture will be "Heredity in Man."

For Medical Research.—During the exercises in celebration of Founders' Day at the University of Pennsylvania on February 22, Provost Harrison

announced an anonymous gift of $200,000 to the University to be used for the establishment of a department of research in the medical school.

Smallpox in Mexico.—The situation as regards the number of cases of smallpox in various parts of Mexico shows no improvement, and the disease has been reported also from Huichapan, where several cases of black smallpox are said to have appeared.

Cholera in St. Petersburg.—Up to February 22, when the epidemic of cholera in St. Petersburg had lasted for 160 days, 10,000 cases had been reported with 3,928 deaths. The largest number of new cases reported in one day was 444, the lowest nine.

Gibb Operating Pavilion.—The new operating pavilion on Blackwell's Island, New York, was opened on February 25, in the presence of about 300 guests. Blackwell's Island, with its 3,000 inhabitants, has suffered from the lack of operating facilities, and the new pavilion, which has been erected at a cost of $24,000, will be greatly appreciated. It has been named the Gibb operating pavilion in honor of Dr. W. Travis Gibb.

American Academy of Medicine.—The second mid-year meeting of this society will be held in Chicago on March 25, 1909, being a conference with academic and medical teachers. At the evening session the question, "What Constitutes a Liberal Education in the Twentieth Century?" will be discussed by the presidents of the State University of Iowa, Knox College, and Western Reserve University. At the morning and afternoon sessions questions of medical education will be considered. Further information may be obtained from the Secretary of the American Academy of Medicine, Easton, Pa.

Deaths of Centenarians.—Mrs. Mary Niemann, a native of Poland, died in the Luzerne County Almshouse at Wilkesbarre, Pa., on February 12, at the alleged age of 112 years. Mrs. Minnie Topp died in Pottsville, Pa., on February 19, at the age, also alleged, of 102 years.

Complaint Against Alleged Laxity.—A committee from the Illinois State Medical Society has presented to Governor Deneen a complaint against the Illinois State Board of Health, based on the alleged lax system of examining applicants for physicians' licenses in that State.

State Reservation at Saratoga Springs.—A bill has been introduced into the present Legislature, providing for the creation of a State Reservation of all the mineral springs and gas well properties in the town of Saratoga Springs. The act provides for the appointment by the governor of three commissioners, to acquire the land, after which acquisition the springs shall be open and free to the public. The measure has the endorsement of the State Medical Society and the Saratoga Springs Medical Society, the latter pointing out that unless prompt action is taken the springs may be entirely depleted owing to the establishment near the village of five gas well corporations which extract from some sixty bored wells, from 700 to 1,000 cylinders of liquefied carbonic acid gas at 1,000 to 2,000 pounds pressure per day. This has already greatly lowered the water level of the springs.

Surgeon Recovers Fee.—In the Supreme Court of New York, Part 14, on February 11, after a jury trial lasting two days, a surgeon of this city obtained a verdict against another medical man for performing an operation for appendicitis upon his wife. It was admitted that the defendant had retired from practice, and was therefore not entitled to professional courtesy, the only question for the jury to decide being the reasonable value of the services. Every expert, with the exception of one general practitioner, estimated the value of the services to be from three to five thousand dollars. The surgeon's bill was for $3,650. The jury's verdict was for $2,325 and costs.

Semicentennial of the College of Physicians and Surgeons.—The Alumni Association of the College of Physicians and Surgeons celebrated the fiftieth anniversary of the school by a dinner at Sherry's, on Tuesday evening of this week. Speeches were made by the Dean, Dr. Samuel W. Lambert, President Nicholas Murray Butler of Columbia University, the Rev. William R. Richards, Dr. Henry A. Christian, Dean of the Harvard Medical School, Seth Low, the former President of Columbia, and Dr. William M. Polk.

Plan to Rescue Dr. Cook.—The Arctic Club of America is preparing to equip an expedition to search for Dr. Frederick Cook of Brooklyn, who is supposed to be wintering somewhere in the polar regions after an attempt to reach the pole last summer. Dr. Cook started for the pole in June, 1907.

Major Carroll's Widow.—An appeal has been sent out of the office of the Surgeon-General at Washington, to all army medical officers, asking for contributions to relieve the distress under which the widow of Major James Carroll is placed. Major Carroll, as is well known, died as the results of the investigation into the etiology of yellow fever, in which he was associated with Drs. Walter Reed, Jesse Lazear, and Aniticles Agramonte.

The International Opium Conference, which has been in session at Shanghai, China, since February 1, held its final meeting on February 26, when the reports of committees were submitted and passed upon. No full details of the action of the congress have yet reached this country.

London X-Ray Convention.—A convention which will include all branches of medical electricity will be held in London from July 5 to 9, 1909, at the University of London, University College. A simultaneous exhibition will include all sorts of electrical and physical apparatus for medical treatment, and one afternoon session will be devoted to the demonstration of new apparatus. Detailed information can be obtained from the organizing secretary, Ernest Schofield, 11 Chandos street, Cavendish Square, London, W.

Rochester Societies Affiliate.—The Rochester Pathological Society and the Rochester Academy of Medicine have agreed to affiliate, the society to become a new section of the academy, which shall be known as Section V, the Rochester Pathological Society.

American Laryngological, Rhinological, and Otological Society.—A joint meeting of the Western and Middle Sections of this Society was held in Chicago, February 22, 1909, in the Assembly Hall, Northwestern University Building, under the joint chairmanship of Drs. Joseph C. Beck of Chicago and R. Bishop Canfield of Ann Arbor, Mich. The meeting was well attended. The scientific program consisted of demonstration of clinical cases, demonstration of methods, anomalies of frontal sinus demonstrated by stereoscopic radiograms, microscopic slides, and exhibition of instruments. The

following papers were read and discussed: "Certain Methods of Precision for the Inflation of the Eustachian Tube and Tympanum," by Dr. Thomas Hubbard of Toledo, Ohio; "Vaccine Diagnosis and Therapy," by Dr. Robert Levy of Denver, Col.; "Anesthesia in Ear, Nose, and Throat Surgery," by Dr. Norval H. Pierce of Chicago; "The Value of Certain Operative Measures in the Treatment of the Cerebral Complications of Suppurative Otitis Media," by Dr. S. MacCuen Smith of Philadelphia; "Some Observations on the Acoustic Function of the Ear," by Ernest de Wolfe Wales of Indianapolis; "Extralaryngeal Causes of Laryngeal Symptoms," by Dr. Frank Smithies of Ann Arbor, Mich.; "Lamentable Accidents Occurring in the Practice of the Otolaryngologist," by Dr. J. A. Stucky of Lexington, Ky.; "Concerning Labyrinth Suppuration," by Dr. L. F. Page of Indianapolis, Ind.; "Obstinate Stenosis of Laryngeal Diphtheria; Notes of Progress and Treatment of Two Cases," by Dr. D. J. Wishart Gibbs of Toronto, Ontario.

Obituary Notes.—Dr. Joseph Huber of New York died in the Lebanon Hospital on February 22 of edema of the larynx. Dr. Huber, who was fifty years of age, was graduated from the College of Physicians and Surgeons in 1888, and later served as interne at the German Hospital. He was a member of the New York Academy of Medicine.

Dr. William McCollum of Brooklyn, N. Y., died at his home on February 23 of acute bronchitis and pulmonary edema, aged 76 years. Dr. McCollum was graduated from the Castleton Medical College of Vermont in 1853, later taking a postgraduate course in the College of Physicians and Surgeons, New York. He was an honorary member of the State Medical Societies of New York and Connecticut, and a former president of the Vermont State Medical Society and of the Kings County Medical Association, and vice-president of the Medical Association of Greater New York. During most of his professional life he was a contributor to leading medical journals.

Dr. John W. Atwood of Fishkill Landing, N. Y., died at his home on February 21. He was a graduate of the Jefferson Medical College in the class of 1888, and was a member of the American Medical Association, the State Medical Society, and the Newburgh Bay Medical Society. He was an attending surgeon to the Highland Hospital at Matteawan, and physician to the Orphans' Home.

Dr. Samuel G. Fisher died at Port Deposit, Md., on February 20, at the age of 77 years. He was graduated from the University of Maryland School of Medicine in the case of 1854. He was engaged for more than fifty years in the practice of his profession in Chestertown, Md.

Dr. Charles L. Coulter died at Philadelphia on February 23 at the age of 59 years. He was a native of Lindsay, Canada, and was graduated from the Medical Department of Victoria College, Toronto, in the class of 1875. He was at one time Chief Surgeon of the Canadian Grand Trunk Railroad and also Government Inspector of Medical Supplies for the Dominion of Canada.

Dr. Walter A. Harding of Everett, Mass., died at his home in that city on February 16, after a short illness, from pneumonia, aged 35 years. Dr. Harding was graduated from Tufts Medical School in 1899, and for two years past had held the position of assistant professor of anatomy in the College of Physicians and Surgeons of Boston.

Dr. Robert A. Murray, president of the New York Society of Medical Jurisprudence, died at his home in New York on February 27, of pneumonia, after a short illness. Dr. Murray was born in New York, in 1852, and was graduated from the City College in 1871, and from the medical department of New York University in 1873. He was a fellow of the Academy of Medicine, and a member of the American Gynecological Society, the New York Obstetrical Society, and the American Medical Association. He was also consulting gynecologist to the French Hospital and associate surgeon at the Woman's Hospital.

Obituary.

FREDERIC IRVING KNIGHT, M.D.

BOSTON.

Dr. Frederic Irving Knight of Boston died suddenly on February 20 from an attack of angina pectoris. He was in his sixty-ninth year and had continued his professional duties until a very few days before his death. He was a graduate of Yale University in 1862 and of the Harvard Medical School in 1866, later studying in Berlin, Vienna, and London. He was one of the Founders and an ex-president of the American Laryngological Association in 1878 and had continued his activities in that society, although during recent years he paid special attention to chest diseases and was prominently engaged in the tuberculosis crusade in his own city. He was also an ex-president of the American Climatological Association. During his earlier years he was one of the Harvard instructors in nose and throat as well as chest diseases. Dr. Knight was representative of the best ideals of the medical profession. He was a writer of great acumen and clearness and made many valuable contributions to literature. He was a man of wide culture and the charm of his presence was always manifest.

Correspondence.

THE EMMANUEL MOVEMENT AND ITS RELATION TO THE MEDICAL PROFESSION.

To the Editor of the Medical Record:

Sir:—Do the leaders of the medical profession in Boston lead? If they do, into what are they leading the profession? The medical profession of New England has been watching with breathless interest the combination of magic, Mesmerism, medicine, and religion which has gone under the name of the Emmanuel movement. Their interest has been intense, for upon the outcome of this movement will rest the whole advance which they fondly believe has been made in medicine. If this method which has been the most thoroughly tried and the most thoroughly discredited of any method which has ever been practised for the alleviation of human suffering, is with the help of modern psychology to become the best recognized method of treating a large class of diseases (and how large the class is no one knows, for there are confident assertions that it will include all those diseases which were treated by the Savior and will even outdo the work done by the apostles), then it is time that the medical profession takes some means to perfect itself in its technique. So far, the actual treatment has been done very largely by the clergy, but now it seems that the leaders of the profession in Boston are to take it in hand and see to it that only proper patients are treated. The following from the *Boston Daily Globe* of January 28, 1909, is of interest in this connection:

"The advisory board of the Emmanuel movement, composed of Drs. Joel E. Goldthwaite, Richard C. Cabot, James G. Mumford, and Joseph H. Pratt, have drawn

up a set of rules which are designed to avoid some of the earlier mistakes made by the clergy among that class of patients who have no family physician. These well-known physicians, according to their signed statement, believe in the Emmanuel movement, but are also of the opinion that methods different from those now practised are necessary to bring the movement into closer relationship with the physicians. The rules have been adopted by the clergy in the Emmanuel movement in Boston, who yesterday issued the following statement:

"'In order to preserve and extend the cooperation of the physicians and ministers the following rules have recently been adopted by the Emmanuel clergy:

"'1. No person shall be received for treatment unless with the approval of and after having been thoroughly examined by his family physician, whose report of the examination shall be filed with the minister's records.

"'2. No patient shall be referred for diagnosis or treatment to any specialist or assistant save with the advice and consent of the patient's own physician.

"'3. All patients who are not under the care of a physician must choose one and put themselves in his care before they can receive instruction at Emmanuel church To those who ask for advice in this choice there shall be handed a printed alphabetical list of all the general practitioners (internists) attached to the visiting and outpatient staffs of the Boston city hospital, the Carney hospital, the homeopathic hospital and the Massachusetts general hospital.

"'From this (or from any other source if the patient prefers) a physician is to be selected. Should these physicians decide that none of the patients thus referred to them ought to receive treatment at Emmanuel none will be treated there. Through the operation of Rules 1, 2, and 3 it will be seen that an internist remains throughout in general charge of every case. It thus rests wholly with the physicians of this community and not with the Emmanuel clergy to decide whether or not a patient should be referred to a neurologist or other specialist, and which, if any, are suitable for treatment by moral and religious reeducation at Emmanuel. We believe that under these rules the fundamental object of the movement deserves the support of all physicians and of the community generally.'"

"These well-known physicians," according to their signed statement, "believe in the Emmanuel movement," but we have as yet seen no reasons given for their belief and it would be interesting to learn from them what class of cases they think suitable for this method and the reasons why they believe this treatment to be better than their own. This appears highly important as an index to the family physician, for it is hardly reasonable to ask him to pass final judgment on every case which may be attracted by newspaper notoriety when he has had but limited experience with similar methods, and that generally of an unsatisfactory character. If a patient comes who has no family physician, or what is more likely, whose family physician refuses to be a party to any such transaction, then the patient is to be given a printed list of the physicians who are connected with the large hospitals and they are to choose a physician "from the list or from any other source." Here again the physicians from the hospitals "or from any other source" are in the same dilemma; their training has been along entirely different lines and how are they to advise intelligently these would-be patients?

Personally, I have never been able to see, except in details, any difference between the magic used by savages, Braidism, Mesmerism, hypnotism, Perkins' tractors, and the present movement. I am willing to grant that the present method makes a more intelligent use of modern psychology, but psychology is largely an explanation of why certain mental conditions or sensations result from certain excitants. It has not, as I understand it, created any new sensations or methods of treatment, but rather it has explained these already known. It is most satisfactory to know why people act in certain ways, but it may be open to question whether it helps the people or makes them act any differently even if we do understand.

The Indian medicine man who beats his drum and shakes his rattle to make good medicine accomplishes the same result as the man who understands and uses modern psychology. He does not understand the result, but he understands the method and accomplishes as much as, if not more than, has ever been done among civilized people

It has been the custom in the past at the annual meeting of the Massachusetts Medical Society to show the members new operations, new methods of treatment, interesting cases from the great hospitals of Boston; in fact, to show what the local profession had done during the past year. I wonder if the Emmanuel movement will be one of the objects of interest exhibited next year? How does this compare with the work done by Fitz, Shattuck, Putnam, Mixter, Richardson, Harrington, Munroe, Rotch, and a score of others? The physicians of Massachusetts in the past have done valuable work for the relief of humanity and they are respected by their fellows for their work. "By their fruits ye shall know them," but what will the harvest be" of this short cut which casts aside the work of the past and easily and gracefully floats the patient through the pearly gates of a New Jerusalem of Health?

CAROLUS M. COBB, M.D.
BOSTON, MASS.

FOOD PRESERVATIVES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—It is possible that there are some medical men who are not familiar with the well-established fact that heat can sterilize any kind of organic material. Whether dirty or rotten, clean or fresh, good or bad, makes not one particle of difference to the power of heat in this direction. Once such material is sterilized by heat and sealed from the air it will keep indefinitely. There is not a particle of difference in the keeping qualities, while sealed, of any sterile organic substance. This fact can be verified by any person who cares to go to the trouble of a trial, and he can likewise discover that there are not two opinions of the truth of the matter if he will ask any educated bacteriologist about it. Since, then, there is absolutely no difference between the keeping qualities of pure or impure, clean or dirty, sterile, sealed goods, what means the controversy over the keeping quality of catsup? It is simply this: Can a sterile bottle of catsup keep fresh for, say, a week after being opened when it contains no preservative? Here is the whole issue in a nutshell. No one who knows anything about the subject under discussion denies the keeping power of catsup containing no preservative, while it is under seal. What is denied is that any living person can manufacture such an article and have it keep *after being opened* and under use for more than a day in warm weather. All the experience of all the canners in the world proves that sterile provisions will keep indefinitely without preservatives if kept sealed from the air. All the experience of every housewife proves that such goods quickly spoil after being opened, unless they contain a preservative. The sole issue is on the keeping of the goods *after opening*.

In view of these facts, is it asking too much of Mr. Pierce when I request him to supply the readers of the MEDICAL RECORD with such evidence as he may have of the truth of the extraordinary statements he makes in his communication which appears on page 321 of your issue of February 20? Will he tell us where to find one or more of the "expensive factories" for the utilizing of garbage from the floors of canning factories? Will he give us some evidence of his statement that such garbage is converted into "catsup, soup, apple-butter, jam, and mince meat"? Perhaps he will be willing to describe the way this wonderful miracle is accomplished? Perhaps he will be willing to let us know how or why it is that the users do not know enough to use heat in sterilizing such stuff just as heat is used in sterilizing the best of stock? It would be interesting to know why they choose to throw away their money in so senseless a manner. It may be interesting to him to learn that as partly decayed substances contain products of decomposition they require less preservative to keep them, after exposure to the air, than do fresh goods. It is the fresh goods that need the most preservative after exposure to the air. Of two sterile cans of any kind of food to which no preservative has been added, and that have been opened and exposed to the air, the one prepared under dirt and decomposition will keep the longest. It contains aromatic products of bacterial decomposition and these protect it. Neither needs any preservative until opened.

Mr. Pierce is not unknown to the medical profession as a man of lurid words, when writing about pure food. It is not long since he was called to order by the editor of the *Journal of the American Medical Association* for "out-Heroding Herod." This was on page 1454 of the issue of May 6, 1905. Another medical editor got after him for exaggeration at about the same time. This the reader will find in an editorial in *American Medicine*, page 676, of the issue of April 29, 1905. This last-named editor informs us that Mr Pierce had been

telling the American public that canners were utilizing "old horses and mules, seaweed, old boots, and shoes; and the 'gleanings from the sewers' are utilized, he says, to 'appease the seeming hunger for the lower grade of goods!'" The editor then went on to say: "No good cause needs such championship as that supplied by Mr. Pierce in his *Public Opinion* article." Can the reader wonder at my desire to have Mr. Pierce give us a few facts in support of his, to me, exceedingly unlikely and positively unreasonable statement?

Brooklyn, N. Y. R. G. Eccles, M.D.

THE ETIOLOGY OF COMMON COLDS.

To the Editor of the Medical Record:

Sir:—I beg to offer some remarks upon Dr. Robert C. Brown's paper on "Some Factors in the Etiology of a Common Cold," published in the Medical Record of February 6. First, I want to applaud Dr. Brown on his final conclusions that common colds are not bacteriological diseases; then I would direct attention to some errors of statement regarding the theories of other observers on the non-bacterial side. Dr. Brown states that Bosworth's and Wakefield's theories are opposed to each other, that neither has any foundation in physiology, and both are opposed to Seitz's theory, which has a foundation in physiology and is most nearly correct.

Bosworth (Diseases of the Nose and Nasopharynx, 1889) expressly endorses the theory of Seitz (Ziemssen's Cyclopædia, Vol. XVI), though he mentions its incompleteness, which is the shortcoming of all the older concepts. Rosenthal's theory is criticised by Bosworth as being too mechanical and inefficient as an explanation of all the manifestations, and it may be said here that it is principally in this respect that all the older theores vary from our own. We really simply elaborate and perfect the more primitive descriptions of the old masters by filling in the gaps which modern research achievements have made possible. In the writer's case (Medical Record, December 2, 1906) the mechanical aspect was elaborated by filling in of biochemical and metabolic knowledge of the present day. The fact of the matter is that Bosworth's and Seitz's theories are identical fundamentally. My own paper on the subject made no attempt whatever to set forth a new mechanism of the tissue reaction to extraneous temperatures, but after stating the accepted mechanism in my own language, yet not intentionally making an innovation on the classical descriptios of Seitz, I elaborated the old theory by adducing a theory of the biochemical process involved in the exsanguination of the peripheral tissues as a result of the tetanic contraction and condensation of the peripheral tissues, which occur as a tissue reaction to the external cold. The so-called reflex mechanism of the tissue reaction which exsanguinates the peripheral tissues is the original reactional manifestation. I think no one denes this reflex action as the primary reaction. Neither Seitz nor Bosworth attempted to go into the chemical or physical status of what was accomplished by the original contractions, so my work was simply an elaboration of earlier work which did not attempt to explain any but the now accepted original reaction involved. My contention that peripheral refrigeration involves condensation of tissues, as heat involves distention and expansion, does not invalidate the premise, though it does help to explain the more permanent effects of colds, not always explainable on the basis of congestion and venous stasis.

Dr. Brown observes: "Wakefield thinks that exposure to cold produces in remote portions of the system areas of suboxidation, which become inflammatory foci." Now, I have no doubt that Dr. Brown has unintentionally misquoted my article, especially inasmuch as he apparently endorses what I really set forth, though attributing it all to Seitz. My expressed contention was that when the periphery of the body is subjected to a chilling influence, the superficial tissues contract, exsanguinating the capillaries and determining the blood from the periphery to the great splanchnic venous trunks, and engorging and congesting the visceral organs. When inflammatory reaction follows, not the peripheral, but the visceral organs are prone to be its seat. I regret that space does not permit extensive quotation from my original monograph, as to how maldistribution of the blood and chemical disequilibrium results from the above causes, and how phophylaxis of pneumonia and other febrile reactions from "catching cold" may be carried out by those who perhaps in their own families at least do not care to fold their arms and await the unaltered outcome of what they believe to be inevitable parasitic processes. Homer Wakefield, M.D.

New York.

THE TREATMENT OF ERYSIPELAS.

To the Editor of the Medical Record:

Sir:—In the Medical Record of February 13, 1909, there appeared an article by Dr. Aspinwall Judd, entitled "The Treatment of Erysipelas by Means of Carbolic Acid and Alcohol." It may be of interest to the profession to know that this most efficient method of treating erysipelas as described by Dr. Judd was advocated originally by the late Dr. Seneca D. Powell, some twelve or fifteen years ago. A description of his technique appeared in the Transactions of the Southern Surgical and Gynecological Association for 1900, and is as follows:

"Erysipelas is also amenable to treatment with this drug, and here we use 95 per cent. carbolic acid, and it will be probably the most severe test that the surgeon will be called upon to make—I mean from the surgeon's standpoint. He must always follow directions closely, and damage may result from a failure to observe this. I manage it in this way: Placing the patient flat on the back, and with the head placed back so as to present as nearly as possible a level surface of the face, I apply a 95 per cent. solution of carbolic acid with a well-rolled mop of absorbent cotton. I watch the surface carefully, and as soon as it turns white I swab it off with alcohol. Your materials should be at hand and readily available, and you should depend upon your judgment as to when the alcohol should be applied, and not upon the complaints of the patient. I paint the surface about the eye with pure acid, holding gauze pledgets in between the closed lids, to prevent the acid entering the eye. Be very careful not to allow the alcohol to be brought into contact with the surface before the acid is applied, as it will prevent the acid from acting on that surface. After this, not only the entire face, but all of the surface involved by the disease can be treated is this way. You will have to use a larger mop of cotton, so as to go over the surface rapidly and completely. Then in some cases it will act so quickly as to compel you to do it in sections, not only covering the diseased surface, but going over the line one inch or more; especially does this apply to the treatment of erysipelas in other locations. I have applied carbolic acid in this way to the entire body below the nipple line and above the knees to a patient, a young girl, about twenty years of age, reducing the temperature from 106° to normal in four hours. The action of the acid in these cases is uniformly promptly successful in its results."

In August, 1900, the late Dr. A. M. Phelps, before the Thirteenth International Medical Congress in Paris, made the following statement: "The profession is indebted to Dr. Seneca D. Powell, of New York, for one of the most useful discoveries ever made in surgery. I allude to the antidotal effect of alcohol in carbolic acid. Dr. Powell has used carbolic acid for years in the treatment of infection and bone diseases in various parts of the body, and has recommended it for erysipelas and abscesses. I have tested it in the treatment of erysipelas, and find it as specific in that disease as quinine is a specific for malarial poisoning." Edward W. Peterson, M.D.

New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

LETTSOMIAN LECTURES—TUBERCULOSIS COMMISSION—WERTHEIM'S OPERATION—REGISTRAR GENERAL'S REPORT—FRIENDLY SOCIETIES AND THE PROFESSION—MEDICAL BENEVOLENT FUND—OXYGEN FOR ATHLETES—PRINCE OF WALES F.R.C.S.

London, February 12, 1909.

The Lettsomian lectures of the Medical Society of London are being given by Dr. Martin, who has chosen as subject the "Functional Disorders of the Stomach." These he grouped as (1) gastric irritation, (2) gastric deficiency, and (3) indigestion of nervous origin. Before dealing with the signs and symptoms of these disorders, he took a general review of the secretory activity of the stomach and of its motor power in all forms of disease. The digestive activity of the contents of the stomach was determined by the amount of pepsin secreted and varied with the amount of hydrochloric acid. In those forms of gastric irritation called acid dyspepsia, it had been shown that two hours after a meal from 0.25 to 0.4 gram per cent. of acid was secreted, but taking such cases as were admitted to hospitals with grave defects of nutrition, there was hypo- more often than hyper-chlorhydria. A large proportion of cases showed deficiency of secretory activity. Of seven cases of neurosis one had achlorhydria, two

a percentage of 0.12, one of 0.2, one of 0.24, and two of 0.29 acid. Those were cases of dyspepsia, with many nerve symptoms.

When cases were admitted there was great variability in the secretion of acid, so that it might be impossible from the symptoms only to determine whether any case was one of increased, decreased, or absent acid secretion. Generally the digestive power was proportionate to the amount of acid, but when acid was present to some amount there might be no pepsin. Organic acids were absent when the acidity was over 0.2 per cent., but below that some organic acids, chiefly lactic, were found in small amounts. In gastric ulcer there might be either excess or deficiency; in cancer more frequently a deficiency. The lecturer concluded that the results of analysis of the contents of the stomach might assist diagnosis in connection with other facts, but could not be relied upon as diagnostic.

The third interim report of the Tuberculosis Commission was issued last week. It is a blue-book of 38 pages, including an appendix. You will remember that in the preceding (second) interim the question of the danger of milk from tuberculosis cows when the udder showed no signs of disease was left undecided. This question has been taken up and careful investigations by Dr. F. Griffith made on one of the commission's farms. The results are perhaps of special importance, as they are based on observations on animals purchased when already tuberculous—not on those artificially inoculated. Six cows were obtained; in five the udder was normal, and in the sixth the disease was not detected until after death. Three of the cows were obviously tuberculous from a clinical point of view, three apparently healthy, but reacted to tuberculin. The milk of the three obviously diseased, drawn under precautions against contamination, infected guinea pigs when inoculated in small doses, though this result was not invariable. The guinea pigs were not affected by the milk of the other three. The feces of five of the cows, obtained with minute precautions, contained virulent bacilli, and was tested both by inoculation and feeding. Tuberculosis followed minute quantities inoculated by the peritoneal method into guinea pigs. In three out of six cases of young swine unaffected by the tuberculin test and fed with emulsion of the feceses in sterilized milk tuberculosis was produced. Considering that few herds are altogether exempt from the disease, the pressure at an early stage of living virulent bacilli in large quantities in the feces, it is time for English farmers to adopt strong measures against contamination of the milk, for it is well known from many reports that fecal matter is frequently found in samples of milk that were supposed to be pure. Moreover, the too common practice of giving to pigs any milk that is suspected or condemned should be forbidden under heavy penalties. The commissioners remark that cows with extensive lung disease must discharge numbers of bacilli from the air passages by coughing, and some of these may find their way into milk; but their experiments indicate that the excrement is much more dangerous. With slightly diseased cows bacilli are found in the feces, while as regards those animals which are clinically tuberculous their "experiments show that the feces contain large numbers of living and virulent tubercle bacilli."

They further insist that the presence of diseased animals in the sheds with healthy cows is distinctly dangerous and some of the bacilli are almost certain to find their way into the milk.

From this brief summary of the last report you will see how fully the experiments confirm the results obtained by investigations on your side, and which most of us have regarded as conclusive. Those who have not accepted the views thus confirmed will find it difficult to remain unconvinced.

Wertheim's operation, as it is generally called, though he only modified it, has been discussed at the Medical Society of London *à propos* of a paper by Dr. Comyns Berkeley, who gave statistics of 220 cases from different operations in the United Kingdom. He said it had a great advantage over simple vaginal hysterectomy as to operability and cures and not much difference in fatality if only similar cases were compared. The simple proceeding had a lower mortality in early cases, but the after results were often disappointing. The decision as to the best procedure depended on whether the regional glands were affected.

In England Wertheim's operation has not been performed for more than some five years—not long enough to establish the percentage of cures. Wertheim operated on 200 patients more than five years ago, and 138 are still living. Dr. Berkeley discussed several questions, including local recurrence, which he held was rare with the extended abdominal operation. He showed a pair of clamps which overcame the dangers and difficulties of Wertheim's. He also showed the specimens of 27 of the 30 which he and Dr Bonney had removed.

Dr. H. Spencer said the terrible thing about Wertheim's operation was the high mortality—24½ per cent. on the first 200 cases and 9½ per cent. on the whole 400 Wertheim had done. After vaginal hysterectomy it was only 4 or 5 per cent. It was a very grave question whether a patient with cancer should undergo such a formidable risk.

Dr. McCann considered the future of the operation was in early cases; in advanced ones he was doubtful of any operation. It was most important to insure hemostasis and cover the surfaces of the peritoneum; then subsequent infection was not probable. If the bladder was involved operation was not justifiable. He kept the patient in the Trendelenburg position as short a time as possible. He never kept a drain in more than 48 hours; indeed, it was not needful to put one in at all if hemostasis was established.

Dr. Lewers believed Wertheim's would be the future operation, not only for cancer of the cervix, but for the body of the uterus also. He had performed it on 22 patients, all of whom had advanced cancer. He lost four out of the first 10, out of the second 10 none at all. It was usually best to begin as a laparotomy, as sometimes it was impossible to complete.

Dr. Russell Andrews said his experience was similar to that of Dr. Lewers. He had few opportunities of seeing early cases. He thought as experience increased the mortality would eventually fall to that of vaginal hysterectomy.

The Registrar General's report for the year 1907 has just appeared. It is to be noted that this gives in detail the statistics and supersedes the estimates formed from the quarterly returns. The decline in the rate of increase of the population has continued. The proportion of marriages has also decreased from 108 in the previous year to 93. The birth rate was the lowest recorded, and this fact has elicited all sorts of speculation in the newspapers. From the commencement of registration in 1837 up to 1874 the registration steadily improved and is reckoned as complete from 1875. The birth rate attained the highest point in 1876, viz., 36.3 per 1,000 of the total population. Since then it has gradually fallen to 26.3. The effect of this on the increase of the population is to some extent modified by the fall in the death rate, but, clearly, this last cannot continue indefinitely.

The death rate of 1907 is also the lowest recorded and corresponds to a rate of 15.0 per 1,000, being 0.4 below that of 1906. Compared with the decennial average 1897-1906, it shows a decrease of 1.7 per 1,000. It is encouraging to observe that a break has occurred in the increase of the fatality from cancer, which has persisted so long. The rate of enteric fever is also the lowest on record. Diseases of the circulation show some increase. Measles was more fatal, but diphtheria and other children's diseases less fatal.

A conference arranged by the Charities Organization Society was held on Saturday to discuss the relations between the medical profession and friendly societies. It was opened by Dr. James Pearse, who pointed out that the profession recognized the good that had been done by friendly societies, but found that they did not properly meet the claim for sick attendance. The report of the Manchester Unity of Odd Fellows showed that the doctors received approximately 2 per week for such attendance, and complained that members of the clubs earning good incomes were not ashamed to take advantage of this attendance. He suggested that a wage limit or payment for work done should be arranged. Sir T. Smith thought it only human nature for well-to-do club members to avail themselves of the doctor's services, as every one liked to get the most for his money. Sir T. Barlow said no one class did as much for others as doctors, knowing they would get no remuneration. But the skilled artisans of the counties should recognize justice and pay their doctors more than a "mere pittance." A representative of the Odd Fellows said if they could not have the club doctor the majority of the members would go on the parish or to the local hospital. Would the doctors prefer that to what they called "a pittance"? On behalf of friendly

societies their national conference would receive a deputation of doctors who would be reasonable and not demand a wage limit. Dr. Smith Whitaker said no amicable adjustment could be arrived at without a wage limit. The confession of the club representative that the members of his order would avail themselves of the Poor Law or the free hospital unless they could get the doctor at 2s for a week's attendance speaks volumes for the boasted independence of the working man.

On Tuesday there was a meeting in the College of Physicians in support of the British Medical Benevolent Fund, which was founded in 1836, and has spent over £70,000 in grants and a little over that amount in annuities to distressed members of the profession, their widows and orphans. Legacies and large contributions are invested for the annuity branch, but grants are limited to the annual subscriptions, and the increasing need for these is a source of anxiety to the managers. Last year £1,877 was spent in that way in sums varying from £5 to £20. The amoritants now number 124. A special fund is being started in the hope of raising all annuities to £26 a year. No publicity is given to the cases, and the working expenses are only about 5 per cent. Most of the money is given by the profession—very little being subscribed by the public.

The Bishop of Oxford attended the meeting, and said his father was for many years, and until his death, president of the fund. A glance at the work done would quicken any one's interest in it. No profession run such risks, and when a doctor's education ended he had mostly spent his capital and had much to do to keep up appearances. The dangers to his health were great, but a breakdown might be ruin.

The Lord Mayor and Sir Douglas Powell also spoke in support of the fund.

Dr. Leonard Hill, lecturer on physiology at the London Hospital College, gave a demonstration at the London Institution on the use of oxygen in athletics. He said that athletes used up their oxygen faster than inhaling air could supply it. The beat of the heart and pulse was reduced and the blood pressure raised after inhaling oxygen. He had induced two runners to experiment, and they overran their own records after taking oxygen. He thought taking the gas before an athletic event would lead to record breaking. All athletes are exhausting their hearts by using up oxygen faster than they can replace it and their hearts are damaged for want of it. If they took oxygen before, during and after the game the heart, he said, would be restored and they would not suffer the ill-effects of their exertions.

In connection with this statement it is noteworthy that recently a warning was sent to the head masters of all schools to the effect that school and cross-country races exceeding one mile in distance are wholly unsuitable for boys under 19 years of age, as the strain involved is apt to cause permanent injury to the heart and other organs. This warning is signed by several leading physicians, and is issued by Mr. Farnier, captain of Middlesex football club, etc., from 1886 to 1891.

The Prince of Wales having consented to become an honorary Fellow of the Royal College of Physicians, was yesterday formally elected by the Council. His Royal Highness intends to be present at the Hunterian ovation on Monday next.

Progress of Medical Science.

Boston Medical and Surgical Journal, February 18, 1909.

Criminal Abortion.—The paper of G. S. Taft, a District Attorney of Massachusetts, discusses this matter from the medicolegal standpoint suggested by the laws of that State, and traces the development of the statute enactments up to the present time. The crime is even defined as follows: "Whoever with intent to procure the miscarriage of a woman, unlawfully administers to her, or advises or prescribes for her or causes any poison, drug, medicine or other noxious thing to be taken by her, or with the like intent uses any unlawful instrument or other means whatever or with like intent aids or assists therein, shall, if she dies in consequence thereof, be punished by imprisonment in the State Prison for not less than five nor more than twenty years; and, if she does not die in consequence thereof, by imprisonment in the State Prison for not more than seven years and by a fine of not more than $2,000.00." In Massachusetts it is not a crime for a woman to commit an abortion upon herself, nor to submit to one by another. In the same State, the confidential disclosures made to a physician are not privileged; that is: the physician may be compelled to testify to them in court. In about half the States the law is otherwise, though in such States it is the privilege of the patient and not of the physician, and the patient may waive the privilege.

Fibroid Phthisis in Childhood.—A case of this form of phthisis in a boy of four years is recorded by A. W. Fairbanks. The case has been followed by the author for a period of six years, the boy now being ten. The condition apparently dates back to a pneumonia at the second year, following which the boy had a constant cough. A man in the same house died from pulmonary tuberculosis a year after the child had pneumonia. The physical signs at the different periods are given in full. When the boy was six, he went through a severe attack of bronchopneumonia with consolidation of the entire left upper lobe and bacilli appeared in the sputum. The eventual prognosis in the case it is impossible to forecast. During the last three years the boy had liver on a houseboat in Boston Harbor each season from May through October, and has thus been exposed to the fresh air day and night, not coming ashore at all. He has had no cough, has improved materially and the physical signs are not as pronounced as they were three years ago. This long duration of the lung process, the intercurrent bronchopneumonia with bacilli and the upper left lobe consolidation, disappearance of the bacilli and consolidation, and the present health of the child, although the fibroid process has caused a marked chest deformity, make the case one of much interest.

New York Medical Journal, February 20, 1909.

The Genitourinary Complications of Typhoid Fever.—E. J. Beardsley enumerates these as retention of urine, polyuria, albuminuria, pyuria, hematuria, hemaglobinuria, urobilinuria, bacilluria, infarcts and abscess of the kidney, nephritis, pyelitis, cystitis, epididymitis and orchitis, ovaritis and salpingitis, gangrene of the genitals, disturbed menstrual function, abortion, miscarriage or premature labor and inflammation of the breasts. Some of these are of slight import, giving but little trouble, while others are so severe as to prove fatal after the febrile stage is finished. Albuminuria is very common. Of this the author makes five clinical varieties, viz., febrile, due to nephritis (hemorrhagic); nephritis with acute suppuration, post febrile and due to cystitis. Bacilluria is so common a complication of typhoid fever that we must consider it present in every case at some time during the disease, although the bacillus has been found in but twenty-five per cent. of the patients whose urines were examined. Nephritis in typhoid fever patients is a very important complication. The exact relation of the primary disease to the inflammation of the kidney, which in varying degrees of severity occurs so commonly during its course, is a very difficult question to decide. We know that fifty per cent. of the patients who suffer from typhoid fever reveal both albumin and casts if the urine is carefully examined through the course of the illness, but we also know that a large percentage of these patients recover without untoward effects. In the usual case the albumin and casts appear at the height of the fever, but there are patients who, from the onset of the illness, show marked changes in the urine and reveal symptoms which, for a time, conceal the true nature of the illness. The relation of the pregnant condition to a typhoid fever attack is of much importance. Some patients pass safely through the attack of fever without interruption of the pregnancy, while others recover, in spite of abortion or premature labor. In still other cases death takes place immediately after the interruption of the pregnancy. Regarding the danger of an attack of typhoid fever to a pregnant patient, we may quote the collected statistics of Sacquin, who found that in 223 cases of pregnancy complicated by this disease, abortion or premature labor took place in 150, with a mortality rate of sixteen per cent. Slight inflammation of the breasts during typhoid fever is often seen but the symptom is usually transitory in character. Occasionally, however, the inflammation is more severe and abscesses sometimes form in the pus of which the *Bacillus typhosus* has several times been found.

Salivary Calculi.—R. E. Davison precedes a general article on salivary calculi, with the account of a personal case, his patient being a man of forty-one years with sore throat and swelling about the left angle of the lower jaw, causing difficulty in chewing and swallowing. The trouble seemed to be an enlarged submaxillary gland, there being almost a tide-like regularity in its rise and fall of the tumor with activity and rest of the salivary apparatus, suggestive of a partial obstruction in Wharton's duct. No

probe could be inserted. There was a purulent discharge in the mouth. The following operation was performed: An incision one inch in length was made parallel to the ramus of the jaw and one-fourth of an inch below, and directly over the tumor. By blunt dissection the submaxillary salivary gland and two enlarged lymphatic glands were removed. The salivary gland was free of stone and apparently healthy. The jaw bone was not diseased. These findings led to a diagnosis of a salivary calculus surrounded by suppurating tissue. The stone lay so far back and so deeply in the floor of the mouth that it could not be felt through the incision, consequently, it was decided to remove it through the mouth rather than risk the danger of infection by enlarging the incision. Accordingly the sinus was enlarged by incisions down to the stone, and the calculus grasped by forceps and removed. It was a large stone weighing dry sixty-four grains and measuring three-fourths of an inch long, three-fourths of an inch wide, and a half inch thick. The skin incision was partially closed with silkworm gut and a wick of iodoform gauze inserted for drainage. Healing was uneventful. The author found 242 cases of salivary calculi on record. The treatment of the condition is always surgical. It may be possible at times to leave the gland, but we are never certain that the gland is not diseased, and this is especially true of the submaxillary. In case there is much purulent discharge coming from the floor of the mouth it is better to remove the affected gland. In regard to the parotid gland no general statement can be made, since each case will have to be decided according to the condition present.

Amyluria: Starch in the Urine.—I. S. Wile makes a preliminary communication on this subject, reviewing its literature. In thirty-five children seen at one of the New York City children's hospitals, amyluria has been noted thirty-five times. Various precautions were taken to exclude contamination and ensure favorable conditions for fair observations: (1) Urine from males only was used; (2) lycopodium was used as a dusting powder; (3) penis washed with a flow of water before securing specimen; (4) penis inserted into a clean bottle and held in place through the use of adhesive straps; (5) bottles were covered immediately after the urine was secured; (6) the writer was kept in ignorance of the foods used until after his observations were completed; (7) all centrifuge tubes, test tubes, glass slides, etc., were tested for starch before utilizing them for the work. The author's results as thus far collated are expressed in the following propositions: (1) Starch granules are absent in the urine of breast-fed infants; (2) starch granules are frequently present in the urine of infants on carbohydrate food; (3) the degree of amyluria varies with the nature and preparation of the food, the quantity ingested, and the condition of the individual; (4) starch in urine at times gives a reaction simulating that of albumin; (5) starch passing through the kidneys may cause albuminuria with casts; (6) amyluria does exist, and starch in the urine is not necessarily of extraneous origin. In one case starch granules have been found in the blood (amylemia). The difficulty of determining amylemia are obvious. Further investigations are under way.

Asthma: A Nasal Disease.—J. H. Egbert gives the histories of a group of eight cases of asthma in which great relief was experienced upon the correction of abnormal intranasal conditions. The paper is a very good exposition of one side of the asthma question. The author admits the existence of two additional causative factors: (1) A neurotic habit, and (2) acquired nonresistance. He says that the remedies most commonly employed to relieve asthma are enervating depressants, while not a few of the agents employed by inhalation are directly irritating to the nasal mucous membrane or otherwise determine a loss of nerve and tissue tone. Lobelia, stramonium, tobacco, and allied agents which are capable of allaying the paroxysms of asthma, do so by depressing the pulmonary nerve supply to the verge of narcotism, thus often effecting more injury than benefit by occasioning general systemic derangement and by further debilitating an already atonic nerve organization. The nitrites are open to similar objections for, while these agents do not produce the same profound central narcotism, they exert a similar paralyzing influence on the peripheral nerve supply of the lungs and so long as this is maintained asthmatic paroxysms may be held in control. Pilocarpine is supposed to act somewhat similarly to the nitrites, though this drug has, perhaps, a more logical application in that it reduces visceral blood pressure by occasioning dilatation of the peripheral capillaries. Its use, however, is not without danger, and nausea, extreme depression, and collapse may follow its exhibition in regular therapeutic doses. The medicinal agents which will be found to be most generally useful in the treatment of asthma are strychnine, atropine, phosphorus, and quinine—all nerve invigorators. The nose must be put right. All concurrent functional and organic disorders must be put right, cardiac, renal, or hepatic. Bad habits must be given up. A warm, dry climate is beneficial.

Journal of the American Medical Association, February 20, 1909.

Dropped Heart Beat.—D. Felberbaum and L. J. Pollock have studied the relations of so-called dropped beat and hemisystole, the latter being a condition allied to cardiabigeminus in which during the second beat of the heart the left ventricle fails to contract. It has been observed in the exposed hearts of animals but most authors deny its occurrence in man except in the dying, what really occurs being a partial or ineffectual contraction of the ventricle, producing a pseudohemisystole. Two cases are reported and the authors deduce the following conclusions: "(1) From our observations in numerous cases of cardiac arrhythmia, dropped or missed beats occurring from time to time are not rare. Such exquisite types as we have illustrated are, however, exceptional; (2) a condition demonstrating the mechanism of pseudohemisystole is observed in irregularly acting hearts during the periods of consecutively dropped beats; (3) a regularly consecutive dropped beat constitutes pseudohemisystole; (4) that this condition is not due to disturbances of conductivity is shown by the response of the ventricle to the action of atropin; (5) the absence of a second sound to the second beat, so well shown by case 2, is due naturally to the nonclosure of the unopened aortic valves; (6) the absence of a murmur during the period of dropped beat in case 1 further demonstrates an ineffectual ventricular contraction, since the force exerted was insufficient even to cause a regurgitation of blood into the auricle and produce a murmur."

Obstruction of the Bowel.—J. S. Horsley calls attention to two points in the treatment of mechanical and dynamic obstruction of the bowel. The first of these is the abuse of purgatives in this condition. There are few things calling for more judgment and skill than the correct and timely use of purgatives. In acute infections and in any case in which a toxemia may develop, a purgative is not only advisable but necessary, but it is different with acute obstruction from any other cause. A sudden obstruction, not due to nervous affections, always means one of two things: either an inflammatory condition of the peritoneum or else some form of mechanical obstruction. When an inflammatory condition is present purgatives are contraindicated unless the toxemia is so excessive that the constitutional improvement by the elimination of the toxins by the purgative outweighs the local damage produced. In inflammatory conditions rest is needed for the part, and we should endeavor to inhibit peristalsis rather than to increase it. When the acute obstruction is due to some mechanical cause, the contraindications are even plainer. The more vigorous the purgative the more absolute the obstruction and the greater the distention above it. The other point noticed is the surgical method of relieving the obstruction, and the earlier this is resorted to after reasonable efforts have been made to produce evacuation by enemas, etc., the better for the patient. When distention is very marked an enterostomy may be needed to drain the bowel and carry off the toxins. When resection is attempted the method is of great importance. Horsley objects to the use of a fixed metallic body, with a small lumen, like the Murphy button, which by its weight may cause kinking or volvulus, considering carefully placed intestinal suturing by a skilled hand much safer and hardly less expeditious. When the bowel cannot be brought out into the wound and sutures accurately placed, the button may be indicated, but such cases must be rare

The Surgery of Syphilis.—G. F. Lydston emphasizes the fact that many practitioners treat syphilis too specifically and that in many cases radical surgical measures are the primary indication, specific medication taking almost a secondary position. The initial lesion rarely requires the knife, save in case the duration is very persistent and defies specific treatment for a long period. Here a clean excision is sometimes of great advantage, and the more thoroughly the patient has been previously treated with mercurials, the less the chance of a recurrence. The most frequent call for surgery in primary syphilis is in hidden chancre or mixed sore with phimosis. He has long since given up all hesitation in such cases, the chances of wound

infection being almost negligible as compared with those of allowing the lesion to progress without diagnosis or proper treatment. In his own experience he has never had occasion to regret making a dorsal incision of the prepuce for the purpose of freeing the glands and inspecting and treating the concealed lesion. Marked edema occurring with chancre sometimes demands multiple punctures, and this is preferable in persistent cases to permitting the edema to be followed by connective tissue hyperplasia calling for the knife later. In mixed sores and superadded pus infections in true chancre, abscesses may occur in the course of the lymphatics of the penis, which, of course, call for incision. It is hardly necessary to say that the syphilitic bubo, *per se*, needs no surgery, but when there is chancroidal or tuberculous infection the knife is called for. Lydston here pleads for thorough extirpation of the glands in such cases; halfway measures are not effective, according to his experience. The surgery of secondary syphilis is still more limited. Induration after edema may call for it and obstinate mucous patches and ulcers may do well under light curettement. Various conditions of the jaws and teeth have an important relation to these lesions and call for surgical treatment. It is in late uncured syphilis that surgery becomes of more and more importance in the treatment. The same indurating edema noticed above is often encountered in broken-down subjects of tertiary syphilis. Extensive tumors about the genitals may thus result and may persist long after the luetic infection is under control, and should be dealt with just as any other new growth would be. The mistake is often made of trying to cause their disappearance by specific treatment; they are no longer syphilitic, but are merely the results of syphilis. Gumma in certain situations should be treated surgically more frequently than is the custom. Lydston holds that obstinate gumma of the brain, resisting internal medication, and when accurate localization is possible, is one of these conditions. The same is true of stubborn gummy ulcers which are likely to heal after the indurated base is cut away, always provided that the constitutional treatment has been judiciously carried out. Syphilitic bone disease is the cause of more barbarous specific overdosing than any other lesion occurring in syphilis, and many cases of caries and necrosis are the result. Mercury and iodid, must, of course, be the mainstay in the constitutional treatment, but the local condition must be treated on its merits as if it were due to other causes than syphilis. Lastly Lydston calls attention to the frequency with which gummata and obstinate ulcers of the tongue are replaced by malignant disease. In such cases the diagnosis is often delayed and the patient continues to be dosed with iodid and mercury to his damage. Lydston has observed a large number of such cases in which the opportunity for the cure of the disease by surgery has been lost. He thinks that the profession as a whole, is woefully unobserving in this class of cases. He has, he says, arrived at the point where, when the microscope is guessing, he is perfectly willing to hazard his reputation by playing the only surgical trump at his command and removing the tongue. Operations on syphilitic patients, he says, in whom the constitutional disease is under fair control by specific medication, are likely to result in primary union of the wound just as though syphilis did not exist. In clean aseptic incised wounds repair will occur quite as rapidly as in nonsyphilitic subjects. In open wounds, or in chronic nonspecific lesions occurring in syphilitics, where irritation is marked and persistent, the syphilitic constitution undoubtedly delays repair, and the rational use of mercury and iodids is an indispensable adjuvant.

An Epidemic of Acute Anterior Poliomyelitis.—R. Minor Wiley and J. C. Darden report an epidemic of infantile paralysis occurring last summer in Salem, Va., and vicinity. There were twenty-five cases altogether, while a neighboring city of 35,000 inhabitants escaped with only one case though only seven miles distant and daily visited by scores of Salem people over a connecting trolley line. Inquiries made by the State Commissioner of Health developed no other cases in the State, and the condition was without precedent in that section of Virginia. The cases are reported. They were in children under five years of age except in one case, a boy of six. The youngest patient was thirteen months old. There were seven cases involving only one leg, one in which one arm only was affected; five cases in which one arm and one leg were paralyzed, one in which one arm and the leg of the opposite side were affected, six cases in which both legs were involved, four in which all the limbs were paralyzed, five cases with bulbar paralysis, and three deaths, or a mortality of 12 per cent., which is higher than usually reported. In all the fatal cases there were respiratory and cardiac paralyses. A striking feature noted in the majority was pronounced hyperesthesia, and another was profuse sweating. The fact that not more than one case occurred in any house, though other children were exposed, would speak against the contagiousness of the disease. The epidemic was preceded by intense heat and humidity and there were no new cases occurring for three weeks during which there was a drop in the temperature, though they began to appear again when hot weather recurred, thus pointing to an influence of the weather upon the disease. Eight patients recovered completely and fourteen partially, but all the latter have since shown some improvement and some may ultimately recover. The authors cannot give details of treatment except in their own cases. They employed counterirritation and salicylates in the acute stage, followed later by increasing doses of potassium iodide and strychnine to the point of toleration, together with massage, warm baths, and electricity when practicable.

The Lancet, February 13, 1909.

An Inquiry Concerning the Etiology of Beriberi.—This paper results from the studies of H. Fraser and A. T. Stanton, who give the following facts: Twenty cases of beriberi occurred among 220 people fed on white rice. No case occurred among 273 people fed on parboiled rice and otherwise under precisely similar conditions to the first group. Various doubtful cases of the disease occurred, but these were all excluded. All of them had eaten white rice, not parboiled. No case occurred among the white rice eaters unless they had been on this diet for at least 87 days. No special organisms were found in the blood and urine, except those well-known as causative factors of other diseases. The author's observations convince them that the disease is not a directly communicable one. Removal of the patients from one place to another had no effect on the disease so long as the patients continued on the white rice diet. The authors cannot regard as proven the assumption that a given place may become a nidus for the disease. The substitution of parboiled for white rice led, in three instances, to a cessation of the disease. There was no evidence to show that any other article of food outside of rice entered into the matter of causation of the malady. No more intestinal worms were found in the beri-beri cases than were found in the well population in the same locality (Malay States).

An Unusual (? Instructive) Case of Appendicitis.—The patient of F. C. Smith was a young physician who entered hospital after an illness of five days, his most prominent symptoms being abdominal colic and diarrhea with fever. On admission a tentative diagnosis of typhoid fever was made and the abdomen carefully examined for a possible appendix inflammation, but none could be discovered. Later, deep palpation revealed some tenderness in the region of the gall-bladder and some change in the other symptoms led the author to a diagnosis of pylephlebitis from some form of ptomaine or food poisoning. He lived for nearly two weeks. Blood tests were negative. He had several rigors during the time, but in spite of various abdominal examinations no justification for surgical measures could be found. For the last forty hours of life he had manifestly acute general purulent peritonitis. Autopsy showed a gangrenous appendix and in the liver three large distinct abscesses the size of golf balls, with greenish slimy contents, not pus, and a pathological antemorten clot in one of the larger branches of the portal vein. In view of the autopsy findings the author says the case shows a logical sequence in the development of pathological processes, but he cannot understand why the abdomen failed to show any of the signs which we are accustomed to consider as of regular appearance in appendix cases.

The Etiology of Psoriatic and Allied Conditions.—M. J. Chevers believes in the neuropathic theory of the origin of psoriasis. It results from a denutrition and structural destruction of the epidermis, an exfoliation of the epidermis and dried leucocytes, brought about by a drying and shriveling up of the epidermis, for want of its necessary nutriment which it obtains by inhibition from the derma. This blood hunger is a local manifestation of a general systemic condition which shows itself by a giving way at its weakest point, viz., the very fine cutaneous trophic nerves and interference with the fine capillary circulation in the derma, loss of tone in these capillaries allowing of their compression by the abundant elastic fibers of the corium and the unstriped muscular fibers of its superficial layer. All these changes produce an interrupted blood supply to the derma and serous exudation

beneath the epidermis. In individuals whose epidermis resists rupture long enough to allow of a drying up of this exudation, we get exfoliated epidermis plus dried leucocytes, in other words, the psoriatic condition. The occurrence of the disease on the dorsal surfaces and on the thickest of these as the elbow and knee is explained by the fact that the thicker the epidermis, the less the number of nerve fibers as is evidenced by the reduced sensation in these areas and the consequent greater ease of disturbing the life and function of the epidermis by lessening its power of securing nourishment from the corium, the blood supply to the latter being curtailed by the general atonicity of the nervous system. The individual variation in permeability of capillary walls, coagulability of the blood and elastic contents of the skin explain why, from the same general causes, there may be in one patient, dry, scaly conditions as psorasis and in other patients such conditions as most exudative psoriasis, eczema and pemphigus. The laxness of the flexor and more tense extensor aspects of ceratin areas determine to some extent the location of the dermatosis.

The Anatomical Varieties and Their Bearing on the Treatment of Pathological Varieties of the Palatine Tonsils.—In an illustrated paper G. S. Heit describes the origin and development of the faucial tonsil, of which he recognizes the following clinical types: (1) Imbedded, (2) projecting, (3) flat, (4) hanging, (5) with marked preponderance of one or more of the constituent masses, and (6) with marked lingual prolongation. The author says that the size of a tonsil is no criterion for the necessity of surgical intervention. Sepsis, not size, is the determining factor. The fact that the tonsil does not project beyond the faucial pillars is no proof that there may not be a deep imbedded mass. Before any tonsillotome is used, the tonsil should be thoroughly separated from the pillars. The remains of tonsillar tissue may be bound down by fibrous bands and so form a nucleus for infection. Many cases of recurrent sore throat are due to this cause. We recommend this paper to those laryngeal zealots who operate on every tonsil large enough to be seen with the naked eye.

British Medical Journal, February 13, 1909

Can Opsonic Estimates Be Relied on in Practice?—E. C. Hart says that the work of the Wright school must be reckoned with in clinical medicine, but that it is doubtful whether opsonins represent more than a fractional part in the highly complex machinery of immunity production. Granted that they are the important factor in immunization, the question as to their reliability is still open. Technical considerations of standardization of emulsions, cultural difficulties, agglutination questions, etc., concern only those experts whose responsibility it is to render such technicalities as free from sources of error as possible. They do not affect the practising physician, whose only concern is with the pertinent questions of reliability and cost. As regards cost, everyone knows that it is necessarily high. As to reliability, countless observations have been reported in which the estimations have appeared to be of the highest value in diagnosis and determining treatment. But such experience is not universal even when securing the best talent among the exponents of the opsonin theories. There appears to be a growing conviction, says the author, that except possibly in the hands of an extremely small band of experts, the method is not of the general utility with which it has been credited.

Iodine in Surgical Tuberculous Disease.—W. A. Tatchell, who is a mission surgeon in China, commends the use of iodine in tuberculous ulcers, abscesses, glands, etc. He operates and scrapes as usual. Then the cavity is thoroughly swabbed with iodine liniment, which is applied daily. The application causes but little stinging pain and it does not destroy tissue as does carbolic acid. Granulations do not become excessive. At the first application thin gauze or light packing are used, but not later. Drainage gauze and strips have doubtless caused many sinuses. Internally, syrup of the iodide of iron and small doses of potassium iodide are given thrice daily

The Nature and Treatment of Parenchymatous Goiter.—According to Francis L. A. Greaves, there is in this affection glandular proliferation which results in clusters of cells or of gland like acini lined with epithelium, somewhat flattened and irregular as compared with the normal gland. Both varieties may be seen in the same organ. The cut surface of a fresh goiter appears reddish or dark brown. Areas in which many of the acini contain masses of colloid material show on section a translucent, honey-like appearance. The symptoms and course of the malady are given in full, nothing new being presented, and a technical description of the operation for removal is given in full. The author has operated on nearly forty patients and all have healed without incident except one in whom suppuration occurred.

The Signs of Early Disease of the Thyroid Gland.—G. R. Murray divides the cases into two classes. In one the gland increases in size and the symptoms are mechanical, due to pressure on surrounding organs. The other symptoms are referable to variations in the functional activity of the gland induced by the structural changes occurring in it. As the function of the gland is to supply an internal secretion, which escapes by way of the lymphatics into the blood stream, thyroid diseases may be divided into three classes, according to the manner in which this function of the gland is influenced by them. Some diseases have no effect on the secretory function, as acute thyroiditis, simple parenchymatous goiter, and many cases of a denomatous or cystic goiter. Some diseases lower or abolish it, according to their severity, as cretinism or myxedema, while in a third class, as exophthalmic goiter, the function is greatly increased and possibly perverted. Pregnancy and menstruation produce a temporary enlargement. In many persons the gland enlarges permanently, with a possible visible enlargement of the veins and absence of thrill or murmur. As a rule, when a goiter is unilateral the enlargement is due to an adenoma or cyst in one lobe. Myxedema cases generally come on during the fifth decade of life and are more common in women. The change is accomplished by the characteristic mental alterations, and a subcutaneous swelling of the body. The skin becomes dry and desquamates, especially on the legs. The hands become pudgy on the back. The cheeks often enlarge and a flush appears, suggesting an unusual condition of health. If at the time of the appearance of these symptoms the ovary atrophies, we have the usual accompaniments of the menopause. If we have hypersecretion of the glands, we have the usual goiter, exophthalmus, rapid heart nervousness, tremors of the hands, and emaciation. We are not to place too much dependence on the presence of the exophthalmos, as it is absent in one-quarter of all cases. The reason for this is unknown. In its absence a staring expression may be noted, due to a spasm of the levator of the upper lid. It is well to remember also that if a patient has been taking for any reason large doses of thyroid for a long time a condition of thyroidism may arise in which many of the symptoms of Graves's disease develop, such as rapid heart tremor, nervousness, sweating, and emaciation.

Dysentery and Its Serum Treatment.—P. Aubrey advocates the use of antidysenteric serum in bacillary dysentery which is sometimes epidemic in a severe form in temperate climates. It has been tried sufficiently in animals and in human beings to show its value. It shortens the attack, lessens the mortality from the disease, and lessens the pain that the disease occasions. The pain is decreased, the fever and general symptoms are improved, and the stools lessen in number and change in character for the better in a few hours. Attacks of moderate severity may be cured in two days, while severe ones end in five or six days. The dose is from 20 to 100 cubic centimeters. If used in ten cubic centimeter doses as a prophylactic measure, an immunity of ten days may be secured in time of epidemic.—*Revue Française de Médecine et de Chirurgie.*

Observation of the Hematology in a Case of Hemophilia.—F. Costantini describes the examination of the blood of a patient treated for hemophilia because the blood observations of such cases are somewhat rare and contradictory. In some respects the results of this examination differed from that ordinarily obtained. The patient was suffering from a hemorrhage of the lower lip which recurred without cause. Her father and four brothers had been subject to hemophilia. The time of coagulation was normal or a little hastened. Hemoglobin was diminished. The red blood corpuscles were increased in numbers. The globular value was low. The number of white blood cells was somewhat increased but not beyond normal limits. The leucocyte formula showed a diminution of polynuclear neutrophiles and an increase of the lymphocytes. Mast cells were increased in number.—*Gazzetta Medica di Roma.*

Book Reviews.

Gonorrhea in Women. By Palmer Findley, M.D., Professor of Gynecology in the College of Medicine of the University of Nebraska, Omaha; Gynecologist to the Clarkson Memorial Hospital and Wise Memorial Hospital; Fellow of the American Gynecological Society. St. Louis: C. V. Mosby Medical Book and Publishing Co., 1908.

This monograph of 112 large octavo, highly calendered pages, is certainly a masterpiece of careless writing, shiftless proofreading, and reckless disregard of the reader who seeks information. The author doubtless knows his subject, but through the facts above related most successfully obscures his meaning in the majority of instances. Painful surprise is created by the author's most original presentation of Latin letters which somewhat resemble those of the Greek alphabet. Thus we are told that the average diameter (of the gonococcus) from pole to pole is 1.25 *u*, and that Galen attributed the name gonorrhea to *youn*, seed, and *pew*, to run. Perhaps, however, this literary curiosity is to be credited to the printer's economy, preventing the acquisition of a Greek font. Rare is the page of this book, in which at least one sentence or one paragraph is not a marvel of obscurantism. While the author certainly must have known the meaning he desired to convey, his phrases are so involved as to defy even the hardened reviewer. It must be conceded, however, that perhaps one-quarter of the book is not at all subject to the preceding strictures (urethral strictures are not mentioned in the book). The pages alluded to are mainly from the writings of Bumm, Leedham-Green, who here is disguised as Seedhal-Green; Saenger, Taussig, Taber-Johnson, Morrow, Cushing, Boldt (who would hardly recognize himself as H. I. Bolt); Bierhoff, Grandin, George Tucker Harrison, Osler, and other masters of their craft and of the pen. The extensive citations from their contributions to scientific literature do not always appear relevant to the subject in hand. From some of the literary references we learn that Keifer's "Beitrag zur Festschrift, gewidmet A. Martin" has "schöne Abbilduggen der Kulturen"; that Mayer's "Gonorrhoea und Wochenbett" presents "ausführliche Literatur uben diesen Gegenstand"; that Ccckas in a paper Zur Behandlung der Blennorhoe, "empfiehlt heisse Spulungen den Harnrohre" (*copia verbat. et literat.*). Bontin will doubtless be astonished to learn that he write his Thèse on la Blonnattagie, as will some of our American colleagues, who do not understand German, to be informed that Cahen-Brach's Urogenitalblennorrhoe contains "eingehende Literatur-angaben." It is not at all impossible that this book is the work of a competent practitioner, who can teach *viva voce*, but whose literary productions need the aid of a skilled pen.

Diseases and Surgery of the Genitourinary System. By Francis S. Watson, M.D., Senior Visiting Surgeon to the Boston City Hospital; Lecturer on Genitourinary Surgery, Harvard Medical School; Member of the American Surgical Association, of the American Association of Genitourinary Surgeons, of the American Urological Association, of the International Association of Urology and its first Vice-President; Corresponding Member of the Surgical Society of Moscow; assisted by John H. Cunningham, Jr., M.D., Visiting Surgeon to the Long Island Hospital, Boston; Assistant Visiting Surgeon to the Boston City Hospital; Member of the American Urological Association. Vol. I. The External Genitals, the Prostate and Bladder, with 339 Engravings and 23 colored plates; Vol. II. The Kidneys and Ureters, with 115 engravings and 24 colored plates. Philadelphia and New York: Lea & Febiger, 1908.

Had this magnificent work been published in one volume, the present general index for both would have sufficed, and the consequent elimination of individual indices would have reduced the work to a volume of 1099 pages, rendering it quite a conveniently-sized book, more especially if lighter but equally strong paper had been employed. The price of the work would then have been within the reach of the majority, who need just such instruction as the work contains. The book is devoted essentially to surgical anatomy, pathology, and operative technique. In all these regards it is as complete as modern urogenital surgery demands. The tone is essentially majesterial, supplemented by critical references to the works of other authors. As is natural, in a study devoted to surgery, acute urethritis receives but curt attention in 29 pages, and urethroscopy is disposed of in 18 pages. In the latter a colored plate of endoscopic pictures is very poor, more especially when compared with the other most excellent illustrations in which the work abounds and which ably supplement the terse, clear text that, although elegant, is never redundant. In the treatment of gonorrhea, the author declares himself on the side of those who do not favor irrigations, believing that "with its employment there is always the danger of carrying infection to the posterior urethra * * *" (p. 64). It is remarkable that in so excellent a work as this, no case of infection to the posterior urethra is cited in support of the assertion. The danger meantime, in view of the thousands of irrigations performed daily for the past fifteen years or more, seems purely theoretical. No such exception can be taken to the other, purely operative parts of the work, whose substance, presentation, completeness, and instructiveness defy reviewing. Barely a conception of the immense surgical value of the work can be given in so brief a notice as the necessary space limitations permit. The work certainly will find a place among the books valued by all those whose efforts are directed to genitourinary operations. When other authorities differ, as for instance, in the several prostatectomies, Watson describes each one in detail and aids, especially younger operators, in the selection of the procedure best calculated for the case in hand. Based as the work is on scientific principles, it lays down rules that are the outcome of experience and as such enriches the profession more than has any other book published in the English language in several years.

Die Sprache des Kindes und ihre Störungen. Von Dr. Paul Maas, Spezialarzt in Aacher für Ohren, Nasen und Halsleiden, und Sprachstörungen. Mit 16 Abbildungen. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1909.

This little monograph considers the development of the function of speech in the human being and the disturbances of this function met with in children. Treatment of such disturbances, especially of stammering, receives a good deal of attention in the booklet. The work is written in a very entertaining manner, and will repay the time spent in its perusal to anyone interested in the development of the faculty of speech.

A Reference Handbook for Nurses. By Amanda K. Beck, Graduate of the Illinois Training School for Nurses. Second Edition, Revised. Philadelphia and London: W. B. Saunders Company, 1908.

In this second edition there is some new matter, such as domestic and foreign postal rates, and additions to the section on weights and measures, both of which are unimportant, but are probably accurate. There is also a new section on toothache and its emergency treatment. If this latter is a sample of what nurses think themselves called upon to do, we can only say that we prefer the toothache to the treatment here recommended. The dose of dilute hydrocyanic acid is given as one to five minims; so, again, we would prefer to be treated by a physician, and live, rather than to be treated by a nurse and die. For tables of weights and measures and postal rates and similar matters the book can be commended to nurses and others.

Analytique de l'Esprit Humain et de la Vie (Bio-Animisme), du Dr. J. A. Molinié, Ancien Interne de l'Hôpital International. Paris: Vigot Frères, 1907.

This is a brief study in analytics exploiting a doctrine of biological philosophy; an effort to elaborate the old socratic formula, know thou thyself, on the basis of anatomico-physiological discoveries; in other words, to unite the old scholasticism with modern scientific progress. Among the more interesting chapters are those on the center of ideation, on character, and on vitalism, or, as the author terms it, bio-animisme.

Zeittafeln zur Geschichte der Medizin. Von Prof. Dr. J. L. Pagel. Berlin: August Hirschwald, 1908.

This is a collection of chronological tables by means of which one can at a glance inform himself of the main points of medical history at any particular period or in relation to any particular investigator, and also the main facts of general history for the same period. The three periods into which the author divides medical history are those of antiquity, extending from the earliest time to the end of the classical period of Greek and Roman history; of the middle ages, from the fourth to the fifteenth centuries; and of modern times, from the beginning of the sixteenth century to the present. The tables are well arranged and self-explanatory, and exceedingly useful, but their value as a work of reference would have been enhanced tenfold by an index, at least of names, which is most provokingly absent. The brief table of contents in no way supplies this deficiency, though it is helpful as pointing to specific periods with which the tables deal.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held January 18, 1909.

Dr. H. Seymour Houghton in the Chair.

Address of the Retiring President.—Dr. J. Riddle Goffe, in welcoming the President-Elect, assured him that with whatever feeling he had assumed the office he would relinquish it with a far livelier sense of its dignity, its responsibility, and its honor. He said that he had been profoundly impressed with the conscientious work done by the Comitia Minora, the Board of Censors, and the Milk Commission. Previous to his entrance upon official work he had had no conception of the time required of the members of these executive committees and of the promptness, interest, and thoughtful judgment that each and every man devoted to his duties. These methods and traditions could be handed down from year to year only by the system of organization which carried over the membership of a sufficient number of the older members to leaven properly the new organization. This was especially true of the Board of Censors, where questions of the most delicate nature were constantly arising. The machinery of the Society had run with the greatest possible harmony during the past year. The proceedings of the Board of Censors, in so far as his observation went, had been carried on with the most perfect impartiality in dealing with members of the Society for minor breaches of medical etiquette and those of a grosser nature had been met with unflinching courage and diplomatic tact. Dr. Goffe suggested that the make-up of the Board of Censors should be guarded with the greatest care. As the family was the unit and foundation of all civilized society throughout the world, so the County Society was the unit upon which the superstructure of medical organization rested. While the County Society existed primarily for the dissemination of medical knowledge and experience, these records depended, to a certain extent, upon the personal equation and one could become acquainted with the natural bias of the individual only by a personal intimate acquaintance. The members must know each other. The aim in each county should be to see that every respectable practitioner was a member of the local society and that every practitioner who was not respectable should be turned out of the profession. When it become necessary to know "who's who," and to have means of exchanging ideas and securing a rating of the man in the medical centers and the distant parts of the State, nothing met these requirements so completely as a State Medical Directory and a State Medical Journal. He urged that the delegates to the State Society would stand solidly for these instrumentalities which kept alive and responsive the organization as a whole. He referred to malpractice defense in the organization as working most satisfactorily. He had been informed that Mr. Lewis, the counsel for the Society, had never lost a case, with one exception, in defending members against malpractice prosecutions. He had also discouraged threatened prosecutions so that many had never come to trial, and that without compromise in a single instance. The exceptional case had been carried to a higher court. Dr. Goffe said that he relinquished his office with regret, as he had enjoyed to the fullest extent the confidence, support, and cooperation of the entire Society. He felt sure that the same loyalty would attend the incoming administration. The past year had witnessed a greater accession of new members than any year in the history of the Society, and the monthly attendance had been larger than was shown by any previous record. They had certainly been favored with peace and harmony, and had been afforded opportunity for a more lively pursuit of science, and it was with a feeling of great satisfaction that he relinquished the office.

Inaugural Address.—Dr. H. Seymour Houghton, the incoming President, said that the honor conferred upon him was one which he deeply appreciated. He took up the duties and responsibilities of the office with no sense of victory won, but with not a little faint-heartedness, though glad to contribute his share to the work to the fullest extent of which he was capable. He stated, not because it was new, but because there might be some who did not fully appreciate the fact, that the reorganization of this society established it at once on a plane of equality in prestige and importance with all the societies which made up the organized bodies of medical practitioners in this country. There were many who were not members who did not grasp the importance, both to themselves and to the society, of becoming identified with the organization. Special efforts were now being made to interest properly qualified practitioners in this city to become members. The special Committee on New Members was doing much in this direction, and every member of the Society should do his share of this work. There had been 155 new members added to the list during the past year, a net increase of 48 after the deduction of 26 lost by death, 16 who had resigned, and 65 who ceased to be members because of nonpayment of dues. The object and end of this society were different from those of private societies. In a private society it was desirable that the limitation of the number of members, the elements of congeniality, of similarity in tastes, and of personal friendship should figure, but the object of this Society was one which did not take these features into consideration. It had a duty to perform and a work to carry out in just the proportion which its membership permitted. Each one who came into membership contributed his share towards the efforts to better the conditions of medical practice in this city. Dr. Houghton emphasized the fact that the State Society offered defense to each member in case of suit for malpractice. He wished that the system of protection might be extended to those conditions which fell just short of actual attempted blackmail, but that were equally disastrous to the reputation of the physician. He hoped that concerted action in this matter would be taken at once. Such features were liable to be dangerous ones to the finances of the Society; they were, however, duties which the Society owed to its members. Were it found that a deserving and worthy member was in danger as to his reputation from these causes and was denied the all-powerful aid and protection of our Society because funds were low, he would be loath to believe that those present would refuse an appeal for a dollar or two apiece to protect him, not knowing who might be the next victim. He also spoke of the value of the Directory. It did no harm to repeat what might be a well-known fact, that the authorities of this city would not and did not take the initiative in prosecuting offenses against the medical law, whether these offenses were actually criminal or the practice of medicine without the legal qualifications. These authorities thought that they did their duty when they took up a case and prosecuted it after it had been properly prepared by the Society's counsel. Much of this work was of an unpleasant nature and he was aware that aversion to it and to the methods used was held by some of the members. The soundness of this criticism was recognized, and the Society would be glad if this species of work could be eliminated from its curriculum and given to some organization having for its special object the prosecution of illegal practice. It had been regarded as more consistent with the dignity of the Society to obtain prison sentences for flagrant or repeated offenders rather than money fines. He said that he would take this opportunity to refer to a condition which obtained

in the practice of the criminal element of these people, which he did not believe that one in twenty of those present fully understood; if a physician entered the room of the victim of a criminal operation, and the police became aware of it, even though the physician entered the room not knowing the nature of the case and, finding its nature, refused to have anything to do with it, the police, if advised that he was the last physician who had seen the patient, had a legal right to go to that physician's home and send him to a cell. There was absolutely no protection against this, and he would rejoice to see a change in this system. The magnificent work done, not only to create a clearer understanding of the nature and means of prevention of tuberculosis, but the wonderful progress made in bringing this understanding to the knowledge of the general public, was deserving of commendation, as was also the growing interest in the prevention of ophthalmia neonatorum. The Society was glad to lend its aid as an organized body to those who were doing so much in advancing our knowledge of these matters. In conclusion he said, as for himself and for his fellow members of the Comitia Minora, they had taken the work of the Society to heart, and proposed to continue it to their utmost ability and with fairness to each individual member. He urged such an interest as would make the body a formidable force for good.

Report of the Committee on Ophthalmia Neonatorum.—Dr. John Van Doren Young made this report. He read a letter from Dr. Charles Stedman Bull in which Dr. Bull stated that he had been requested by the Committee on Ophthalmia Neonatorum of the American Medical Association to bring to the notice of the District Branches of the New York State Medical Society, at their next regular meetings, the recommendations of the above committee for the control of ophthalmia neonatorum throughout the State. These recommendations consisted of the suggestions of the State Board of Health for stamping out the disease and the plan of Dr. Wheeler.

Correlation of Physiology and Infant Feeding; Indispensability of Breast Milk; Ability to Nurse; Artificial Feeding.—Dr. Joseph E. Winters said that during the last quarter of a century the mortality among children continued about the same, while the mortality among older persons had decreased nearly one-half; the former he considered to be due to the thwarting of Nature's plans and the lack of dissemination of knowledge of the physiological necessities of growing infants and the meager nutritive value of foods given them. Breast fed children were seldom ill and rarely came under the physician's care. An ample amount of fat of a superior quality in woman's milk should suffer no curtailment. Fat was paramount as a source of heat; to sustain the heat and nervous energy of an infant, fat must be present in large amounts in the milk. There was an expenditure of 130 calories per kilo of body weight in a young infant, whereas in an adult it was 35. That 6 per cent. or more of the fat in a woman's milk was physiological was declared by the fact that there was a certain amount of fat in the brain, and especially by the fact that in the marrow bone there was 96 per cent. of fat. During the first two years of life, the brain doubled in weight. In order to keep up this supply of fat in young infants, it was necessary that a sufficient amount of fat be received. When the mother's milk, or artificial milk, was deficient in fat, there followed a profound innutrition, such as anemia, a pale and worn body, etc., which showed a famished bone-marrow and nerve. On the other hand, when the milk contained an ample amount of fat, the infant was animated, rosy, and joyful. Foods that were deficient in fat were answerable for the little old men and women who never smiled. With regard to fat indigestion, Dr. Winters said that separator cream superinduced this. In separator cream each fat globule was surrounded by protein; this conglomerate fat was as indigestible as cheese. Separator milk of a Jersey or Guernsey cow should never be used in baby feeding. Women's and cow's milk both contained two proteins, albumin and casein; albumin formed two-thirds of the protein of women's milk, and casein four-fifths of the protein of cow's milk. Albumin did not undergo coagulation in tough, leathery masses. An infant's pylorus was so narrow that it only permitted the passage of a small probe; the pylorus was surrounded by a protuberant firm muscular ring. The noncoagulable albumin of a woman's milk made its way through the pylorus into the intestine; but the casein masses of cow's milk could not pass through the pylorus. Every mother who was able to nurse her child should be made to do so. As a rule obstetricians did not lay sufficient stress upon this point. So soon as the mother had received proper attention after the birth of her child, the infant should be placed at the breast; this immediate nursing had saved many children's lives. He cautioned against giving water from a bottle to a newly-born infant; refusal to nurse would follow. Vigorous nursing was wanted in order to stimulate the secretions. Water should not be misused; as long as the baby got water from a bottle or from a spoon, it would not nurse. The child should be left at the breast until satisfied and the head fell away from the breast. Young and inexperienced mothers should not be told of vomiting of curds, green stools, colic, deficient milk supply, etc., because it created great alarm among them. Nursing by clock and scales was an absurdity. The amount of protein in milk diminished with advancing lactation, and after the second month this diminution was especially decided and rapid. During the first two months, the mother and child were indispensable to each other. Up to that time the mother's milk was a perfect food. During the third week of lactation the amount of albumin decreased and casein increased in the milk and the irremediable difference between women's and cow's milk was gradually eliminated. Pasteurized milk was not the proper food for an infant. The rosy, plump, lusty infant was never seen when pasteurized milk was the only food given for a prolonged period of time. Pasteurizing the milk did not render dirty milk clean, nor stale milk fresh. Physiological chemistry positively interdicted the use of pasteurized milk. Dr. Winters closed by asserting the mother's milk was the only proper food for an infant, and that all the foreign and modified milk preparations increased the mortality.

Dr. Barton Cooke Hirst of Philadelphia said there were three special duties of obstetricians for the near future: (1) the prevention of ophthalmia neonatorum, (2) the insistence upon natural nutriment for the new born baby, and (3) a timely recognition and surgical cure of all the pathological sequences and complications of the childbearing act at all periods. He said that when he first went into practice he found that about one-half of the patients either would not, or could not, nurse their babies—the majority could not. At the present time, however, he found that the proportion of women who did not nurse their babies had been materially reduced by about 25 or 30 per cent. But it should be remembered that a considerable proportion of women among the wealthy classes could not nurse their children. In his experience he had found that the women who could not nurse their babies belonged to one of two classes. There was the type of women who were anemic and lackadaisical, fortunately becoming quite rare at the present time. Then there was another type of women, so full of the affairs of a complicated household, committees, etc., that her natural functions were imperfectly performed. He believed that if the general practitioner would unite with the obstetrician and regulate this excessive nervous and physical activity of the women of the present hour, as well as superintend the

rearing of the young girls, a much healthier and finer specimen of womanhood would result.

Dr. William M. Polk said he wished to take exception to one remark of Dr. Winters, that mother's milk could be withdrawn from the child when two months old. That, in his opinion, was wrong; the child should get the mother's milk for a longer period of time. Cow's milk was not so good for the infant as the mother's. The large majority of the people really desired to care for their young, but the conditions of modern life made it oftentimes difficult to perform that all-important function, and they were driven to use an artificial product. He asked if it was not wonderful that, as the women lived in the cities to-day, they had any milk at all. People who wanted to speak on and agitate sociological problems should begin their work with babies, not along the line of pasteurized milk or artificial foods, but along the line that Nature intended, to help the weak and struggling parent to give proper time and proper care and attention to the functions of motherhood.

Dr. Edwin B. Cragin said that nursing was rapidly becoming a lost art. When he looked back over ten years of his work at the Sloane Maternity Hospital, he found that more babies required artificial feeding to-day than ten years ago. Whether the struggle for existence was more severe to-day or not, he did not know, but he rather inclined to this opinion. This was particularly so among the tenement house class. Of course, there existed at all times those who did not wish to nurse their infants. It seemed to him that it was extremely important that the general practitioner and the obstetrician should unite in impressing upon these people the importance of the mothers nursing their babies. No prescribed milk was equal to the breast milk except in exceptional cases. During the winter raw milk he considered better than pasteurized milk. Raw, clean milk was better than pasteurized clean milk. If the milk was dirty, he preferred pasteurizing it rather than giving it raw. In summer, on the other hand, when the people could not be sure of the character of the milk, he preferred using pasteurized milk. Personally he believed in the top milk, given raw if it was clean. He also believed in giving some preparation to peptonize it. In other words, what he preferred above all else, was top milk diluted and peptonized. Barley water was a better diluent than plain water during the first months of life.

Dr. Henry M. Painter said that it was an indisputable fact that there were a number of women in the higher social walks of life who were not only willing, but eager, to nurse their babies, and this number was increasing constantly. A few years ago it was difficult to persuade a woman to nurse her baby; but as time went on this changed, and to-day one practically never was called upon to urge this upon the mother. He said he had a distinct message to give the members, based upon practical experience, in private and not in hospital practice. They had been told constantly that it was perfectly useless to attempt to get a woman who was mixed up in the whirlpool of social life to nurse her baby. Also, even though she was willing, the life of excitement produced so many changes in the quality of the milk that the child was not properly nursed. This he had not found to be the case. He had had no difficulty from that source. This was a point that he wished particularly to emphasize because it had been brought forth as an argument in favor of the institution of artificial feeding.

Dr. Asa Barnes Davis spoke of the influence of the nursing babe upon the mother herself, the resulting contraction of the uterus induced by the nursing infant at the breast. This was a point that should be considered more in deciding whether or not a woman should nurse her offspring. He agreed that there was an increasing tendency among women in the better walks of life to desire more and more to nurse their children.

Dr. George L. Brodhead said that in looking over the records of patients years ago, he had found that from 30 to 40 per cent. of them would not, or could not, nurse their babies; but he was sure that during the past few years the percentage of women who could and would nurse their babies had been considerably increased. Because a woman had failed in her endeavor to nurse the first child did not mean that she would fail all other children born to her. Among the requisites for the successful nursing of infants were calm and rest of the patient's mind. He believed that the physician should insist upon every mother nursing her infant, at least for a period of one or two months; the longer the mother nursed her child of course the better.

NEW YORK ACADEMY OF MEDICINE

Stated Meeting, Held February 4, 1909.

Dr. Algernon T. Bristow in the Chair

THIS MEETING WAS HELD UNDER THE AUSPICES OF THE SECTION ON MEDICINE.

Cardiac Insufficiency.—Dr. Walter Mendelson read this paper. He said that while the valvular troubles perhaps held the front rank in interest in the study of the heart, there were certain non-valvular troubles which were also of great interest to the physician and of high importance to the patient, and it was to the general consideration of these that he invited attention. In taking cardiac insufficiency for his theme, he considered it in its broader aspects, and looked upon it from the vantage ground of pathological physiology and illustrated this point of view from clinical examples. Cardiac insufficiency had taken place when the work done by the heart was inadequate for the proper demands of the economy, or when the pump ceased to supply sufficient fluid to perfectly irrigate the required area. The ultimate causes of myocardial insufficiency must be sought, first, in all those agencies that weakened the heart directly, such as the acute infections, nephritis, diabetes, anemia, syphilis, and tobacco; secondly, in all those agencies that placed upon the heart either a prolonged or sudden degree of overwork, to which the myocardium was incapable of lastingly responding. Under this latter category must be ranged uncompensated valvular defects, arteriosclerosis, pericardial adhesions, pulmonary sclerosis and emphysema, pleuritic exudates or adhesions, pneumothorax, obesity, excessive beer-drinking, over-eating, the strain of athletes, overwork of porters, mountain climbers, soldiers, sailors, etc. Often two or more sets of causes were combined. Excessive exertion over-distended the heart's cavities, with consequent over-stretching of the muscle fibers, and this ended in molecular deterioration. This last was true generally of elastic bodies. Insufficiency once begun, contributory causes quickly set in to increase it, and chief among these were the alterations of tissue consequent upon those metabolic changes which a disturbed circulation dragged in its train. A vicious circle was set up, the weakness of the heart induced faulty metabolism, and the products of this faulty metabolism in their turn augmented the cardiac degeneration. In general terms, therefore, it might be said that the cause of all cardiac degeneration lay in a lack of balance between the nutrition of the heart on the one side, and the amount of work it was obliged to perform on the other. So soon as the expense began to exceed the income, bankruptcy began. The work of the heart was determined by three factors; firstly, by the amount of the diastolic filling; secondly, the force with which the heart contracted upon its contained blood, and thirdly, the peripheral resistance to be overcome. It was evident, therefore, that insufficiency might

arise either from the side of the heart itself, or from the side of peripheral resistance presented to it. If the sequence of events which occurred when the heart was weakened was followed, it would become evident that while these events must vary according to which side was affected, the final results would be the same. Though clinically it might not be possible to say on which side the trouble began, it was nevertheless of interest to analyze the conditions that obtained. If the left ventricle was weakened it was unable to expell from its cavity the quantity of blood that had flowed into it during the diastolic filling. In consequence the pulse would have little volume and the tendency of the systemic blood pressure would be to be low. The left auricle, owing to an incompletely emptied ventricle, would be unable in its turn to empty itself completely, with the result that a backing up of blood in the pulmonic vessels occurred. This latter congestion in turn reacted upon the right ventricle, causing an over-distension, and this again upon the right auricle, and so finally upon the systemic veins, leading to congestion (with enlargement) of the liver, of the kidneys, and of all the abdominal organs. If the trouble began in the right heart, due to some obstruction in the pulmonary circulation, the course was practically the same. The final result of insufficiency of either half of the heart was diminished filling of the down-stream circulation and damming back of the up-stream current. As an illustration of cardiac insufficiency beginning in the right heart, he related a case. Dilatation and consequent over-distension might, in the healthy heart muscle, be overcome, provided the condition was but temporary; if, however, it was long continued, it was the fruitful source of myocardial degeneration.

Of all the symptoms of cardiac insufficiency, dyspnea, or air hunger, was the most prominent, as it was also the most general. Haldane and Priestly had shown that the sensation of dyspnea arose not from a lack of oxygen in the blood, but from an accumulation of carbon dioxide. The nerve center of respiration was not so sensitive to changes in the oxygen tension of the blood as it was to an increase in the carbon dioxide tension. For the oxygen tension in the air cells might be reduced from the normal of 20 to 8 per cent. without effect upon respiration; but an increase of but .5 per cent. in the carbon dioxide tension of the pulmonary air cells, with a corresponding increase of carbon dioxide in the blood circulating through the respiratory center, so stimulated this center that the volume of respired air was doubled. It had been shown by v. Basch that in cardiac dyspnea, or cardiac asthma, the distention of the alveolar capillaries resulted in pulmonary swelling and rigidity, and that the dyspnea was not due, at least not primarily, to the filling of the alveoli with a liquid transudate, the result of edema. He showed that a considerable amount of water could be introduced into the lungs of a dog whose heart was healthy, without producing dyspnea. A striking feature of cardiac asthma was the disturbance of the usual respiratory rhythm: inspiration was quick and short and shallow, and all the agony seemed to be concentrated in efforts to expel the air from the lungs. It was a peculiarity of cardiac dyspnea that it was apt to occur at night, and the explanation of this was not clear. Knowledge of pain as a prominent symptom of cardiac insufficiency stood on a less satisfactory footing than did that of dyspnea. Pain could not be so well brought under the domain of experimental pathology. Most patients suffered at some time from pain; this might range from a slight precordial fullness to the agonizing seizure of angina pectoris. Exertion was the usual excitant. The cause of pain was most probably to be sought in an ischemia of the ramifications of the sympathetic fibers supplying the heart. There was one peculiarity of angina pectoris which differed from any other pain, namely, the *angor animi*, that "anguish of the soul" which was so well described by an unknown writer in his letter about his own case addressed to Dr. Heberden, when he said that he experienced "an universal pause within me of the operations of Nature." Belching was a frequent accompaniment of the anginoid attacks. From his own observations he was inclined to think that the belching of gas was not always the cause of an attack but a concomitant, though doubtless it might intensify it. Two Dublin physicians, Stokes and Adams, described a symtom-complex; with syncopal or epileptiform attacks was associated a very slow pulse, sometimes as low as five to the minute. To understand the nature of this trouble, it was necessary to consider the nature of the heart itself. The various theories of the cause of the beat of the heart were considered. The view held at the present time by most observers was that the beat of the heart, while certainly affected and modified by nervous influences, was due primarily to an inherent rhythmic contractitility of the heart muscle itself. In conclusion Dr. Mendelson gave a few typical cases of the different forms under which cardiac insufficiency might show itself.

Some Recent Clinical Improvements in Methods of Studying the Diseased Heart.—Dr. WALTER B. JAMES spoke of the studies of many men which had resulted in the use of certain instruments of precision for the clinical study of diseases of the heart, and particularly of the general subject of cardiac dilatation. He showed a few tracings and the instruments themselves. The instrumental study of the circulation had always had a "black-eye." The sphygmograph really gave nothing more than what was given by the finger upon the pulse; it gave the pulsation, the dicrotic wave, the character of the downfall of the artery, all of which could be learned with the finger on the artery. Those who used the sphygmograph came to grief in trying it from the quantitative standpoint; however, it did give results from a qualitative standpoint. To get a tracing was comparatively easy, but to interpret the tracing was not so simple. The tracings he showed and explained were taken from some of his cases in Roosevelt Hospital.

Dr. HERRICK and Dr. JANEWAY showed three tracings taken from a woman with Stokes-Adams disease.

Dr. HAVEN EMERSON said that cardiac insufficiency could be produced in the laboratory by five means. (1) The valvular lesions could be produced and cause a moderate cardiac insufficiency. If the mitral valve was cut, there would immediately follow a cardiac insufficiency with a dropping of the blood pressure and a distention of the right side of the heart, with venous engorgement. (2) Increased peripheral resistance was probably a common cause of cardiac insufficiency, especially where there was an arterial sclerosis. Heavy doses of adrenalin in small animals was a way to produce this artificially. (3) By producing cerebral anemia; this caused a reflex and not a direct vasoconstriction. (4) By producing a myocarditis. One could produce this lesion by the injection of alcohol into the heart muscle. (5) By the production of pericardial infusion. This would cause a cardiac insufficiency. The value of these procedures were sufficiently definite and accurate to be of value as a means of teaching physiology and medical diagnosis, teaching a method by which cardiac cases could be observed and studied clinically.

Dr. LEWIS A. CONNOR said that all had noticed the diversity of the clinical pictures as shown in cases of cardiac insufficiency; therefore, it should be treated more than as a single entity. There was an increase in the rigidity of the lungs in these cases. An important factor in cardiac insufficiency was the over-distention produced by the low position of the diaphragm; the low position of the diaphragm played an important part in interfering with the venous return. With the advent of the sphygmograph Dr. Connor said there had been a tendency to give up digitalis and to rely upon the vaso-dilators, the belief

being that this drug was not indicated. This was an error, for digitalis was of great value in many of the cases of cardiac insufficiency.

Dr. T. B. Barringer said that the necessity of taking sphygmographic tracings was not sufficiently recognized by the members of the medical profession. He spoke of an instrument in use in Bellevue, costing less than one hundred dollars, which was mounted on a stretcher and wheeled from bed to bed, and he told of the practical results obtained by its use during the past six months. It was of special value in the cardiac arhythmias. In aortic lesions it was not of so much value except in those cases where the right heart was dilated.

Dr. Janeway said that the use of these instruments gave no additional points for treatment at present, although he believed that in time they would. There should be more and more refined methods for studying these cases. Physiologists should devote their energies more largely to newer methods of treatment in addition to what they were doing in the diagnostic methods.

Dr. L. F. Bishop said that the term "elasticity" should be dropped and the term "tone" substituted. More attention should be paid to the tone of the heart and blood vessels. He had found that cases with a high blood pressure had not had the pressure further elevated by the use of digitalis. In the low tension cases, however, the pressure was thus raised. These patients improved under the use of digitalis. It was at times dangerous to resort to the use of vasodilators in these cases. Dr. Bishop presented the instrument with which he measured the blood pressure.

THE WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held December 14, 1908.

Dr. Leon Louria in the Chair.

The Diagnosis and Therapy of Pulmonary Tuberculosis.—Dr. S. Adolphus Knopf of New York read this paper. He said that it was hardly necessary to review all the well-known points in the diagnosis of incipient tuberculosis. He thought it more profitable to allude to a few little-known diagnostic points that were of considerable practical value. On questioning the patient or his friends one was sometimes able to gather that he had recently undergone a change of character: he had become irritable, or morose, or had merely lost all desire for pleasure. In girls a diminution in the menstrual flow was an early symptom. In questioning the patient as to his weight, it was important to determine when his weight had been best, how much he had weighed one year before, and so make a comparison of his weight with his height. In early cases of tuberculosis there was frequently noticed a peculiar brittleness of the hair. The speaker did not put any stock in the alleged asymmetry of the lobes of the ears. A dilated pupil on the side of the disease from pressure of enlarged glands on the pneumogastric was a frequent sign. There was occasionally noticed a reddish-blue line along the gums. It was important to determine whether the voice was as clear as it had always been. In taking the anamnesis, which was a most important part of the examination, it was important to determine how many children the patient's mother had borne, and whether he was one of the earlier or later children. It was significant that the later borne children were the ones most prone to tuberculosis. This fact had both a physical and an economic basis. It was desirable to avoid asking the patient if his father died of tuberculosis. Apart from the fact that such questioning needlessly scared the patient, it added nothing to the diagnosis. There were only sixty recorded cases of direct bacillary transmission of the disease. It was more important to question the patient as to whether he had been associated with any one who had had tuberculosis. Direct drop infection was an important consideration, more so than the danger of infection from dry sputum. The speaker next dwelt upon certain salient features in the physical examination of the patient. On inspection it was important to note any depression in the supra and infraclavicular regions, and any undue prominence of the scapulæ. The value of palpation was not to be underestimated. The presence of rivulets of perspiration in the axillary region was a frequent concomitant of tuberculosis. It was necessary for the examiner to concentrate his mind on the examination. Fremitus was both objective and subjective. The bass voice was better than the high-pitched voice. There was a slight physiological increase of fremitus on the right side. By subjective fremitus was meant the fact that the patient could feel his own voice more on one side than on the other; the side in which it was louder corresponding to the diseased lung. In percussing the clavicle it was necessary to percuss the external, middle, and internal thirds. In percussing the supraclavicular region it was necessary to percuss both up and down and from side to side, and also during deep inhalation. In auscultation the ear was better than the stethoscope. One was to listen first to the normal breathing, then to exaggerated breathing, and then to the whisper. A prolonged roughened expiratory murmur was almost pathognomonic of tuberculosis. Later stages revealed moist râles, crackling râles, and a blowing murmur. The x-rays were only of corroborative value, and sometimes gave a mistaken idea. An old pneumonia or a thickened pleura gave a shadow. Of great value was the picture of the irregular excursion of the diaphragm. In comparing the various diagnostic tests with the aid of tuberculin, the speaker expressed his preference for the least dangerous, namely, that which consisted in the use of Moro's ointment, made up of equal parts of old tuberculin of Koch and lanolin. A piece of this the size of a pea, when rubbed into the skin, produced in twenty-four to thirty-six hours an acne-like eruption. In the therapy of the disease the problem was to adapt the sanatorium treatment to the home. In this the essential factor was the complete control of the patient. The speaker discussed the various means of applying aerotherapy in the home, with the aid of the window tent. The patient was never to be allowed to exercise when he was tired, nor to exercise to the point of fatigue. When the patient did not feel like taking exercise, massage was better. In following out solar therapy it was necessary to have the patient's head always in the shade; otherwise he would suffer from headache. Hydrotherapy was alluded to. In the dietetic management overfeeding was to be avoided, but three square meals were necessary. If these were not enough, then one or two eggs were to be taken after each meal. The dietary should include spinach, lentils, cauliflower, plenty of grapes, milk with salt, and raw scraped beef. The best cough medicine was discipline. Before the speaker prescribed a cough mixture he advised the use of the Beverley Robinson inhaler, with a mixture consisting of eucalyptus, menthol, and spirit of chloroform, of each one dram and a half. Five or ten drops of this was to be inhaled for ten or fifteen minutes at a time. In place of this mixture he sometimes used eucalyptus, creosote, and rectified spirits. In the internal administration of creosote it was desirable not to give large doses. In the treatment of hemorrhage the previous warning of the patient was a help. Habitual constipation was controlled by the drinking of plenty of water. Taken in small swallows, so as to stimulate peristalsis. Massage was a help. The unhygienic water-closet was a common cause of constipation. Diarrhea, when due to injudicious feeding, was treated best by cleaning out the intestinal tract. If the diarrhea was a result of the tuberculosis it was controlled

best by a diet of rice, milk (if it tended to constipate), chocolate, cocoa, stale bread, and zwieback. Absolute rest was to be enforced, and for pain hot compresses were to be used. The most serviceable drugs were tanin, gallic acid, opium, and bismuth. Hyperidrosis was best controlled by dietetic treatment. The patient was to have a glass of milk and a piece of toast or a sandwich at hand, in order to get the needed refreshment during the depressing sweat.

Pathological Society of Philadelphia.

At a stated meeting held January 28 Dr. H. E. Allyn presented a specimen of "Carcinoma of the Stomach," in which the growth involved the lesser curvature, death resulting from peritonitis in consequence of perforation. The pancreas was in part indurated, but presented no involvement in new-growth, although a positive Cammidge reaction had been obtained twice during life. Dr. A. O. J. Kelly presented two specimens of "Carcinoma of the Bladder with Consecutive Pyonephrosis." Both were examples of epithelioma. The ureters were greatly dilated, in the one specimen attaining the lumen of the small intestine. Dr. Kelly exhibited also a specimen of gangrene at the apex of the lung, with extensive cavity-formation, associated with caseous pneumonia of the middle lobe and granular and ulcerative tuberculosis in the inferior lobe. He exhibited further a specimen of hypernephroma at the upper pole of the kidney, an altogether accidental finding, wholly unattended with symptoms during life. Dr. M. Howard Fussell exhibited a specimen of "Primary Carcinoma of the Gall-bladder." During life the abdomen was greatly distended, yielding a tympanitic percussion-note from floating up of the intestines on the contained ascitic fluid. There was also pleural effusion. On post-mortem examination the liver was found enlarged and fatty and the seat of a metastatic growth, while the omentum was drawn up and involved in miliary carcinosis. The gall-bladder was the seat of apparently a primary growth, and it was filled with gallstones. Drs. George I. MacLeod and F. H. Laer presented a communication entitled "Septicemia Caused by the Pseudodiphtheria Bacillus, with Report of a Case." The patient was a man from whose blood cultures of pseudodiphtheria bacilli were obtained during life. Injections of diphtheria antitoxin were given, but without curative result. The question of the relationship between diphtheria bacilli and pseudodiphtheria bacilli was discussed, and the opinion expressed that the two forms belong in the same group, differing only in the production by the former of a specific toxin. Drs. R. S. Lavenson and H. T. Karsner presented a communication entitled "Periportal Fibrosis of the Liver in Tuberculosis." Histologic studies were made in fifty consecutive fatal cases of pulmonary tuberculosis, various grades of perilobular fibrosis being found in all, with actual tubercles in only a few instances. A comparative study was made in forty other cases of varied kinds, but not tuberculous, and in these similar fibrosis was found in a much smaller percentage of cases. Experimental evidence was cited in support of the view that the lesions are in some way related to the tubercle bacillus or the toxins elaborated by it. Dr. E. H. Goodman read a paper entitled "The Rôle of the Saliva in Digestion." He pointed out the part played by the saliva in the solution of portions of the food, thus facilitating the appreciation of taste, in the lubrication of the bolus, thus facilitating deglutition, in neutralizing acids and in diluting alkalies, and finally in initiating diastatic digestion of carbohydrates. Dr. E. B. Krumbpaar presented a communication entitled "Tumor of the Hypophysis Cerebri in Relation to Acromegaly." He reported a case in which growth was attended with symptoms of brain-tumor and not with those of acromegaly.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending February 27, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	377	167
Diphtheria	326	45
Measles	635	27
Scarlet Fever	373	29
Smallpox	1	1
Varicella	189	—
Typhoid Fever	27	4
Whooping Cough	47	7
Cerebrospinal Meningitis	8	4
Malarial Fever	—	—
Totals	1983	284

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending February 26, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Alabama, Mobile	Jan. 30–Feb. 6	1	..
Arkansas, Magnolia	Jan. 5–Feb. 1	25	..
California, Los Angeles	Jan. 30–Feb 6	1	..
San Francisco	Feb. 7–13	2	..
District of Columbia, Washington	Feb. 6–13	3	..
Illinois, Cairo	Feb. 6–13	25	..
Danville	Feb. 7–14	1	..
Peoria	Feb. 6–13	1	Imported
Indiana, Elkhart	Feb. 6–13	1	..
Evansville	Feb. 17	1	..
La Fayette	Feb. 1–15	8	..
Kansas, Kansas City	Feb. 6–13	3	..
Topeka	Jan. 30–Feb. 13	17	..
Kentucky, Covington	Feb. 6–13	1	..
Covington	Feb 6–13	1	..
Maine, Van Buren	Jan. 30–Feb. 6	5	..
Nebraska, South Omaha	Jan. 30–Feb. 13	3	..
New York, Niagara	Feb. 6–13	1	..
Schenectady	Feb. 6–13	1	..
North Carolina, Charlotte	Jan. 1–31	1	..
Ohio, Cincinnati	Feb. 5–12	0	..
Dayton	Feb. 6–13	1	..
Oregon, Portland	Dec. 1 31	21	..
Tennessee, Knoxville	Feb. 6–13	3	..
Memphis	Feb. 6–13	22	..
Nashville	Feb. 6–13	1	..
Texas, Cotulla	Feb. 17	..	Present
San Antonio	Feb. 6–13	1	..
Utah, Salt Lake City	Jan. 1–31	110	1
Virginia, Norfolk	Feb. 4–17	3	From vessel
Washington Seattle	Jan. 1–31	5	..
Spokane	Jan. 30–Feb. 6	1	..
Wisconsin, La Crosse	Feb. 6–13	2	..
Manitowoc	Feb. 6–13	2	..
Milwaukee	Feb. 6–13	9	..

SMALLPOX—FOREIGN.

Arabia, Aden	Jan. 4–18	..	5
British Honduras, Stann Creek	Feb. 11	1	Imported
Brazil, Rio de Janeiro	Dec. 24–Jan. 17	194	83
Santos	Dec. 13–20	2	1
Canada, Halifax	Jan. 30–Feb. 6	6	..
Yarmouth	Feb. 13–20	22	..
China, Shangbai	Dec. 26–Jan. 9	2	1
Egypt, Cairo	Jan. 7–14	31	16
Germany, Bremen	Jan. 16–23	2	..
Guatemala, Guatemala City	Feb. 10	..	Epidemic
India, Bombay	Jan. 12–19	..	5
Calcutta	Jan. 2–9	..	31
Madras	Jan. 2–8	..	1
Rangoon	Jan. 2–9	..	3
Indo-China, Saigon	Dec. 26–Jan. 3	1	1
Italy, general	Jan. 24–31	3	..
Naples	Jan. 24–31	29	8
Malta	Jan. 16–23	1	..
Mexico, Monterey	Jan. 31–Feb. 7	..	1
Peru, Lima	Jan. 16	3	..
Russia, Moscow	Jan. 16–23	27	15
Riga	Jan. 23–30	1	..
St. Petersburg	Jan. 9–16	6	2
Spain, Vigo	Jan. 23–30	..	1
Straits Settlements, Singapore	Dec. 26–Jan. 2	1	..

YELLOW FEVER.

Barbados	Jan 24–Feb. 9	10	4
Martinique, Port de France	Jan. 16–30	3	1
Mexico, Merida	Jan. 30–Feb. 6	..	1
Ticul	Jan. 30–Feb. 6	1	1

CHOLERA.

India, Bombay	Jan. 12–19	..	1
Calcutta	Jan. 2–9	..	11
Madras	Jan. 2–8	..	1
Rangoon	Jan. 2–9	..	1
Russia, general	Jan. 9–16	122	54
Cronstadt	Jan. 9–16	2	..
Moscow	Jan. 16–23	1	1
St. Petersburg	Jan. 9–16	178	46
	Jan. 25–29	135	49
Straits Settlements, Singapore	Dec. 21–Jan. 2	..	41

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Original Articles.

THE PRINCIPLES AND TECHNIQUE OF THE WASSERMANN REACTION AND ITS MODIFICATIONS.*

BY HOWARD FOX, M.D.,

NEW YORK.

THE subject of the serum diagnosis of syphilis may appear at first glance to be somewhat complicated, owing to the multiplicity of the terms that are used. The principles of the reaction can, however, be easily mastered, whereas the practical knowledge, owing to the many sources of error, can only be acquired after a considerable amount of experience.

In order to understand the Wassermann-Neisser-Bruck reaction, as the serum test for syphilis should properly be termed, it is necessary to understand the principles of hemolysis and of the Bordet-Gengou phenomenon. By hemolysis is meant the power possessed by the serum of one species of animal to dissolve the corpuscles of another species. If, for instance, fresh serum from a rabbit is placed in a test tube, and sheep's corpuscles are added, the serum will be seen to dissolve to a slight extent the corpuscles of the sheep. If the same rabbit is now treated by several injections of sheep's corpuscles, and its serum withdrawn and placed in a test tube, it will be found that this power to dissolve the sheep's corpuscles has been greatly increased. The rabbit is now said to be immunized against sheep's corpuscles. By this we mean that a certain substance has been artificially formed in the rabbit serum to which the name of hemolytic amboceptor,† or immune body, has been given. Heating to 56° C. for a half-hour does not destroy this substance, therefore it is said to be thermostabile. Hemolysis depends not only upon this hemolytic amboceptor, but also upon another substance called complement, which is present in all normal fresh sera, and which is destroyed by heating to 56° C. for a half hour. It is said to be thermolabile. The three substances, corpuscles + hemolytic amboceptor + complement, constitute what is called a hemolytic system, and hemolysis can take place only when all three are present.

Closely analogous to a hemolytic system is what may be termed a "bacteriolytic system," consisting of (1) a bacterium, corresponding to the corpuscles in the hemolytic system, (2) a bacteriolytic amboceptor (or antibody) corresponding to the hemolytic amboceptor, and (3) complement, similar in both systems. Before proceeding to discuss this so-called bacteriolytic system, it is necessary to explain the terms antigen and antibody. An antigen is any substance (bacteria, corpuscles, body cells, etc.) which, when introduced into an animal, is followed by the formation of antibodies. The sheep's corpuscles in the case of the hemolytic system and the bacteria in that of the bacteriolytic system are examples of antigen. The substances formed by their entrance into the animal are antibodies or amboceptors. Strychnine, for instance, though an injurious substance, is not an antigen, as its entrance into the body is not followed by the formation of antibodies. Furthermore, it should be said that the term antibody does not necessarily imply a substance that is protective, such as an antitoxin.

Returning to the bacteriolytic system, and taking a specific instance, we will use for antigen an emulsion of the typhoid bacillus; for bacteriolytic amboceptor or (antibody) the serum of a patient suffering from typhoid fever; and for complement, normal fresh serum, preferably from a guinea-pig. If these three substances, typhoid bacilli + typhoid amboceptor + complement, are placed in a tube for half an hour at body temperature, a union will take place just as it did in the case of the hemolytic system. The bacteria, instead of the corpuscles, are dissolved. Unlike what occurs in the hemolytic system, the union of these three substances will not be followed by any visible change. It cannot be told from the appearance of the tubes whether or not the bacteria have been dissolved. In the case of the corpuscles, solution was most apparent, the tubes changing from an opaque to a clear red color upon hemolysis. In other words, in the hemolytic system there was an indicator to show that solution of the corpuscles had taken place, no such indicator being present in the case of the bacteriolytic system.

Bacteriolytic System consists of	Hemolytic System consists of
1. Bacterium (antigen).	1. Corpuscles (antigen).
2. Bacteriolytic amboceptor (antibody).	2. Hemolytic amboceptor (antibody).
3. Complement.	3. Complement.

The reaction discovered by Bordet and Gengou in 1901 utilizes the phenomenon of hemolysis to show that a union actually can occur between the three components of a bacteriolytic system. This reaction depends upon the so-called principle of the fixation (anchoring or binding) of the complement, and is carried out as follows: The three components of a bacteriolytic system, such as typhoid bacilli + typhoid antibodies (serum of patient to be tested) + complement, are placed in a test tube and incubated at 37° centigrade for a half hour to allow them to unite. To the same tube are then added two of the elements of a hemolytic system, namely, hemolytic amboceptor and sheep's corpuscles, and the mixture again placed in the incubator. If now there has been an actual union of the first three substances,

*Read in part before the Medical Association of the Greater City of New York, January 18, 1909.

†The term amboceptor means that this substance has an affinity on the one hand for corpuscles, and on the other hand for complement. The complement is so called because it completes the action of the amboceptor.

that is, if the complement has been fixed or used up by uniting with the other two substances, there will be no complement left to unite with the other two parts of the hemolytic system, and consequently no hemolysis will occur. If, on the other hand, no union of the first three substances had occurred, complement will be available to unite with the other two parts of the hemolytic system, and consequently hemolysis will take place. In other words, the absence of hemolysis denotes a positive reaction, *i. e.* the antibodies for which we were testing are present. In the case in question, the patient was suffering from typhoid fever. The occurrence of hemolysis, on the other hand, signifies a negative reaction, *i. e.* the antibodies were not present. In that case the patient was not suffering from typhoid fever.

The principle of the fixation of complement can be illustrated by a swinging pendulum, as shown in Fig. 1. The pendulum representing the complement swings to one side and completes the bacteriolytic system, or to the other side and completes the hemolytic system. In the first case the result is no hemolysis. In the second case hemolysis occurs.

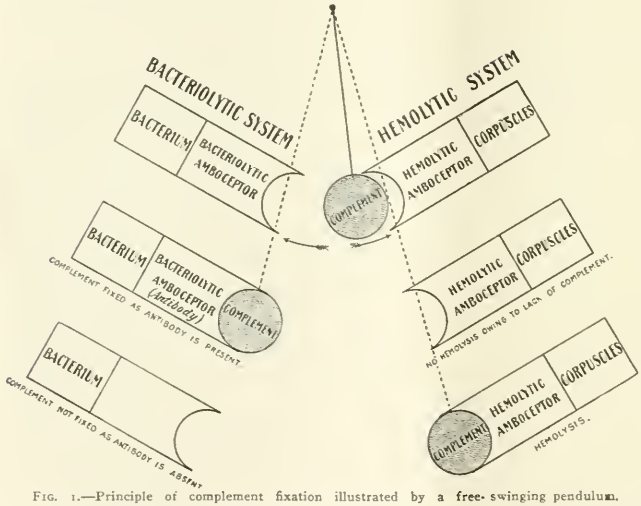


FIG. 1.—Principle of complement fixation illustrated by a free-swinging pendulum.

It may be asked why it is necessary to use guinea-pig serum for complement when there is complement already present in the serum of the patient to be tested. The answer is that the latter is an unknown and variable quantity. On this account we destroy the complement before beginning the test, by heating the patient's serum to 56° C. for a half hour. We then add for complement a measured amount of guinea-pig serum.

The principle of Bordet and Gengou,[1] which has been used since its discovery as a means of diagnosis in many bacterial diseases, was applied to syphilis in 1906 by Wassermann, Neisser, and Bruck.[2] By this test the presence not only of antibodies, but also of antigen could be demonstrated. As a culture of the organism of syphilis (*Spirochæta pallida*) could not be obtained, it was necessary to use as antigen an extract of syphilitic tissue known to contain the organism in large numbers. For this purpose the liver of a syphilitic fetus in which the spirochetes could be demonstrated was employed. The same principles, as explained above to detect the presence of typhoid antibodies, were then applied to syphilis, the extract from the syphilitic fetus being substituted for the culture of the typhoid bacilli and the syphilitic patient's serum for that of the patient suffering from typhoid.

The extract of the fetal liver as first used by Wassermann was made with physiological salt solution, to which carbolic acid was added as a preservative. While good results were obtained from such an extract, it was found to be liable to sudden deterioration in strength. An extract that proved reliable and effective on a certain day might on the following day become entirely worthless.

Not only extracts from syphilitic livers, but also from normal livers (Marie and Levaditi[3]), and, in fact, from a large variety of normal organs were found available as "antigen." Extracts of guinea-pig liver (Landsteiner[4]), and even of tumors (Weil[5]) were found suitable for this purpose. It was later discovered by Porges and Meier[6] Landsteiner, Müller and Pötz,[7] and by Levaditi and Yamanuchi,[8] working independently, that the active principle could be extracted from the syphilitic liver by alcohol. This showed that the active principle was a lipoid and not an albuminoid substance, as had previously been supposed. Experiments were then made to substitute as the antigen various lipoid substances in place of the syphilitic liver extract. Lecithin was thus first used by Porges and Meier, with results approximately similar to those obtained by using the extract. Numerous other lipoid substances and salts were then tried with more or less good results, among them sodium glycocholate and sodium taurocholate (Levaditi and Yamanuchi), sodium oleate (Sachs and Altman[9]), cholesterin and vaselin (Fleischman[10]), sodium cholate (Noguchi[11]). Cholesterin was, however, found by Levaditi and Yamanuchi and by Noguchi to be inactive. Noguchi found that acetone soluble and acetone insoluble fractions of the alcoholic extract of normal or syphilitic tissues, such as blood serum, blood coagula, liver, kidneys, etc., possessed antigenic properties.

By using an alcoholic extract of guinea-pig heart, in comparison with syphilitic liver extract, Landsteiner and his associates obtained identical results. Even Meier,[12] in a recent communication from the laboratory of Wassermann, admits that the guinea-pig extract of Landsteiner serves as a perfectly reliable substitute for the extract of syphilitic liver. As between the watery and alcoholic extract of the syphilitic fetal liver, it seems certain, as Marchildon[13] has recently shown, that both are equally potent. As the alcoholic extract can be kept for a much longer time, it should for this reason be preferred.

The discovery that various substances in no way related to syphilis were able to combine with the syphilitic antibodies, showed that the Wassermann

reaction could no longer be considered as a true antigen-antibody reaction. While this is admitted by all, including Wassermann himself, it does not in any way lessen the great practical value of the test. The reaction must be considered as a union taking place between certain lipoid substances and the antibodies existing in syphilitic blood.

The five substances used in performing the Wassermann reaction and the steps necessary to prepare them are as follows:

1. *Antigen.*—The liver of a syphilitic fetus is cut in fine pieces, ground in a mortar, and placed in a flask. Alcohol is then added in the proportion of 5 c.c. for each gram of liver substance. The solution is then shaken from time to time, a shaking machine being unnecessary for this purpose. After a few days of extraction the solution is ready to be tested. It is kept at room temperature and will remain for a considerable time (several months) without deterioration. To ascertain the necessary dose of the extract it is tested in varying amounts with a series of cases known to be positively syphilitic. That

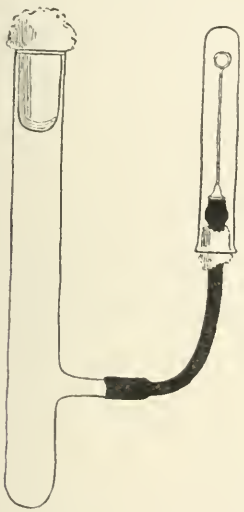


Fig. 2.—Blood-collecting tube; one-half natural size.

amount that will give complete inhibition of hemolysis, when 0.2 c.c. of the patient's serum is employed, will be the required dose. At the same time there must be no inhibition of hemolysis in the control tube containing the hemolytic system + extract, even when double the dose of extract is used. In place of the liver extract a suspension of crude lecithin can be used. The latter substance, as prepared and titrated by Noguchi, has been used by me up to the present time as antigen.

2. *Antibody* (patient's serum).—The blood of the patient to be tested can be collected directly from a vein or from a puncture of the finger or ear. The frequent necessity of repeating a test makes it desirable to have a plentiful amount of serum. For this reason I strongly favor obtaining the blood from a vein such as the median basilic, which is easily done by using the little apparatus devised by Noguchi, shown in Fig. 2. This consists simply of a test tube having a small outlet at the side connected by rubber tubing with the needle. The latter is covered by another small test tube for protection. The tubes are then sterilized in the autoclave. The writer uses needles that can be easily detached from the tubing, and advises that the needles be cleansed with alcohol immediately after use. A little practice will make it possible to collect from 6 to 10 c.c. of blood with practically no pain or inconvenience to the patient. Before puncturing the vein, several turns of a bandage are made above the elbow, and the patient is told to clench the fist. A quick plunge of the needle is then made in the direction of the blood stream. The tubes are then slanted, and the blood allowed to clot firmly. After remaining for an hour or more at room temperature, the tubes are placed in the ice chest until the serum has been expressed, requiring, as a rule, about twelve hours. The serum is then pipetted or drawn off and inactivated by heating in a water bath at 56° C. for a half hour. It is then available for immediate use, or it can be used as late as the third day after its collection. If the serum is turbid, due to the presence of corpuscles, it must be centrifugalized until clear.

3. *Complement.*—A guinea pig is bled from the jugular or carotid into a large Petri dish. The blood is allowed to clot, and after remaining for an hour at room temperature is placed in the ice chest until the serum is expressed. The serum is then poured off into a sterile tube and kept in the ice chest until ready for use. Complement is active for two or three days, but is preferably used within twenty-four hours after it has been obtained. The writer's custom is to bleed his animals late on the afternoon of a certain day, using the serum on the following morning or afternoon.

4. *Hemolytic Amboceptor.*—A rabbit is injected subcutaneously, intraperitoneally or intravenously several successive times with washed, but diluted, sheep's corpuscles. A good plan is to give four injections at intervals of five days in dose of 2, 4, 8 and 16 c.c., respectively. The blood is then withdrawn nine days after the last injection. By this time the serum will have, as a rule, the required amount of amboceptor. The blood is drawn from the carotids into sterile tubes and allowed to clot. The serum is then removed, inactivated and standardized. By standardizing is meant the determination of a so-called *unit* of *amboceptor.* This refers to the smallest amount of the rabbit's serum that will completely hemolyze 1 c.c. of a 5 per cent. suspension of sheep's corpuscles when placed at 37° C. for 1 hour. For the tests two such units are employed. The amboceptor can be kept in the ice box for weeks and months, though it gradually tends to lessen in strength.

5. *Sheep's Corpuscles.*—Blood is obtained either from the jugular vein of a sheep by means of a canula or from a slaughter house when the animal's throat is cut. It is collected in a sterile beaker and defibrinated by stirring with a glass rod. The corpuscles are then washed free of serum by adding normal salt solution and centrifugalizing several times. The salt solution is then poured off and the corpuscles diluted with more normal salt solution to form a 5 per cent. suspension. Of this suspension, 1 c.c. is used for each tube. The corpuscles may also be used in their original volume, i. e. after washing no suspension in salt solution is made. One drop of this original mass of corpuscles serves for each tube. The corpuscles can generally be used four or five days if kept in the ice chest. After this they begin to be hemolyzed, as is shown by a dark-

ening of the original bright red color. They are then unavailable for the test.

The practical performance of the Wassermann test requires a laboratory equipped with a thermostat, ice chest, centrifugal machine, water bath, and, in addition, an antoclave, if the tubes shown in Fig. 2 are employed. A large number of small test tubes are needed, and a considerable number of 1 c.c. pipettes (preferably Mohr pipettes graduated in a hundred divisions to the tip). It is of great importance that both tubes and pipettes should be thoroughly cleansed in running water after use and subjected to a high temperature in the antoclave or other sterilizer before they are again used. It is not essential that the tubes should be plugged with cotton. It is, however, necessary for them to be perfectly clean.

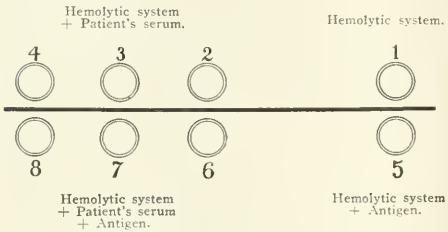


Fig. 3.—Illustrating controls that are used.

The arrangement of the tubes used for the test, including the necessary controls, is shown in Fig. 3. Tube No. 6 contains serum of a patient to be examined. No. 7 contains the serum of a patient known to give a positive reaction, and tube 8 a serum known to give a negative reaction. The three tubes 6, 7 and 8 receive all five substances necessary for the reaction. All of the other tubes are controls. Tubes 2, 3 and 4 contain the hemolytic system+the patient's serum, it being of course necessary to have a separate tube for each separate serum. Tube 5 contains the hemolytic system+the antigen (extract or lecithin). Complete hemolysis must take place in all of these control tubes. Tube 5 is necessary to show that the antigen of itself does not bind complement and so prevent hemolysis. In the same way tubes 2, 3 and 4 show that the patient's serum of itself does not bind complement. In case the patient's serum proves to be anti-hemolytic of itself, the test must be repeated and the serum used in a smaller amount, *e. g.* 0.1 c.c. instead of 0.2 c.c. Tube 1 shows that the hemolytic system is in "working order." While it is essential in testing a given serum to employ as controls a known positive and a known negative serum, it is also desirable to test a large series of cases simultaneously. This allows a comparison which aids in making the results more trustworthy.

In performing the test 0.1 c.c. of complement (invariable dose), 0.1 c.c. of serum (usual dose), and antigen (dose varies according to the preparation, average being 0.2 c.c.) are placed in the tubes, and 1 c.c. of physiological salt solution is added. The tubes are then shaken and kept in the thermostat or water bath for three-quarters of an hour. Two units of amboceptor, and either 1 c.c. of the corpuscle suspension or one drop of corpuscles, according to choice, are added. The tubes are then shaken and again incubated and observed at frequent intervals. The final results can be recorded after three hours of incubation. The controls are generally found to be hemolysed within a half hour, tube No. 1 being the first and tube No. 5 generally the last to be entirely hemolysed. A negative result is denoted by complete hemolysis. A positive result is shown by inhibition of hemolysis, which, according to its degree of intensity, can be classed as positive, strong positive or weak positive. For recording results a chart devised by Dr. Wood McMurtry will be found of very great convenience.

In performing the Wassermann test the body fluids usually employed to show the presence of the syphilitic antibodies are the blood serum and spinal fluid. The presence of antibodies have been reported in the milk by Bab and Plaut,[14] and in the urine by Blumenthal and Wile.[15] The latter observers, in a series of fifty cases in which the serum and urine were tested simultaneously for antibodies, found that a stronger reaction was given by the serum than by the urine. Furthermore, in a series of cases giving a strong reaction, the urine of itself showed anti-hemolytic properties. In a later report of a hundred cases by Wile[16] it was found that 2 per cent. of the cases gave positive reactions with the urine and negative reactions with blood serum. From this the writer concludes that the "diagnostic value of the reaction must for the present be viewed with caution."

As the Wassermann reaction is at best a rather complicated procedure, requiring special laboratory facilities and a considerable expenditure of time, it is not surprising that attempts to simplify the test should have been made. Modifications have been devised by Bauer, Tschernogubow, and Noguchi, which, like the regular Wassermann reaction, depend upon the principle of the fixation of complement. A number of other sero-diagnostic methods have also been devised depending upon certain precipitation reactions and having no relation whatever to the principle of complement fixation. They will not be considered in this communication.

Bauer's[17] modification of the Wassermann reaction depends upon the fact that there is normally present in human serum a hemolytic amboceptor for sheep's corpuscles. Bauer, therefore, omits the hemolytic amboceptor (rabbit's serum treated with sheep's corpuscles) in his test, and utilizes the amboceptor present in the patient's serum. The advantage gained by this procedure is that instead of the usual five substances, only four are required for the test. The theoretical objection to the method is that the hemolytic amboceptor in the patient's serum is an unknown and variable quantity. Furthermore, the omission of the amboceptor is, after all, not such a great simplification, for it is in the preparation of the other four substances that the chief difficulties and inconveniences are encountered. The test is further unavailable for use in young infants, as no hemolytic amboceptor is contained in their serum. To supply this deficiency, it is suggested by Bauer to add normal human serum from an adult which will contain the necessary amboceptor. In spite of theoretical objections, Bauer's modification appears to have given good results practically in the hands of Bering.[18] In a series of 123 cases of syphilis tested simultaneously by both methods, the results were identical in all except one case. In this case, which was one of positive syphilis, the Bauer test was positive, while the Wassermann was negative.

The steps in performing the Bauer modification are represented as follows:

Tschernogubow, [19] in his modification, uses a hemolytic amboceptor for *human corpuscles* instead of one for *sheep's* corpuscles. The hemolytic system in this case consists of human corpuscles + hemolytic amboceptor (antihuman) + human complement. In performing the test, a single drop of the patient's blood is used. This is relied upon to supply three of the five substances necessary for the Wassermann reaction, namely, antibodies, complement, and corpuscles. Tschernogubow does not inactivate (*i. e.* destroy complement), considering the complement normally present in the patient's blood available for his test. No guinea pig serum is therefore used. This is an advantage claimed for the test, as well as the fact that a drop only of the patient's blood is used and that no inactivation is necessary.

Tschernogubow's assumption that the complement present in the patient's blood is available for the test has been shown by Noguchi to be correct only when 0.1 c.c. of the serum is present in a tube. In other words, human complement as present in such a small quantity of blood as one drop is, as a rule, too weak to produce any considerable amount of hemolysis of human corpuscles. Noguchi obtained no hemolysis upon adding human complement in amounts as large as 0.2 and 0.3 c.c. to 1 c.c. of a weak suspension of human corpuscles + 2 units of antihuman amboceptor. When, however, guinea pig's serum, even in amounts as small as 0.01 c.c. were added, prompt hemolysis resulted.

The disadvantages in general of using human instead of guinea-pig complement for the test are, according to Noguchi, as follows:

1. By using human complement it is necessary to have ten times as much amboceptor as when guinea-pig complement is used. For this reason the latter is economically preferable.

2. Human complement, like that of the rabbit, is less sensitive to fixation than guinea-pig complement, *i. e.* it does not unite as readily with antigen and antibody.

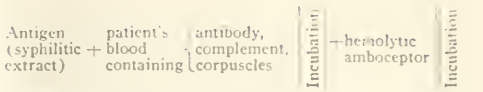
3. The quantity of human complement varies greatly in different sera. If present in excess, the result of the test would always be negative. It is therefore necessary to determine the exact amount of complement present by a preliminary titration, a procedure adding to the difficulty of the test.

4. If human complement is used there is no *direct* way to test the antihemolytic action of the antigen alone, *i. e.* to tell whether inhibition of hemolysis is due to the antigen alone or to the combination of antigen and syphilitic antibody.

5. It is finally impossible by using human complement to test an old specimen of blood, as complement rapidly tends to become inactive. Even the corpuscles begin to disintegrate after a time.

Two of the disadvantages discussed above are mentioned by R. Bauer and Meier[20] as objectionable features in Tschernogubow's test: 1. That human complement varies greatly in amount and 2. That its use necessitates the performance of the test immediately after obtaining the patient's blood. They call attention to the practical point that human corpuscles are not as easy to obtain as sheep's corpuscles.

The step in performing Tschernogubow's modification are as follows:



When Tschernogubow's communication appeared, Noguchi had already completed his antihuman hemolytic system. Noguchi, in his test, employs, as does Tschernogubow, an antihuman amboceptor (*i. e.* a hemolytic amboceptor for human corpuscles), obtained by immunizing rabbits with sheep's corpuscles. Unlike Tschernogubow, he does not depend upon the patient's serum to supply the complement, but uses guinea-pig serum for complement. No inactivation of the patient's serum is necessary as human complement, in the dose used in his test (one capillary drop), is not active against human corpuscles, when 2 units of amboceptor are used. Even in a dosage of 0.1 c.c. it remains without any action at all in the presence of 2 units of amboceptor, and can therefore be entirely disregarded. As indicator, the corpuscles of the patient to be tested or of a normal person are used. The suspension of corpuscles is obtained from the finger or ear and is used in the proportion of one drop to 4 c.c. of physiological salt solution. In this dilution no coagulation of the blood occurs. Noguchi differs from Tschernogubow in using in addition a small amount of serum (containing the antibody). A sufficient amount of serum can be obtained from a half c.c. of blood drawn from the patient's finger or ear. A single drop only from a capillary pipette (which can be easily made in a Bunsen flame) is needed for the test and a second drop for the control. Finally the antigen, complement, and amboceptor have been concentrated, dried, and impregnated in strips of paper, tiny squares of which, representing measured amounts of the impregnated substances are used for each tube. Noguchi has even found it possible to dispense with an incubator by keeping the little tubes in the vest pocket and allowing the body heat to incubate them. In this way he has succeeded in devising a method which is so simple that it can be carried out by any physician without difficulty.

The order of the steps in performing the test is as follows:

1. One drop from a capillary pipette of the serum of the patient to be tested and one drop for the control.

2. One square of paper representing complement or if preferred 0.04 c.c. of fresh guinea pig serum.

3. One c.c. of a suspension of human corpuscles in the proportion of 1 drop of blood to 4 c.c. of physiological salt solution.

4. One square of paper representing antigen, after which the tubes are shaken and incubated in thermostat or vest pocket for a half hour.

5. One square of paper representing the hemolytic amboceptor. The tubes are then incubated again for two hours after which the results are recorded. When examined twenty-four hours later, no change as a rule occurs. The controls are similar to those used in the regular Wassermann reaction.

If the test devised by Noguchi were merely equal in accuracy to the regular Wassermann reaction, its simplicity would mark it as a decided advance in the serum diagnosis of syphilis. That it is actually more delicate and accurate appears from the results obtained thus far by its author. Some rather striking differences in favor of the Noguchi test have been observed among the cases of the writer.

The source of inaccuracy in the Wassermann test according to Noguchi is the presence in the patient's serum of an unknown amount of natural hemolytic amboceptor against sheep's corpuscles, being at times as high as 20 units. The manner in which such as excess of amboceptor may interfere with the test is explained by Noguchi in a critical study to be soon published.

In the first place it is known that increasing doses of amboceptor also increase up to a certain point the activity of the complement. In other words a large amount of amboceptor compensates for a small amount of complement. If, for instance, the complement is not quite fixed in the antigen-antibody combination, the small amount left will not produce complete hemolysis if only 2 units of amboceptor are present. If, however, a large amount of amboceptor is present the effect will be the same as if a larger amount of complement had been present, and complete hemolysis will occur. While one unit of amboceptor + 0.1 c.c. of complement is generally needed to produce complete hemolysis, Noguchi found that if 4, 8, and 20 units were used, hemolysis occurred upon adding 1-3, 1-5, and 1-10 respectively of complement.

In the second place, an excess of amboceptor may bring about dissociation of the complement, *i. e.*, may break up the combination it has formed with the antigen and antibody. If, for instance, a quantity of syphilitic antibody is just sufficient to bind 0.1 c.c. of complement in the presence of 2 units of amboceptor, it will not be able to prevent partial freeing of the complement in the presence of double that amount of amboceptor. For this reason the actual presence of syphilitic antibody may remain unrecognized, as the complement which has been freed brings about hemolysis and gives a negative reaction, where it should have been positive. When the amount of syphilitic antibody is large, this dissociation of the complement cannot take place, *i. e.* a positive reaction cannot be masked.

It is not my intention to discuss in this communication the many phases of the practical application of the Wassermann reaction. Considering, however, that the subject especially in this country is of such recent development it was thought proper to record the results obtained in examining my first cases. All of these cases were adults, about three-fourths being males.

Table I shows the results obtained in 46 cases of clinically positive syphilis, showing active lesions at the time of examination. Of this number, one was a primary lesion of the lip which had existed sixteen days. It gave a strongly positive reaction. Of the 19 cases belonging to the secondary period (first year) all (*i. e.* 100 per cent.) gave positive reactions. If, however, we add 5 cases from table III, which proved to be secondary syphilis, 4 of which were strongly positive and 1 for some unaccountable reason negative, the proportion of positive cases is reduced to 23 out of 24 or 95 per cent. Twenty-six cases of the tertiary type gave 18 posi-

TABLE I—CASES OF ACTIVE SYPHILIS.

Case No.	*Stage of Disease	Type of Lesions	Location of Lesions	Time Since First Manifestations	Duration of Lesions	Mercurial Treatment	**Result
1	III	Tuberculo-ulcerative	Buttocks and thighs	Unknown	6 years	Tablets, 3 months	−
2	I	Chancre	Lip	Probably 5 weeks	16 days	None	+
3	III	Tubercular	Forehead and forearm	Unknown	8 months	Medicine, 6 months	+
4	III	Tuberculo-ulcerative	Legs	Probably 3 years	1 year	Medicine, 9 months	−
5	III	Tubercular	Mouth and lips	Probably 1 year	4 weeks	Few inunctions	−
6	III	Tuberculo-ulcerative	Scalp	5 years	1 year	Tablets and medicine, 2½ years	+
7	III	Tubercular	Face, trunk and extremities	Unknown	14 months	Medicine, 14 months	+ +
8	III	Squamous	Palm	Unknown	4 months	Medicine, 1 month	− +
9	III	Tuberculo-ulcerative	Arms and legs	Unknown	5 years	Medicine, 8 months	+ +
10	III	Tubercular	Wrist	3 years	3 months	Medicine, 7 months	+
11	III	Tubercular	Chin	Probably 7 years	1 year	Tablets and medicine, 1 mo.	− +
12	III	Tubercular	Forearms, buttocks, thighs	3 years	1 year	Tablets and medicine, 3 mo.	+ +
13	II	Papulo-squamous	Forehead, wrists and palms	Unknown	2 months	None	+ +
14	III	Tuberculo-crustaceous	Abdomen	17 years	5 years	Tablets and medicine, small amount	±
15	II	Papulo-squamous	Palms	Unknown	2 months	Medicine, 6 weeks	+ +
16	II	Macular	General	2 months	5 days	None	+ +
17	III	Gummatous (diffuse)	Knee	Unknown	5 years	Medicine, small amount	+
18	II	Papular (disappearing)	General	Unknown	3 months	Medicine, 3 weeks	+
19	III	Tubercular	Heel	Unknown	5 months	Medicine, 2 years	−
20	III	Gummatous	Heel	7½ years	3 months	Inunctions, 2 years	+
21	II	Papular	General	Unknown	2 weeks	None	+ +
22	II	Papulo-squamous (disap'g)	General	3 months	2½ months	Medicine, 2 months	− +
23	III	Gummatous	Leg	Unknown	1 month	Medicine, 4 months	+ +
24	III	Ulcerative and gummatous (extensive)	Foot	23 years	3 years	Tablets and medicine, 2 yrs.	+
25	III	Gummatous	Wrist	Unknown	6 months	None	±
26	II	Macular	Palm	3 months	2 weeks	None	+ +
27	II	Alopecia syphilitica (dis'g)	Scalp	Unknown	1 year	Medicine, 10 months	+
28	III	Gummatous	Knee	4 years	3 years, at times h'l'd	Medicine, 1 year	+
29	II	Maculo-papular	General	Unknown	6 weeks	None	+
30	II	Maculo-papular (disap'g)	General	Unknown	1 month	Medicine, 2 weeks	+ +
31	II	Macular	General	1 month	10 days	None	+ +
32	III	Ulcerative and gummatous	Leg	Unknown	4 years	Medicine, 2 years	− +
33	II	Paoulo-squamous	Face	Unknown	2 months	None	+ +
34	III	Tubercular	Lip	Unknown	4 weeks	Medicine, 10 days	+
35	III	Tubercular	Arm	2 years	1 month	90 injections	−
36	III	Tubercular	Thigh and abdomen	6 years	7 months	Medicine, 4 years	− +
37	II	Papulo-pustular	General	7 months	3 months	None	+ +
38	III	Tubercular	Nose and cheek	Unknown	7 months	Medicine, 1 month	−
39	II	Macular. Chancre persist'g	General	6 weeks	3 weeks	None	+
40	II	Local and gen'l adenopathy		9 weeks		Tablets, 2 weeks	+ +
41	II	Local and general adenopathy. Healing chancre		9 weeks		5 injections Hg. salicylate	+ +
42	III	Gummatous	Leg	14 years	2 years, at times h'l'd	3 years	− +
43	II	Papulo-squamous	General	Unknown	3 months	Tablets and medicine, 3 mo.	+
44	III	Tuberculo-squamous	Foot	Unknown	10 years	Little or none	− +
45	II	Macular	General	9 weeks	5 weeks	Tablets, 1 week	+ +
46	II	Macular. Healing chancre of finger	General	2½ months	6 weeks	None	+ +

*I Primary
II Secondary.
III Tertiary

** + + Strong, positive.
+ Positive.
− + Weak, positive.

± Doubtful
− Negative.

tive, 2 doubtful, and 6 negative reactions, i. e. 69 per cent. of the cases were positive. In one case of tertiary syphilis (No. 24) giving a positive reaction, the infection had occurred 23 years previously.

the table will show that the majority of these cases had received a fair amount of treatment, tending as is well known to lessen or destroy the reaction. The treatment mentioned in the tables refers only to the use of mercury, iodide of potassium apparently

TABLE II—CASES OF SYPHILIS SHOWING NO ACTIVE LESIONS.

Case No.	Stage of Disease	Diagnosis Made When Lesions Were Present	Time Since First Manifestation	Mercurial Treatment	Result
47	III	By writer (private patient)...	Probably 4 years..	Tablets, 2 years, 10 injections Hg	±
48	II	By writer (private patient)...	1 year.	Tablets, 1 year	—
49	III	At clinic. Maculopapular syphilide	3½ months	Tablets, 3½ months.	— +
50	II	At clinic. Chancre of lip and secondaries.	5 months	Tablets, 4 months.	+ +
51	II	By a colleague...	2 years	Inunctions and medicine, 2 years	+
52	III	At Clinic. Tubercular syphilide a year ago	Unknown..	Medicine, 1 year	—
53	II	From patient's statement; pigmentation persisting	1 year.	Medicine, 3 weeks	—
54	III	At Clinic. Seven years ago severe ulcerating lesions of scalp.	19 years	Medicine, 7 years	±
55	II	From patient's statement	9 months	Tablets and medicine, 5 months	—
56	III	At Clinic. Thirteen months ago an annular syphilide (early) of chin.	Probably 16 months.	Medicine, 4 months.	—
57	III	At Clinic.	3 years	Tablets, 3 years.	—
58	III	At Clinic. Annular syphilide 2 years ago.	2½ years	2 years	—
59	III	At Clinic.	3 years	Tablets, 3 years.	—
60	III	At Clinic. Annular syphilide 2 years ago.	2½ years	2 years.	—
61	III	At Clinic. Papular syphilide (early) of palm 2 years ago	Probably 2½ years..	2 years	—
62	III	By writer (private patient). Chancre lip of 4 years ago	4 years	Tablets, 3 years.	+
63	III	By a colleague. Three months ago a possible gumma	12 years	Tablets and medicine, 3 years.	—
64	III	From patient's statement	10 years..	Medicine, large amount	—
65	III	From patient's statement	18 years	Medicine 1 year at first, 6 months lately	—
66	III	From patient's statement.	2 years...	2 years	—
67	III	From patient's statement...	4½ years	Medicine until 4 months ago since then injections	—

Table II shows the result of testing 21 cases of undoubted syphilis, which at the time showed no clinical evidence of the disease. Most of these cases had been previously seen when lesions were present and a positive diagnosis possible. The others were

having no effect upon the reaction. The word medicine is conveniently used to indicate that the mercury was taken in a fluid form such as in the customary biniodide mixtures.

Some of the most interesting results were ob-

TABLE III—NON-SYPHILITIC CASES.

All of These Cases Gave a Negative Reaction

98	Acne vulgaris	101	Lichen planus	104	Psoriasis
99	Adenoma sebaceum	102	Lupus erythematosus	105	Scleroderma
100	Dermatitis herpetiformis	103	Lupus vulgaris	106	Xanthoma tuberosum associated with diabetes

cases in which a perfectly straightforward history of infection could be obtained. Of these cases 4 gave positive, 2 doubtful, and 15 negative reactions, i. e. 19 per cent. only were positive. A glance at

tained in cases (Table IV) where the diagnosis was in doubt and it will perhaps be of interest to describe a few of these cases at some length.

Table III shows a small series of dermatological

TABLE IV—DOUBTFUL CASES.

Case No.	Disease	Mercurial Treatment	Result	Remarks
68	Crusted lesion of lip; syphilis vs. impetigo.	Inunctions, injections and medicine, 3 months	+ +	Later proved to be undoubted syphilis.
69	Syphilis vs. lupus vulgaris.	Medicine, 3 weeks.	—	
70	Doubtful chancre; possible infection 3 months previously	None.	—	Later presented general adenopathy and test became pos've.
71	Peripheral arteritis with symptoms of Raynaud's disease.	Numerous injections.	—	
72	Tubercular syphilide vs. eczema	None.	—	Later proved to be eczema.
73	Previous attacks of iritis; no history of syphilis	Inunctions 2 months	— +	Repeated with same results.
74	Gummata (?); nodules and scars grouped about knee	None.	—	
75	Said to have suffered from syphilis ten years previously	Tablets 1½ years, inunctions 6 weeks..	±	
76	Syphiliphobia; patient's wife had two premature deliveries; any other signs or symptoms pointing to syphilis	None..		
77	Ulceration of nose; history of child born at eight months, no other symptoms.	Medicine, 4 m	— +	Improving under antisphyilitic treatment.
78	Leucoplakia of lip and cheek; chancre (?) 15 years ago	Tablet 1 year, inunctions weeks.		
79	Syphilis (?); septic metritis	None		Impossible to make a second examination.
80	Syphilis vs. epithelioma of tongue, no history of syphilis	None		Clinical evidence strong in favor of epithelioma.
81	Scabies; possible syphilis	None	+ +	
82	Syphilitic vs. traumatic ulcer of lip	None		No effect from antisyphilitic treatment.
83	Macular syphilide vs. drug rash	None	+ +	
84	Amyotrophic lateral sclerosis; gummata (?) of leg	None		Probably not gummata from subsequent course.
85	Miliary papular syphilide vs. scabies.	2 injections of Hg. salicylate		
86	Syphilis vs. epithelioma of glans penis.	2 injections Hg. salicylate	—	
87	Peripheral endarteritis with symptoms of Raynaud's disease; history of syphilis	80 injections		
88	Woman giving history of four children born dead or "mortified"	None		Test to be repeated later
89	Syphilis vs. epithelioma of tongue.	None		
90	Chancre (healing).	None	+	
91	Syphilis of tongue vs. leucoplakia	Medicine 3 weeks	— +	
92	Syphilis vs. erythematous lupus.	Medicine, 3 weeks	+	
93	Syphilophobia.	Injections and medicine	—	
94	Syphilitic rhinitis (?); possible chancre 3 years ago	None	—	
95	Possible syphilis; numerous small tumors of leg; gummata (?) 1 year ago; none since antisyphilitic treatment instituted.	Injection 2 months, medicine 5 months.	—	
96	Said to have had condylomata and circinate eruption of penis 1 month ago; general adenopathy at present	Medicine 1 month.	+ +	
97	Chancre (?) of clitoris; history of 5 miscarriages and 2 children dying early	None		

cases in which syphilis could be excluded (as far as this is ever possible). All gave negative reactions.

Case 69.—Mulattress, 22 years old, presented recently before a medical society as a case of lupus vulgaris serpigenosus. Shows extensive lesions of face, neck, and legs. Family history of tuberculosis. Previous history of suppurating glands. Cutaneous tuberculosis test strongly positive. Histological preparations favors tuberculosis rather than syphilis. As the case was considered by some to be one of syphilis, a Wassermann test was made, with absolutely negative result. Ten injections failed to cure or even improve the disease. Later generally admitted to be lupus.

Case 76.—Case of syphiliphobia. Patient, a physician, had never shown any symptom or sign of syphilis. Two premature deliveries by his wife made him think he had possibly at some time contracted the disease and infected his wife. The patient's peace of mind was restored by a negative Wassermann reaction.

Case 81.—Man, 25, genital sore six months ago followed three months later by a second sore. Examination showed typical lesions of scabies, but with the exception of a slight enlargement of inguinal and occipital glands, no sign of syphilis. The writer doubted the existence of syphilis until the blood was tested and showed a very strong positive Wassermann reaction.

Case 83.—Woman, 42, presented a typical roseola and adenitis. As she had previously taken sajodin, for several weeks, the diagnosis of a drug rash had been made by a colleague of large experience. The Wassermann reaction proved to be strongly positive. In addition the writer found large number of spirochetes, in an ulceration of the vulva, by using the dark field illuminator.

Case 85.—Man, 24, presented as a case of miliary papular syphilide by an eminent dermatologist. Diagnosis doubted and that of scabies made by many, as signs of severe itching were present. The Wassermann reaction was absolutely negative. The later course of the disease showed that it was not syphilis.

Case 86.—Case shown as one of epithelioma of the glans penis, considered, however, by a well-known colleague to be syphilis. Wassermann test negative. No improvement from antisyphilitic treatment. Histological examination showed a prickle cell epithelioma.

While the cases quoted above could be easily multiplied, enough has been said to call attention to the practical value of the Wassermann reaction. That the test is now recognized as a diagnostic procedure of very great value is shown by its well-nigh universal adoption in the hospitals and clinics of Europe.

In conclusion I wish to express my sincere thanks to Dr. Hideyo Noguchi for his generous assistance and advice. The practical work was performed at first by Dr. Noguchi and by myself under his direction until the necessary practice as well as laboratory facilities were obtained. The description of the Noguchi test is from personal communication, as at the time of writing Dr. Noguchi's publications upon the subject have not appeared.

I am also indebted to Dr. Wood McMurtry for the idea of the swinging pendulum.

The greater part of the material was obtained from the dermatological department of the Vanderbilt Clinic, from the service of Dr. George T. Jackson, to whom I wish to express my thanks. Other cases were obtained from the service of my father, Dr. George Henry Fox, at the Skin and Cancer Hospital.

I am also indebted for material to Doctors Whitehouse, Trimble, Clark, Vermilye, Satterlee, Frothingham, and Bradley.

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NONGASTRIC MALIGNANT DISEASE AND THE SECRETION OF GASTRIC JUICE.

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It is to Kussmaul's clinic and Reinhard von den Velden in particular that credit is usually given for the discovery that free hydrochloric acid is absent in a large proportion of gastric carcinomata. The date of this communication is 1879. However, there appeared in the *London Medical Gazette*, in 1842, a contribution by an Englishman, Golding Bird, wherein the same fact is brought out. It was his conclusion* "that during the more irritative stage of the disease [gastric cancer] free hydrochloric acid is present in the vomit in considerable quantities, but it gradually diminishes in proportion to the patient's loss of strength; and that the organic acids increase proportionally as free hydrochloric acid diminishes." Not only this, but Bird observed the condition with which this article has to do, namely that free hydrochloric acid was diminished in cancer, not of the stomach (liver). Bird, apparently, did not pursue his observations further than this original contribution and it remained for them to be rediscovered thirty-seven years later by von den Velden, who focused the attention of the medical world on this really important discovery.

Free hydrochloric acid in gastric carcinoma is absent in varying percentage in different series of cases. The percentage of absences in Osler's cases was 89.3, in Boas' cases 77.5, but the percentage is not sufficiently high to warrant this diagnostic sign having more than a secondary value in the diagnosis of gastric cancer, especially in consideration of the many other conditions which can likewise cause an absence or diminution of hydrochloric acid. Immediately on von den Velden's discovery, efforts were made to explain its causation. It was early established that even a small carcinomatous patch localized in the pylorus could cause an absence of acid

*Quoted from "Ewald's "Diseases of the Stomach."

equally as well as a generalized carcinomatous infiltration of the gastric wall with destruction of the glandular apparatus. The view was at first held that the carcinoma produced degenerative changes in the gastric mucosa, starting from the involved focus and spreading over wide areas. This explanation did not satisfy certain conditions, especially the loss of gastric secretion in early cases of small circumscribed tumors. Anatomical investigations having shown that the intact mucosa was involved in neither an atrophic nor a gastritic process, efforts were made to explain the absence of secretion by an alteration of the circulatory fluids, either by some substance produced by the cancer or some other change, possibly nutritional in nature. The occurrence of hydrochloric-acid absence or diminution in the very early stages of carcinoma, before cachexia and emaciation ensued, tended to suggest the cause of the acid deficiency to be a condition preceding rather than following even a moderate tissue involvement.

The hydrochloric acid determinations were at first made with only a few color reagents and indicators. These were rosanilin hydrochlorate, methyl violet, and tropaolin oo, but this list has been extensively widened. Bird's method in his original work was the incineration of the residue after driving off the volatile acids, boiling with nitric acid, and estimating the silver salt. The use of Congo red was introduced in 1886 by Hosslein and Riegel. This red benziolin stain turns blue in the presence of free acids, but the combined albumins or the inorganic bases combined with acids do not respond with a color change. Congo red paper is usually purchased already prepared for use, but this commercial paper is not uniform in its sensitiveness. A 1-1000 Congo red solution is the best concentration and a paper saturated with such a solution should detect hydrochloric acid in a dilution of 0.02 per thousand.

Turning from gastric to nongastric carcinomata, we are impressed by the fact that the attention of the medical profession has not been generally drawn to the changes which occur in hydrochloric acid secretion in cancers, not of the stomach. This change consists in an absence or diminution of acid in a percentage of cases, very similar to the percentage in actual stomach cancers. Despite the apparent neglect of this condition, it was noted in 1842, as mentioned above. Fenwick called attention in 1880 to the occurrence of atrophic processes in the gastric mucosa in carcinoma of remote organs, particularly of the breast, intestine, and uterus. This observation is not strictly analogous, because the occurrence of an atrophic process indicated a local lesion and local lesions are not essential for an absence of acid. Ewald reported in 1886 a case of carcinomatous ulcer of the duodenum in which he found "atrophic degeneration of the gastric glands of the fundus and cardiac portion of the stomach." In this case, too, a local anatomical lesion was present accounting for variations in acidity. Recently, Moore, Alexander, Kelley, and Roaf have reported 34 cases of non-gastric cancers, in which 67.6 per cent. showed an absence of free hydrochloric acid.

My attention was drawn to this interesting condition at that time (1906) and since then, I have been enabled to investigate the gastric acidity in 20 cases of non-gastric malignant disease, 18 carcinomata and 2 sarcomata. These cases were derived from the Lucas County Hospital, the Toledo Medical College Dispensary, and my private practice. Six patients out of the twenty, showed free hydrochloric acid—a percentage of absences of 70. Each of the two sarcomata, one of the leg with metastases in the lung, and the other of the femur and knee, showed an absence of free acid, leaving 12 out of 18 cases of cancer in which free acid was absent (66 per cent.). In these cases, the examinations for free hydrochloric acid were made with fresh Congo red paper and the quantitive examinations were by the Töpfer method. The stomach contents were obtained by aspiration 40 to 60 minutes after an Ewald test breakfast. The Congo red and Töpfer method are fairly reliable for practical clinical purposes, although, of course, not chemically accurate. These cases are tabulated in the accompanying table.

No.	Case Initials	Age	Tumor	Free HCl.	Total HCl.	Location	Source	Result
1	F	46	Carcinoma	0	4	Jaw	Lucas Co. Hosp.	Death
2	F. G.	50	"	0	6	Gall bladder.	"	"
3	P. A.	61	"	10	18	Caecum	"	"
4	D. D.	56	"	0	8	Breast	"	"
5	E. C.	97	"	0	10	Neck	Toledo Med. Coll	?
6	E. A.	67	"	0	8	Face.	"	?
7	E. S.	38	"	20	36	Uterus.	Lucas Co. Hosp.	Death
8	W. N.	58	"	0	10	Esophagus	"	"
9	P. O'C.	65	"	0	12	Lip	"	"
10	W. H.	70	"	4	16	Liver	"	"
11	M. M.	46	"	6	12	Breast	"	"
12	M. W.	38	"	0	6	Breast.	"	Living
13	Mrs. H.	68	"	15	35	Uterus.	"	Death
14	Mrs. D.	70	"	0	5	Uterus.	"	Living
15	Mrs. S.	52	"	0	5	Breast, bladder	"	"
16	E. G.	43	"	18	40	Uterus.	"	"
17	R. G.	48	"	0	4	Intestine.	Private	Death
18	T. A. F.	74	"	0	12	Caecum	"	"
19	R. M.	41	Sarcoma	0	5	Knee	Lucas Co. Hosp.	?
20	I. B.	24	"	0	15	Leg and lung	"	Death

It has been seen that the absence of hydrochloric acid in gastric cancers cannot be satisfactorily explained by local causes. The same difficulty arises in non-gastric cancers and we turn to the circulating fluids for further explanation. The reaction of blood plasma is very near that of distilled water, lying just to the alkaline side of the neutral point. This nearly neutral reaction is maintained by the body with the greatest tenacity, as the animal cells are not able to carry on their various functions in a distinctly acid or alkaline medium, owing to the chemical affinity or tendency to combine between the proteins of the protoplasm and alkalies or acids. This neutral point is being constantly changed and as constantly kept intact. Carbonic acid is being constantly produced in various metabolic functions and would soon render the tissues acid to a poisonous degree, were not this counteracted by an ammonia formation and the presence of organic bases. On the other hand, an excessive alkalinity is neutralized by carbonic acid, organic acids, or the phosphates, carbonates, and proteins which usually hold the balance of power, as they possess the adaptability of acting either as acids or as alkalies.

The reaction of the blood depends on its ionization, a preponderance of free hydroxyl (O H) ions or hydrogen (H) ions determining its nature. Owing to the intolerance of animal cells for concentration in either hydroxyl or hydrogen ionization, the pendulum never swings very far from neutrality, at least normally. Acids or alkalies in the animal economy are irritants in small amounts and as such are speedily excreted by stomach, intestines, or kidneys, but in large amounts the organism succumbs. It is on this account that experimentation with changed reaction of the blood is difficult or even impossible.

The determination of the blood reaction has never been an easy, nor an accurate procedure. The reasons lay in the nature of the blood, its color, its composite character, the varying number of morphological elements, the protein content capable of acting either as weak acids or bases, the contained carbonates and phosphates which can act likewise, and the indicators necessary, of which the list is long but unsatisfactory. The reaction has been uniformly given as alkaline and expressed in terms of sodium hydrate, varying from 150 mg. to 300 mg. for every 100 c.c. of blood. The early method of Landois was too complicated and its modification by von Jaksch, who uses a watch glass containing sodium sulphate and tartaric acid solutions is but little better. Löwy introduced a method in 1894, in which blood is laked with ammonium oxalate, titrated with $\frac{n}{25}$ tartaric acid solution, using as an indicator a lacmoid paper prepared from resorcin and sodium nitrite. Engel modified Löwy's method in 1898 so that a smaller amount of blood would suffice and devised an alkalimeter for the purpose. Dare, using his own special hemoalkalimeter, described in 1903 his spectroscopic method, in which blood is titrated with a dilute tartaric acid solution unto neutralization, at which point the oxyhemoglobin spectrum disappears. Adler described a method in 1907, based on the behavior of rosolic acid to blood serum. Rosolic acid is orange-yellow in the presence of acids, pink in neutral and red in alkaline solutions. According to the recent, careful study of indicators by Edward Salm, rosolic acid and neutral red are two indicators which respond to the slight changes in blood ionization, a change too slight for color reactions from the usual indicator. Adler soaks ash-free filter paper in an alcoholic solution of rosolic acid and then determines the color change in the presence of blood serum. This method determines the reaction only, not the quantitative amount. As a matter of fact, there is no uniform standard of determination of the reaction as this may consist either of an estimation of the amount of acid or base present or an estimation of the preponderance or intensity of acidity or alkalinity as opposed to the neutral point.

In a recent article entitled "A Clinical Method of Hemalkalimetry," Benjamin Moore and Frederick Wilson attempt to solve the problem by a new and unique method. They do not estimate the amount of acids or bases in the blood plasma, nor do they estimate the hydrogen and hydroxyl ionization—the latter a truly difficult procedure. Disregarding the small degree of blood alkalinity, they estimate the ability of the blood proteins and the inorganic phosphates and carbonates to combine with acids or alkalies by means of titration, using phenolphthalein as an indicator. This in reality is a method of determining the ability of the blood to retain its almost neutral point by means of its proteins, phosphates, and carbonates, rather than a determination of the amount of acid or base present.

Moore and Wilson have found in their work that the alkalinity of the inorganic constituents of the plasma in cancer is slightly, but definitely increased; that is, they have an augmented power of neutralizing acids. The bearing of this finding upon the clinical observations brought out in this article, that the acidity of the gastric contents is lessened or absent in non-gastric cancer is important. Such an alkaline change cannot leave the body cells entirely unaltered, as it has been seen how nature abhors a concentration of hydrogen or hydroxyl ions. It is an old observation that the blood alkalinity is increased during digestion, but this is, too, a natural inference, considering the manufacture of hydrochloric acid at this time. If the gastric glands continued to remove hydrochloric acid from the blood in certain cases of cancer, in which the alkalinity is already increased, the cells of the body might be subjected to injurious influences. The above authors do not regard this increased basic reactivity as a result of malignancy because it is found in early cases and also after removal of the growth.

An important subject for investigation is brought up by this question whether the areas, in which primary malignant growths are liable to begin, are not exposed to a higher alkalinity than other regions of the body. It is said that the alkalinity is increased in inflammatory or injured localities and that such increase of alkalinity tends to increased cell growth, especially when continued for long periods of time. Early investigators in this field found an increase of alkalinity in the plasma during old age and the predilection of old individuals and those with chronic inflammatory lesions to malignant disease may have some relationship more than a mere coincidence. This relationship between malignant disease and increased basic reactivity makes practical blood reaction tests very desirable for diagnostic purposes, but it is more than doubtful whether this aid will be generally employed with existing methods.

The work in this connection has been of value from the clinical side in its relation to the hydrochloric-acid secretion in cancer. As free hydorchloric acid is absent in two-thirds of reported non-gastric cancers, its value as a diagnostic sign would be well worth eliciting in cases of obscure visceral disease, where cancer must be excluded. The condition is not of primary importance, but it has a secondary value and, indeed, that is all that can be said of absent hydrochloric acid in the diagnosis of actual gastric carcinomata.

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THE PROBLEM OF EPILEPSY.

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This disease can be the better appreciated by the proper recognition of the two most prominent facts in the case: First, the utter hopelessness in the present condition of the epileptic. And, second, the universal prevalence of the disease—one in every five hundred of the population.

The effects of the disease are deplorable enough, and yet the seclusion of the epileptic from all social duties and business life is one of the saddest features, and this no doubt serves to intensify the morbid condition, for the patient is thus debarred from all normal development. In fact, epilepsy is one of the most important social tragedies in the great drama of life, and yet there is more being done for every other class of the afflicted than for the epileptic.

When the epileptic patient comes for advice and treatment there is often a superficial examination, a routine prescription of the bromides, a few suggestions as to diet, and he is directed to call again in a week or two.

From such measures the physician himself ex-

pects little or no benefit, and in this he is not disappointed. For the patient the result is well nigh disastrous, for there has been little or no impression made on either the frequency or the severity of the attacks. In a little while he becomes impatient or discouraged and tries something else, going from one thing to another, trying everything by turns, and nothing long. Some patients select a combination of remedies that seem to give the most benefit, and continue the same indefinitely without any medical supervision, regarding a continuation of the disease as inevitable. The history of the disease is sufficiently well known to need no special attention at the present time.

Epilepsy may be defined as a chronic disease of the brain, accompanied by periodic attacks of a spasmodic character; beginning suddenly, often without any assignable cause, and frequently subsiding as rapidly, either with or without warning and with or without loss of consciousness. And the seizure may be either with or without convulsions.

There may often be a great variety of nervous manifestations either preceding or following the attacks. The old definition of epilepsy as an attack of loss of consciousness with a convulsion is no longer sufficient. In fact, it covers only one form of the disease. As the disease has been more accurately studied in recent years, this term is found to cover a larger field of nervous maladies than formerly. At the present time epilepsy not only applies to what are known as the classical forms of the disease, but it also embraces the various lepsies, such as catalepsy, narcolepsy, hysteroepilepsy, choreoepilepsy, epileptic mania, and also many forms of somnambulism, trance, and a large number of nocturnal seizures, such as night terrors, etc.

Then again there is a large class who occupy the borderland and suffer with attacks of vertigo, confusion, headaches, fainty feelings, and morbid fears that are truly epileptic in character.

And there is another well defined class who suffer with masked epileptic seizures, and these attacks may be either psychic or somatic in character. There may sometimes be shadowy visions, hallucinations or slight delirium, especially at night, with certain antipathies or perversions, often with reference to the patient's own family. And associated with these there may be some petit mal symptoms with choreomania. Then again, at intervals a patient may have erratic motor manifestations of a spasmodic character, and to this class the tramp mania of childhood often belongs, a true procursive epilepsy.

The following is Elbert Hubbard's description of an epileptic attack: "The seizure or spasms of epilepsy is a remedial endeavor on the part of nature to throw off a poison in the system. The primal cause of the immediate explosion is hidden in the secret recesses of infinity—no microscope can find it. But there is always an immediate cause—a pushing of the button—the current goes off with a bang—the vital fluids are shortcircuited, and the burning out of the fuse saves the patient's life. But the tendency is always toward dementia, for the wear and tear on the machinery that races, when the governor is on a strike, is terrific."

The following case presents some interesting features in masked epilepsy:

Recently the writer was called early one morning to see a girl twelve years old, and found that she awoke at five A. M. with severe headache, followed by nausea and vomiting, and there was an urgent desire to evacuate the bladder and rectum, with a slight tendency to diarrhea. She soon went into a deep sleep with stertorous breathing (epileptic coma), which lasted two hours, when she woke up with a feeling of hunger, and, except for a little lassitude, seemed none the worse for the seizure. She had been subject to these attacks for several years, coming on suddenly between four and five A. M., without assignable cause, and subsiding as quickly. There was no loss of consciousness.

The sudden development, the spasmodic character of the attacks, the sleep with peculiar breathing, and hunger on waking, taken in connection with the history of the case were sufficient to make out a case of masked epilepsy, and if anything else was needed it was found in the physical examination of the head of the patient, showing epileptogenic areas in the left parietal and right occipital regions.

There is as much variability in the masked as in the classical forms of the disease, and yet when a proper examination is made a correct diagnosis may always be secured. Some time ago the writer was consulted in one of these cases of masked epilepsy, the patient having frequent spasmodic seizures without loss of consciousness; but as the family doubted the diagnosis of epilepsy the treatment of the case was delayed until after the patient began to have epileptic convulsions.

It is not by any means an unusual thing to find a combination of the three major neuroses developed in a single patient. The insane, epileptic idiot can be found in almost every community, and in any asylum. The common occurrence of epileptic insanity is something more than a mere coincidence. The irritability, with the mental and moral perversions so often seen, even in the early stages of this disease, clearly indicates the tendency to insanity.

Then again, a patient may be seen occupying the borderland between epilepsy and insanity, vibrating first on one side and then on the other, sometimes presenting the obscure problem of masked epilepsy with a psychic equivalent. Not only the frequent development of more than one of the major neuroses in the same patient, but the further fact of their interchangeability through heredity, serve to show the intimate relations that exist between them.

For centuries the epileptic patient has been the subject of the most careful and painstaking study and investigation. And as the result of these studies various theories have been advocated from time to time as to the cause of the disease, but for the purpose of this paper it will not be necessary to recapitulate any of them.

The Predisposition to Epilepsy.—At the present time the causes of epilepsy are divided into two classes: First, the predisposition to the disease, which is regarded as the most important; and second, the exciting causes of the first attack and the subsequent seizures.

It is well recognized at the present time that epilepsy belongs to one of the many forms of degeneracy, and that the condition may vary all the way from a slight deviation from the normal to the epileptic idiot. An examination into some of the causes of degeneration will no doubt aid very greatly in the solution of this very complicated problem. As might be expected, epilepsy is most often found among the defective classes. In all large cities there is a well known class called the hospital population, who, when taken sick, seek the friendly aid of some neighboring hospital

Epilepsy is found to be very prevalent among these people, and from the hospital records of this class of patients epilepsy can be traced running through successive generations. At home they live under unfavorable conditions in overcrowded tenements. The atmosphere is at all times more or less charged with organic and inorganic impurities. The water may often be polluted and the food more or less contaminated or adulterated. There is often an excessive use of tobacco and whiskey, or some of the various drug habits, and there is always more or less excitement, anxiety, or apprehension; conditions that not only serve to produce chronic toxemia, but also to perpetuate the same among this class. Therefore it is not at all surprising that the defective classes should produce epileptic children. But it is also true that a temporary toxemia in the parents may serve to start a degeneration in the offspring that may be both destructive and far reaching in its effects. Thus it can be seen how there may be epileptic children among the well-to-do, for the degenerates are by no means confined to the defective classes. If they were so limited, then the problem could be much more easily handled.

There is another factor that has thus far been neglected or overlooked, and that is the very important question of sleep. It is during the hours of sleep that the most important part of the nutrition and repair of the brain and nervous system takes place. Disturbances of sleep are usually among the early manifestations of the various nervous maladies, and insomnia usually precedes insanity.

Now there is so much life and animation in the cities after dinner at night, that the hours normally needed for sleep are very much reduced. When carefully investigated it is surprising what a large proportion of the city population do not habitually retire before twelve o'clock or later. In every section of the city there are many social functions, receptions, card parties, etc., with refreshments and stimulants of various kinds, each trying to surpass the other; supper after the theater, meetings at the clubs and lodges, as well as the various industrial and political meetings. Bohemia has its various clubs, fraternities, and amusements, as well as Mayfair. In each, often the evening hours are spent in some form of diversion or amusement that may consume more vital energy than the daily duties. Business and other engagements will compel many of these people to get up early; they feel irritable, and if things go wrong are easily worried, and yet they complain and cannot understand why they feel so weary and fatigued all the time. To allay this feeling and to quiet the overstrained brain and nervous system, they begin to use stimulants and narcotics, and while these measures may temporarily relieve the painful excitability, yet in the long run they increase the nervous exhaustion by impairing or perverting the nutrition.

Many never comprehend the injurious effect produced by the habitual use of stimulants and narcotics, and those who do have not the strength of will to resist the insatiable craving, or throttle the demon of thirst. A man addicted to any of the various drug habits, excessive smoking, a vicious or intemperate life, begets enfeebled or degenerate children; and these on account of chronic fatigue and weariness may easily fall victims to narcotics or stimulants, and by such means intensify the degenerate tendency. Conditions such as these may serve either to start or to intensify a predisposition to epilepsy of which so much has been said and written.

While the foregoing is especially applicable to life in any of the large cities, and epilepsy is more often found in the cities than in the country, yet the toxic conditions can also be found in the country, only in a less degree. The frequent pollution of both milk and water in the country is sufficiently well known. And then there are other toxic conditions present, only they are not so manifest, which are at least sufficient to account for the number of cases of epilepsy found in the rural districts. The indications are that as the scientific study of epilepsy progresses it will be found that the primary origin of the disease, or the predisposition to it, is due to antecendent toxicogenic conditions.

While a definite specific germ may be the cause of an acute infectious disease, yet when the patient is examined he is often found to be suffering from a mixed or multiple infection. And so it may prove to be the case in epilepsy. Instead of a single toxemia the disease may be the result of mixed or multiple infections; and the complications so often seen may be started either before or after the disease has taken on an active form. Chronic toxemia sufficient to produce the predisposition to epilepsy may be mental, chemical, or microbic in origin; or more often a combination of these, aided by other unfavorable and morbid conditions.

The influence that a mental impression may have in the formation of the neuropathic diathesis, and by this means be one of the factors in the production of epilepsy, has up to the present time not received the attention that the importance of the subject demands. The detrimental effects which a great grief, a fright, or an emotional disturbance of a depressing character may produce on the life and health of an individual are matters of common observation and of daily occurrence. And it is also equally well known that a mental impression may be transmitted to the offspring as a morbid state. The care, anxiety, and stress of life not only affect the present generation, but produce a detrimental effect on those who follow after.

Worry and the wear and tear of life are but common expressions for the effects of unfavorable mental impressions, and these are well known as prolific sources of many nervous maladies. All of the vital processes, from the digestion of food until the nutritive material is converted into live tissue, are chemical in character. Now a distressing mental impression may instantly change the digestive or nutritive secretions from a benign to a toxic character; and no doubt all the other and more obscure vital processes are equally sensitive.

Not only is this the case with us, but the statistics of all highly organized countries show a high rate in the increase of nervous maladies, due to the great strain and stress of modern civilization. The great battle of life is fought now, not by thews and sinews, but by the brain, and he is maimed indeed who is crippled in the brain.

A chemical disturbance of digestion and assimilation, or some of the more obscure vital processes may sometimes serve so to impair the nutrition of the brain structures as to start an epilepsy. This is especially true when associated with depraved habits, intemperance, and excesses of various kinds. The habitual use of stimulants and narcotics, with the various drug habits, have the effect of impairing the vitality and stability of the brain structures.

Inebriety is at the present time recognized as such a potent factor in the production of epilepsy, both in the individual and his descendents, that there is a strong effort being made to put them into a separate class, known as alcoholic epileptics. It is said by some competent authorities that there has been a large increase in this class, during the last few years, especially among those who are addicted to fancy drinks, where the impure spirits or wines can be masked by the highly pungent flavorings.

The excessive use of tobacco, in the experience of the writer, must also be regarded as an element in the production of the neuropathic diatheses. Some of the worst cases of both epilepsy and insanity can be directly traced to the immoderate use of tobacco. The various drug habits also have an important bearing on the same great question.

Max Nordeau has well said that "a race which is regularly addicted, even without excess, to narcotics and stimulants in any form begets degenerate descendants who, if they remain exposed to the same influence, rapidly descend to the lowest degrees of degeneracy, to idiocy, epilepsy, etc."

Then again, the bacteriologists are continually warning us of the great number and variety of the microbes to which we are at all times exposed, some of them benign and others toxic. The atmosphere may be charged with impurities by the various germs which it contains, the water may be polluted, or the food may be contaminated by them. When they are once deposited in the system, they may remain latent indefinitely, until the conditions prove favorable for their development. And some recent investigations show that they may even be transmitted to the offspring, and no doubt some diseases are transmitted in this manner.

The life, habits, and environment of the individual may serve either to attenuate or to intensify the effects of the toxic germs; and then again the vital state may also serve so to modify some of the benign germs as to convert them into toxic ones. In whatever manner the germs may enter the body and, later on, in whatever way they may excite disease of the same, it is only by impairing, either directly or indirectly, the nutrition of the cerebral cells that they may become an essential factor in the primary production of epilepsy.

The complications encountered in the life history of the disease, especially during the period of latency, will sufficiently account not only for the diversity of development in different patients, but also for the variability of the symptoms in the same patient.

Owing to the character of the symptoms, epilepsy has been regarded as a chronic disease of the brain from the time of the earliest writing on the subject. All the facts in the case indicate that the influence of the toxicogenic conditions has continued for a long time and has been of sufficient force in some cases to modify so profoundly the nutrition of the brain and nervous system as often to produce an arrest of development in certain lines as well as perverted activity in others before the disease assumes an active form. These marked deviations from the normal give the patient and his friends a sufficient warning of the approach of the great tragedy.

Chronic toxemia produces a chemical nutritive change in the conditions of the cortical cells of the brain, and when these cortical cells with perverted nutrition are unduly stimulated by congestion, there is a perverted sensorimotor and sensoripsychic functional activity of the brain. And this incoordination of the brain functions is the essential feature in every epileptic seizure, whether mild or severe. Nature, in an effort to correct this impairment of nutrition in the brain structures by an increased blood supply, produces what may be termed passive congestion of the affected regions, so that the epileptic all the time has too much blood in the head. This impairment of nutrition, with the increased blood supply to the impaired tissues, makes them very sensitive to disturbances of the circulation from causes either within or without the brain.

The location and extent of the congestion of the brain that is associated with the recurring attacks, can generally be determined by a careful physical examination of the head. Tenderness and pain on pressure are indications of disease here, just as in any other part of the body, and their location may serve to show the character of the symptoms and many of the complications associated with the disease.

Occipital tenderness on pressure can be found in nearly all cases of epilepsy, and next in order of frequency are the parietal regions, on either one or both sides. In a few cases, there is marked tenderness more or less all over the head.

In the opinion of the writer, chronic congestion of the affected regions of the brain is always associated with epilepsy. Acute congestion is the exciting cause of the recurring attacks, and these sensitive regions indicate the diseased areas with local congestion. It is well known at the present time that the different attacks of epilepsy are only the symptoms indicating this diseased condition of the brain, and that the seizures will vary according to the location and character of the morbid conditions present.

Heredity.—It is well known that heredity is an important factor in the production of epilepsy. The various writers on the subject differ somewhat in the percentage of the cases that they attribute to this cause. And then there are many cases with a morbid bias, that for various reasons cannot be accurately traced. The alienists say that it requires two generations to produce insanity, and this is no doubt equally true of epilepsy.

Some time since a professor of one of our universities who is an authority on animal industry said that "the markings and colors of a herd of cattle could often be traced back for a period of three or four hundred years." If the colors, then certainly other traits were also transmitted. A few days ago, in an interview, a well known florist, who is an expert on the cultivation of carnations, said that "some of his best varieties, in the highest state of cultivation, would sometimes produce a plant that would revert back to the original type of three or four hundred years ago."

Then if plants and animals carry the influence of heredity for three or four hundred years, the present type of man is made up of the normal and morbid conditions of the civilzation that has preceded. This is true to such an extent that I have long since ceased to ask any questions about the heredity of the patients who come to consult me for epilepsy. I simply regard the patient as unfortunate in the chemical compounds that go to make up the nutrition of his brain cells.

That heredity plays an important part in the production of epilepsy is certainly true, and this can be better understood when it is remembered that in the absence of neurophatic progenitors, the parents may

suffer from a temporary toxemia at a critical period, and in this way transmit a neurophatic diathesis that may develop into epilepsy. The interchangeability of the various neuroses through procreation is another prolific source of epilepsy. The direct transmission of epilepsy from parent to child is seldom seen among the well-to-do. In fact, under favorable conditions, the disease is eliminated through propagation of the race. If it were not so, we would all have been degenerates and epileptics long before this time.

The elimination of disease through procreation is nature's great provision against degeneracy. Now if nature usually eliminates the disease in propagating the race, then science certainly ought to arrest and eliminate it from the individual, for nature is all the time making an effort to restore the normal.

The hospital statistics show a large percentage of the direct transmission of epilepsy from parent to child; and yet, under the circumstances, this is nothing more than what ought to be expected. The post-mortem examinations made from the hospital population show degenerative brain changes similar to those found in many cases of epilepsy, and this fact readily accounts for the frequent transmission of epilepsy in this class.

Then poverty and ignorance, with vicious and depraved habits, are often fruitful sources of the disease.

Exciting Causes.—Now in regard to the exciting causes of epilepsy, the conditions that may serve to start the first convulsion. While they may be important as the beginning of a great tragedy, yet they are of minor consideration in comparison with those that serve to produce what is called the latent tendency, the predisposition to the disease. And this predisposition may be either inherited or acquired. The times of the first and second dentition and puberty are the most critical periods for the development of epilepsy. At each of these periods many cases begin without any assignable cause.

Great emotional disturbances, such as fright, excitement, worry, care, or anxiety, loss of sleep, overstudy, a great grief, etc., are among the most frequent exciting causes of the first attack. In fact, when a definite cause is given as the beginning of the disease, more than one-third is attributed to some emotional disturbance. Gastrointestinal disorders occupy an important place as exciting causes of the first attack; such are acute indigestion, worms, intestinal toxemia, and constipation. Then the infectious fevers, typhoid, diphtheria, measles, and other infantile maladies are among the well known exciting causes. And many cases are attributed to falls and injuries of various kinds.

Then there are many miscellaneous conditions that are occasionally given as the cause of exciting the first attack, but it will not be necessary here to go into sufficient detail even to mention them. Sometimes certain conditions may be regarded as danger signals in this disease. And among these may be mentioned the various nocturnal seizures, such as vivid and frightful dreams, crying out in sleep, night terrors, etc. These often develop into nocturnal convulsions. And then habitual nosebleed in children or about puberty, when arrested, is often followed by epilepsy.

A theory that is being discussed at the present time, that regards acute toxemia as the cause of the recurring attacks of epilepsy, takes a too superficial view of a very great problem. That there is often acute toxemia and autoinfection in epilepsy is no doubt true, but the writer does not believe they occupy the place of controlling factors in recurring attacks.

Some recent investigations show that the blood of an epileptic is in a toxic condition after an attack, and that the toxic effects of the urine are very much increased after a seizure. A further investigation of the subject may demonstrate that these toxic conditions coming after the attacks will be properly classified among the effects of the seizures, instead of the causes.

It is a well known fact that the post-mortem examination of the brain of a chronic epileptic shows great dilatation of the blood-vessels with distention of the perivascular sheaths, the effects of chronic congestion. With this condition of dilatation and chronic congestion, it would be very easy to excite acute congestion of the brain. A careful clinical study of the epileptic patient shows that close application with great mental effort, excitement, the use of stimulants, and everything that increases the brain circulation causes an increase in both the frequency and severity of the epileptic seizures; while a quiet life with brain and vascular sedatives will arrest the attacks in many cases and prove beneficial in others. And in addition to this, whenever an epileptic dies in convulsions the brain shows the effects of acute congestion. This corresponds with the opinion handed down by Hippocrates, and confirmed by competent authorities ever since, that congestion of the brain is the cause of the recurring attacks of epilepsy.

Dr. Van Gieson, in studying the interparoxysmal periods of epilepsy, has discovered a fine tremor, imperceptible to palpation, but the tracings of which can be easily perceived by means of accurate mechanical appliances. This tremor sometimes begins two or three days before, and gradually increases in intensity up to the epileptic seizure. He has often been able to predict with accuracy a return of the convulsions from the tracings of the tremor. No doubt this tremor is produced by the acute congestion of the brain that precedes and causes the attack. Often the friends of a patient can see the premonition of an approaching attack by the flushing of the face and head with the increased color that precedes it. Many patients have a jerking and twitching of the limbs while sleeping, somewhat similar to Van Gieson's tremor, only more pronounced, a true nocturnal chorea. This nocturnal chorea is always worse just before and during the time of convulsions. These flushings and the increased nocturnal chorea are the effects of the acute congestion of the brain.

Clinical experience has many times demonstrated the fact that remedial measures that will control the nocturnal chorea, restrain the reddening of the face and head, and check the congestion of the brain, will at the same time arrest and control the threatened epileptic convulsions. The demand of the impaired cells for more and better nourishment cause an increased blood supply. Then it must be remembered that deficient nutrition is the ordinary cause of local congestion; and that the impaired nutrition of the rain cells in epilepsy supplies the efficient cause for this congestion of the brain. Owing to the exhaustion of the brain cells from impaired or perverted nutrition they are oversensitive and easily excited by this slight congestion into perverted action, and herein lies the essential feature of every epileptic seizure; congestion of the

affected regions of the brain, brain cells with perverted nutrition unduly stimulated, causing perverted functional activity.

The dreadful convulsions are but the outward manifestations of the tornadoes that are sweeping over the brain centers within. If these are the external expressions, one can easily imagine what the internal commotion must be.

A paper will appear soon giving the medical management and showing the beneficial effects of the practical application of the foregoing theories.

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ACUTE POSTOPERATIVE JAUNDICE.

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Many theories have been put forward to explain the pathological physiology of icterus, but I shall be brief in regard to them, although there are certain acquired facts which I should like to consider rapidly. Let us take the most simple case, that is to say retention jaundice. If in the dog the choledochus is tied, in about two hours the blood and lymph coming from the liver will be tinted yellow. There is evidently here an intrahepatic absorption of the bile, thus proving a law established long ago by Bernard, that the glands are or may become organs of absorption quite as much as of secretion. In cases of icterus by retention in order that there may be a true or bilipheic jaundice, two conditions must be realized, namely, a preservation or even an increase in the biligenic function of the hepatic cell, and secondly, an inverted secretory current of the bile with diffusion of the bile by the suprahepatic veins and lymphatics, so that it no longer passes by the natural tract.

It not infrequently occurs that in subjects presenting jaundice of a subicteric condition, the urine appears devoid of biliary pigment. Nitrous nitric acid when poured along the sides of a test-tube will give rise to a brown color but Gmelin's reaction does not take place. It was to explain conditions of this type that Gubler gave forth his ingenious theory of hemapheic jaundice. The hemoglobin arising from the destruction of the red cells becomes transformed into bile-pigment and is eliminated by the bile. Under the influence of some morbid process a too rapid destruction of the red cells takes place, and, the liver becoming impotent to transform the hemoglobin set at liberty into biliphein, the coloring matter of the blood accumulates in the serum, at the same time undergoing various changes in the circulatory current. It is to these pathological pigments which are derived from an incompletely elaborated hemoglobin, that the name of hemaphein has been applied, while the term of hemapheism is given to an accumulation in the blood serum of the above mentioned product, this condition also arising when the liver is suddenly and severely attacked in its secretory activity.

Many serious objections may be made to this theory, the first of which is that hemaphein has never been isolated from the blood-serum or the urine and probably does not exist. In samples of the so-called hemapheic urine, Tissier has shown that certain specimens if diluted, would give rise to Gmelin's reaction, and consequently these urines must contain abnormal pigments besides more complex products, such as modified pigments and urobilin and its chromogenous pigment.

Urobilin is a derivative of bilirubin, the former being derived from hemoglobin. Hayem's hepatic theory of urobilinuria explains clinically a number of cases. Urobilin is a pigment coming from a diseased liver, a product of hepatic insufficiency, and there is a constant relationship between an intense and persistent urobilinuria and atrophic or degenerative lesions of the hepatic cell. It is in the liver and not in the blood-serum that the transformation of hemoglobin into urobilin takes place, because in cases of this type the bile in the gall-bladder contains post mortem a more or less considerable quantity of urobilin, occasionally at the exclusion of every other pigment. Thus we have a diseased hepatic cell, a defective evolution of the blood-pigment which transforms into urobilin in the liver, absorption, resulting in urobilinemia, the outcome being the elimination of the pigment in the form of urobilinuria.

The reddish brown pigment, first isolated by Winter, is the most important of these as yet badly understood pigments. It is an intermediary between urobilin and bilirubin, arising from the latter by a process of reduction. Nitrous acid produces a dark brown color of the urine when the latter contains this pigment.

At the present time our knowledge of these modified pigments is most incomplete, particularly in the case of the reddish brown pigment, and nevertheless, in certain cases, the latter seems to impart a yellowish tinge to the integuments.

The classification of jaundice into four groups, as has been made by Hayem and Tissier, shows the possible multiplicity of the stages gone through in a case of icterus, and one not infrequently will find the bilipheic, hemapheic, and urobilic phases succeeding one another.

In reality, however, there is no such process as urobilic jaundice; there is only a jaundice with urobilinuria, when there is icterus with urobilic urine; the blood-serum not only contains urobilin but also normal or modified bile pigments as well.

The classification referred to is as follows: (1) *Bilipheic jaundice,* which from the commencement remains as such, with or without urobilinuria. (2) *Gubler's hemapheic jaundice,* in which the blood-serum contains biliary pigment in quite large amounts and traces of urobilin, while the urine contains urobilin associated with changed bile pigments. (3) Cases of slight jaundice where the urine only contains urobilin, while the blood-serum contains both urobilin and bile pigments. (4) Jaundice in which the blood-serum and urine contain only urobilin.

Now the question is: In other cases can there be a jaundice of hematic origin without any intrahepatic absorption of the pigment products; in other words, is there such a process as hematolytic jaundice? In reply to this I would quote Chauffard. "These forms of toxic icterus, hematogenic in appearance, are so in reality and it may be said that jaundice is the morbid function of the hepatic cell, just as biligenia is its normal function." And, consequently, the conclusion may be drawn that jaundice is merely symptomatic of intrahepatic absorption of normal or modified bile pigment. This absorption depends on an inverted secretory current of the bile, while the pressure becoming increased more in the biliary tract than in the lymphatics, they are eliminated by the blood. In all cases where there is an evident mechanical obstruction, retention of bile is manifest, but in order to explain the

experimental toxic jaundice, as well as the several types met with in man, the very special appearance of the bile as pointed out by Stadelmann should be considered. The bile is thick and being overcharged with pigment cannot easily make its way along the choledochus; it stagnates, producing a hypertension in the biliary tract and finally becomes absorbed. The similarity noted in experiments between the changes in the bile and the occurrence of jaundice, would seem to prove the correctness of this theory.

In the cases that are reported at the end of this paper where jaundice occurred after operation, it is to be noted that none of the interferences were on either the liver or the biliary tract. As the title of the paper indicates, I shall limit my remarks to cases of postoperative jaundice arising after operations on other organs. I have also considered it proper to eliminate all operative interferences on the appendix because it is well known that when jaundice does occur in appendicitis, the latter process is in itself quite capable of producing the former. I believe from my own experience that a subicteric tinge of the skin and conjunctiva is not of uncommon occurrence following removal of the appendix, and in several instances I have found it present before operation was undertaken.

Referring now to the subject proper of the paper, it may be said that some writers have thought that postoperative jaundice was due to the absorption of a large quantity of blood, such as operative or traumatic hematoma, likewise a large extravasation of blood. The explanation given for these cases is that there occurs a hematolysis, and if a blood examination is made one will find that a very large amount of hemoglobin is dissolved in the blood-serum. No oxyhemoglobin will be found in the urine, because the renal filter will not allow this pigment to pass through it. The kidney reduces the homoglobin into bodies of the same series and less oxydized, which will then pass into the urine in the form of urochrome, uroseine, urohematic pigments, etc. Speaking of the jaundice of newly born infants, Leuret says that at the time the integuments are yellow, the blood-serum will be found to have an orange color, and by the spectroscope the spectrum of oxyhemoglobin will still be found. This is, however, of short duration and the yellow color will soon become marked and the color of the blood-serum will be such that one might be led to believe that bile pigments are present therein. However, Gmelin's reaction will conclusively show that there is no bilirubin, so that one is obliged to admit that the body present is composed of the yellow pigments of the blood. Some writers believe that these are modified bile pigments, but the question is how they get there and what part the bile may play in the blood changes.

It would seem preferable to admit that the hemoglobin gives rise to yellow pigments when, by contact with the tissues, it becomes reduced. The yellow pigments are as yet undetermined, but are not bilirubin; they impregnate the tissues and give rise to the jaundice. At this stage of the jaundice, the urine is highly colored and will be found to contain pigments derived from hemoglobin, but not so highly oxydized as the former. The organism quickly gets rid of these foreign bodies, the urine becomes normal although the integuments remain yellow on account of the impregnation of the deep layers of the skin.

This theory which has been emitted by Leuret to explain the jaundice of the newborn, is, in the case we are considering, susceptible to very serious objections. In the first place, I would point out that the case of slight hematoma recorded by Santucci is the only instance of acute icterus following hematoma that I know of, and it would seem that if the above theory were correct, acute jaundice should be frequently observed during the period of resolution in cases of large collections of blood following fractures and severe contusions. In the above mentioned case it should be pointed out that the jaundice occurred a day or two after the operation, before the hematoma was cleaned out, consequently its appearance was too rapid for blood absorption to have been the cause. It might have been more logical to consider the hematoma as secondary to the jaundice, as under these circumstances the blood would have less tendency to coagulate and consequently the small vessels which were not ligated could have bled.

Some writers have thought that acute postoperative jaundice was due to a reflex spasm of the gall-bladder of peritoneal origin. It is certain that such an explanation has much in its favor. The parietal peritoneum is extremely sensitive to pain, as all those who have performed abdominal operations with local anesthesia are aware, and it cannot be denied that irritation of the serosa might easily provoke spasm when during the operation the parietal peritoneum is handled.

In reference to this subject, Santucci has recorded the case of an elderly man, operated on for inguinal hernia. During the tying off of the sac the patient experienced a very sharp pain, and in the evening there was a tendency to vomiting, while the next day the patient several times vomited a liquid containing biliary products. It was not believed that this was due to paralysis of the intestine because the latter had not been manipulated during operation, and also because the bowels had moved and there was no distention. As the vomiting soon stopped without any treatment it was considered reflex.

Since the writings of Lennander we know that the visceral peritoneum, including that of the mesentery, has no feeling for heat or cold, and the same applies to the mucosa of the intestine and gall-bladder. On the other hand, the parietal peritoneum is particularly sensitive to contact, but it does not react to heat. This sensitiveness is due to the lumbar and sacral nerves which pass in the subserous tissue. Now, since pain is done away with by general narcosis, consequently the reflex must start from the nervous filaments of the parietal peritoneum, as pain is out of the question. At any rate it may be questioned why this hypothetical spasm of the biliary ducts does not take place oftener, when one considers the enormous number of abdominal operations performed.

If acute postoperative jaundice is to be imputed to spasm of the biliary tract, resulting from a peritoneal reflex, it should arise very frequently in abdominal operations done under local anesthesia, much more frequently than those who are submitted to the influence of an anesthesic. Then, again, how can one explain the occurrence of this complication after circumcision or resection of the jaw? A spasm of the biliary ducts produced by a simple irritation of the parietal peritoneum cannot be, in the majority of cases, a necessary factor in the production of acute postoperative jaundice, and must merely be considered as a secondary cause.

A certain number of writers have recorded cases of serious jaundice occurring after operations done under chloroform. Wells, Ochsner and Bayard Holmes believe that chloroform is a cause, while W. W. Keen is inclined to attribute this jaundice to an infection or to the action of the anesthetic. Bandler, Cohn, Marten, and Bastianelli also incriminate chloroform. Ballin has collected several cases of serious postoperative jaundice. One or two days after the operation a slight icterus is noted, accompanied by vomiting which may be bloody; the icterus persists, while fever, albuminuria, vomiting, and delirium or coma occur. Death is the usual outcome in these serious cases because it has been shown that 90 per cent. of the patients die. Many other writers, the list of whose names would be too long to mention, consider these serious cases as resulting from an intoxication by the anesthetic, especially chloroform. Lindh has examined 15,052 narcoses and found only ten cases of post-operative jaundice. It occurred nine times out of 11,284 anesthesias with chloroform, in other words, 0.079 per cent.; with ether-chloroform narcosis there was one instance out of 2,122 anesthesias, or 0.047 per cent.; in 1,297 ether narcoses none occurred; while out of 362 narcoses with ethyl bromide or ethyl bromide and chloroform, there were five cases. Out of 40,000 narcoses at the Kharkov Hospital, Grube did not observe a single instance, while in 1902, Delbet stated that the combination of ethyl bromide and chloroform was particularly toxic for the hepatic cell. Years ago I was in the habit of having my patients anesthetized with the above mentioned combination and of over 200 cases I never met with this complication. Richelot also states that he has never met with it under these circumstances.

I would here like briefly to refer to the experiments of Nothnagel on fatty degeneration produced by intoxication from ether and chloroform. In speaking of ether he relates a series of experiments. In the first, a rabbit was kept under the influence of ether for three hours, although narcosis was not complete. After the animal had recovered, the urine drawn from the bladder gave a very marked reaction of bile-pigment. Another rabbit was kept under an incomplete narcosis for two hours and then suddenly died. The urine obtained from the bladder gave a bile-pigment reaction, while microscopical examination of the liver showed that it was filled with drops of fat. In another experiment ether was directly injected into the stomach of a rabbit, and in this case the hepatic cells were completely loaded with drops of fat, so much so that their nucleus was hidden. Five experiments were carried out with chloroform, either injected into the stomach or subcutaneously. One rabbit received an injection of 4 cc. in the stomach and died about seven hours later. The urine did not show any reaction of bile but the liver was white in color and at certain spots the acini were cloudy and opaque. The cells were filled with rather large, fat globules.

We may consequently conclude that very often the urine gives a positive reaction of bile-pigment and that in all the experiments where death resulted to the animals a fatty degeneration of the various viscera was found, more intense when ether or chloroform were directly introduced into the stomach. The heart and liver were particularly involved and it would seem from this that both these anesthetics are toxic for the liver. Although ether narcosis would appear less prone to produce acute postoperative icterus, it will be seen that both my patients had ether and nothing else, and that in both, as the operations were short, the amount of ether given was small. It may be, however, that the rapidity with which the blood cells are destroyed during etherization that the usual appearance of polycholia occurring at the same time with the rapid liberation of hemoglobin which is absorbed by the liver, may considerably increase the quantity of pigment. There is one fact, however, which seems positive and that is that ether is far less toxic for the liver than chloroform, because occasionally one finds very small traces of urobilin or bile-pigment in urine after narcosis with chloroform, although the patients may not present jaundice. Hofmeier has stated that the use of chloroform during labor favors the occurrence of true jaundice in the infant, while on the other hand Vidal, Zeller, and Kappeler in numerous experiments both on man and animals were never able to obtain a trace of pigment, while urobilin was met with in only two instances by Vidal. From this is would seem that the toxic action of chloroform and ether cannot be denied as a cause of acute postoperative jaundice, but usually this toxic influence makes itself evident when the hepatic cell is in a pathological condition, such as arises from the use of alcohol or in lead poisoning. It should also not be forgotten that certain subjects possess a particular susceptibility to intoxications, especially of the liver.

Santucci has examined the direct action of chloroform on the mucosa of the digestive tract, and he mentions instances of chloroform narcosis where the patients had only inhaled a very small amount of the drug, who during the days following presented an aversion for food, nausea and coated tongue. He states, however, that the preoperative care of the intestinal tract had been carefully gone through with. However, it would seem that the serious form of acute post-operative jaundice is almost always due to the toxic action of chloroform on the hepatic cell, whose normal condition is below par.

I would now briefly refer to the question of emotion as a factor of acute postoperative jaundice. A severe moral shock will often disturb the functions of the biliary system so that jaundice occurs, and no matter how this icterus may be explained, whether by spasm of the choledochus or by a centrifugal reflex, it is nevertheless practically certain that instances of emotional jaundice do occur. The jaundice occurs without elevation of the temperature and no disturbance in the general condition other than that arising from absorption of the bile and is of short duration.

It is quite true that instances of this form of jaundice have been noted in cases where patients have requested operation, and it is possible that the mental suffering was the cause, but on the other hand this type of jaundice is exceedingly rare, and patients as a rule do not present it because their apprehension of the operation does not manifest its effect until a day or two after the interference has taken place.

The existence of acute postoperative jaundice cannot be denied merely from the fact that few cases are encountered, and in conclusion I would say that it is probably due to several causes. There may be occasionally a spasm of the biliary tract produced by manipulation of the parietal peritoneum, while in other cases it is due to an exo-

tional reflex. Icterus gravis is probably caused by the toxic action of the anesthetic, particularly chloroform, which attacks the hepatic cell already pathologically altered, and for this reason, before undertaking any surgical interference, the surgeon should look into the functional condition of the liver of his patients and resort to surgery only in cases of extreme urgency when the liver gives evidence of disease.

Case I.—Male, thirty-seven years of age, slightly alcoholic, presenting a left inguinal hernia. At the operation the sac contained only omentum, a portion of which was resected. The operation was easy and rapid. Ether narcosis. On the next day the patient complained of pain in the region of the liver and presented a mild degree of jaundice. He was placed on a milk diet, the bowels were freely opened with salines and at the end of nine days he had completely recovered. The wound healed by first intention so that the cutaneous sutures could be removed on the fifth day and therefore the case cannot be considered one of a mild infection, because the temperature did not rise and the pulse remained at from 72 to 80 throughout.

Case II.—Female, forty-nine years of age, mother of three children, had complained of pain in the right hypochondrium which occasionally occurred in intense paroxysms. For the last year she has noticed a tumor on the right which appeared to be movable. There was no disturbance of the micturition. On examination nothing could be found abnormal in the thorax. By palpation, a tumor, the size of a grapefruit, could be found under the right costal border its surface was smooth, somewhat painful on pressure and it could be moved downward almost to the right iliac fossa. Diagnosis: Ren mobilis dexter. Under ether narcosis nephropexy was performed according to Ochsner's technique. Upon the following day symptoms of peritoneal reaction arose, followed by vomiting and afterwards by a very intense jaundice. A positive reaction of bile-pigment was found in the urine. By the end of a week the jaundice had disappeared and she recovered without any further complications. In this case also the operation was of short duration, twenty-five minutes, and entirely extraperitoneal. The wound healed perfectly, presenting absolutely no reaction and the skin sutures were removed on the sixth day. Consequently both infection and peritoneal irritation must be eliminated as the cause of the jaundice and the anesthetic incriminated.

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A NOTE ON POISONING BY EGG.*

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My attention was first called to poisoning by eggs some eleven years ago, when the case forming the basis of this paper came under my observation. Since then I have encountered several cases, and, from time to time, various allusions to the subject, in the course of my reading. This material I bring together in the brief note which I present this evening.

My patient, now a girl of eleven years, first showed her inability to take eggs, when, at the age of twelve months, the raw yolk of an egg was added to the bottle (a not uncommon practice with me at this age). This was followed in about one and one-half hours by pallor, nausea, cyanosis, contracted pupils, severe vomiting, prostration, muscular weakness, and weakened pulse and cardiac action. These symptoms lasted about five or six hours, when the vomiting ceased, and the child slowly rallied. Diarrhea then supervened, and slight fever, forty-eight hours elapsing before the infant had regained its usual health. A few weeks later a similar, but less severe, train of symptoms followed the admixture of the whole egg with the child's milk. The white alone of one egg was then added to the bottle, but caused no disturbance. On another occasion, I gave the yolk alone, but slightly cooked, and again the child was made ill; although again to a less degree than at first. This peculiarity, or idiosyncrasy, if you choose so to call it, was found to exist whether city or store eggs, or when eggs, which I had every reason to believe were fairly fresh, were eaten by the patient. After the fifth year attempts were made to educate the child's digestive organs to tolerate and convert egg-yolk, by feeding it to the child in small quantities at a time—to render the child immune, as it were. By this means the idiosyncrasy, or susceptibility, was gradually overcome, so that now (at 11 years) the little girl can eat eggs, both yolk and white, without difficulty, unless continued too long, or in too great quantity, when the familiar train of symptoms, which we designate as biliousness, will supervene.

Idiosyncrasy as regards eggs is not so very uncommon. People constantly assert that eggs make them bilious, and while in some this is often imaginary, in others the inability actually exists. This is notably true of infants and young children. Anyone who has had much experience in the feeding of these little patients must have observed that not only many infants and young children digest eggs with difficulty, especially when first eaten, but also that many more are made ill if this particular food is partaken of too freely, or, in the case of older children, if the egg diet is kept up too continuously. This inability of young children to digest eggs is probably in line with the well-recognized fact that the infant's stomach, or digestive juices, must be taught to digest most dietary articles other than the maternal milk. Cows' milk, for instance, is a veritable poison to some infants, while many a newly-born requires some practice and education before it can thoroughly digest even its own mother's milk.

Instances of egg poisoning appear from time to time in periodical literature, and the subject is referred to in some, but, by no means all, works on dietetics. Thus two cases are reported in the *Journal of the American Medical Association* for the current year. Mr. Jonathan Hutchinson, in his lectures on "The Pedigree of Disease" (London, 1884) refers to several cases of this nature, in some of which the symptoms were so violent as to excite suspicion that poison had been given. In the *British Medical Journal* for March 11, 1899, may be found the interesting history of a case, in which the very smallest quantity of egg caused the most violent symptoms, resembling those of an irritant poison. In this patient even the placing of a small portion of egg-albumin on the skin was followed by an abundant urticarial eruption. In a case reported by Anderson (*Journal of the American*

*Read at a meeting of the Atlantic County Medical Society, December 18, 1908.

Medical Association, March 7, 1908) one-half teaspoonful of froth of egg-water produced, at once, in a boy of thirty months, vomiting, cyanosis, rapid pulse and coma; and, on another occasion, a coddled egg caused the same symptoms, and, in addition, a profuse urticaria. In the issue, two weeks later, of the same journal (March 21, 1908), Vaughan writes of a young man of nineteen years, in whom gastrointestinal symptoms, with urticaria and a scarlatinous erythema, were induced by eggs. This patient could not tolerate eggs in any form or quantity; even a cake made without egg would produce symptoms, if the knife used in cutting it had previously cut a cake containing eggs. Clemens (*Medical News,* April 16, 1904) has also recorded the violent poisoning of a child, on four different occasions, from albumin water.

Individual susceptibility, as regards eggs, is extremely variable; in some persons eggs always act as poisons, while in others the toxic influence may be marked at one time, and at another much diminished or entirely wanting, especially when the subject is in sound physical condition. The susceptibility may be observed in eggs of every degree of freshness, and in some cases only with the eggs of certain birds (J. Hutchinson). Changes in eggs may also be brought about by methods of cooking; for while some persons manifest their susceptibility only when the egg is raw, others are poisoned when it is cooked or prepared in some unusual and unaccustomed manner.

In my patient the poisonous symptoms were produced by the yolk, but in most of the reported cases the white of the egg appears to have been the offending element. The symptoms of egg poisoning differ greatly in degree; in some cases only nausea, vomiting, and headache occur; in others the most violent symptoms, suggestive of irritant poisoning, are observed; again, in certain individuals eggs, especially if their use is long continued, give rise to the symptom-group which we call biliousness which, after all, is but a form of autointoxication, due, possibly, to the presence of some alkaloid in the blood. As the symptoms of egg poisoning are essentially those of so-called ptomain poisoning, we may with reason assume that they are due to the action of putrefactive alkaloids, such as are known to develop in cheese, milk, fish, shell-fish, and decomposed meats, and not to some occult or mysterious influence, which, as a cloak for our ignorance, we denominate idiosyncrasy.

It is true that the eggs giving rise to toxic phenomena are, in most instances, apparently fresh when eaten; but when we recall that the porous shell of the egg will admit the microorganisms that cause the egg to rot, as well as various strong odors, it is easy to comprehend that an egg may appear fresh, and yet contain bacteria that in susceptible persons, and in certain conditions of digestion, may produce changes which may cause toxic symptoms.

One would be inclined to think that the yolk, because of its large fat content (32 per cent.), would be more apt to derange digestion; but, as already stated, it is usually the white of the egg that causes trouble. This may simply be for the reason, as Robert Hutchinson* suggests, in speaking of idiocyncrasy in respect to eggs, that the digestive juices of some persons apparently act in such a way as to produce poisons when eggs are introduced into the stomach. In other cases, as pointed out by the same writer, sulphuretted hydrogen may be produced during the process of digestion. The sulphur of the egg is contained almost entirely in the white, and when eggs rot, and in certain cases during digestion, alkaline sulphides are developed, and these being acted upon by phosphoric acid produced from the yolk, sulphuretted hydrogen is liberated. But the yolk alone may be responsible for the symptoms, as this portion of the egg contains lecithin in considerable quantity, from which choline, one of the putrefactive alkaloids, may be readily formed during digestion (Lauder Brunton) or from the presence of bacteria, which may have entered the egg before its ingestion. Whatever value these theories may have, one fact is significant, namely, that eggs, milk, fish, shell-fish, etc., the dietary articles with which individual susceptibility is most frequently associated, are the very ones susceptible to changes from overkeeping.

Finally, as stated above, I think the conclusion is warranted that the majority of instances of egg poisoning are really causes of so-called ptomain poisoning, *i.e.* they are due to toxic substances developed in apparently fresh eggs by the processes of digestion, or to unrecognizable changes—unrecognizable, that is, to the ordinary senses—in the eggs themselves. In this connection, we should remember, when we speak of poisoning, in certain individuals, from such an universal and valuable article of food as the common egg, as an idiosyncrasy, that this word is intended to denote our ignorance of causes, though in no degree to express disbelief in their existence (Jonathan Hutchinson).

As to the treatment of egg poisoning, there is little to be said; it must be conducted on general principles. I would only make the suggestion that, as the symptoms of ptomaïn poisoning are in many cases strikingly similar to those produced by muscarine (the active principle of the poisonous mushroom), to which atropine is a perfect physiological antidote,* the latter drug may be found useful in severe forms of egg poisoning.

*Food and the Principles of Dietetics, London, 1901.

*Sir T. Lauder Brunton, Disorders of Digestion, London, 1886.

Action of Radium on Vaccine Virus.—Samuele Sereni has made use of radium in experiments as to its factericidal action on various germs, and especially on vaccine virus. He exposed fresh vaccine virus to the emanations of radium for varying periods, and then made use of it in vaccinating children. He found that there was no effect on the action of the virus produced by the exposure to the rays, but that the pustules produced by the virus were entirely free from any septic suppuration, there was no inflammatory area, and no fever. He finds that this is an efficient method of purifying vaccine virus, but on account of the expense of radium not one that can be commonly used.—*Il Policlinico.*

Lesions of the Corda Equina without Sensory Disturbances.—A. M. Luzzatte describes two cases in which there was a lesion of the medullary roots which caused paralysis without sensory symptoms. In one a traumatic lesion involved the epiconus; there was pain in girdle form along the nerve trunks, and paralysis of the tibials and peronei without any zone of anesthesia. It resulted in a cure. The traumatism may have injured the anterior without the posterior roots. The other case was one of syphilitic lesion of the detrusor urinæ without disturbances of the sphincter or alteration of the vesical sensibility. Rapid recovery resulted under syphilitic treatment. Here there was a lesion of the ultimate sacral roots which enervated the detrusor by way of the hypogastric ganglion, while the sensory fibers to the bladder remained intact, coming as they do from a little higher up. The author believes that these observations speak against the theory of Muller which denied the existence of a vesical motor center in the terminal cone and places it in the sympathetic.—*La Riforma Medica.*

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SOME DRAWBACKS OF PROGRESS IN MEDICAL KNOWLEDGE.

THERE is no doubt that the marked increase in our knowledge of diseases and in the means of recognizing them by various special methods of examination has greatly increased the general efficiency of the medical profession, as compared with that of the physicians of a few decades ago. There have become apparent, however, certain disadvantages connected with such progress due to the increasing dependence upon laboratory methods of diagnosis and the correspondingly lessened care in clinical examinations and observation.

In a very entertaining paper in the *Practitioner* for February, 1909, Sir William H. Bennett discusses this aspect of the matter, taking as his text the relation of constitutional conditions to local lesions. We have recently learned so much of the causal relation of constitutional affections, such as syphilis, tuberculosis, and malignant disease, to various seemingly local manifestations that the tendency has been to attribute any such manifestations to a constitutional disease if they appeared in one who was known to be affected by the disease in question. In the words of Sir William, such individual is treated by us just as a dog with a bad name, who cannot get rid of the stigma attached to him, however perfect may have been his subsequent behavior. In one case mentioned by the author a noted surgeon made the diagnosis of a suppurative syphilitic gumma, though all the local signs were those of an infected sebaceous cyst, which the lesion proved to be on operation; the only reason for the first diagnosis was the knowledge of the fact that the patient suffered from syphilis, which knowledge obviated, in the mind of the surgeon, the necessity of a thorough local examination. In another case, that of a man whose right testicle was removed because of malignant disease, the same treatment was advised on the appearance of a swelling in the left testicle; thorough local examination, however, showed that the testicle was the seat of a syphilitic gumma, a conclusion which would have been quite evident had not the previous occurrence of a disease in the other testicle led the observers to assume the same condition to exist in the remaining organ. Again, the occurrence of a swelling in the leg after the arm of a patient had been removed for sarcoma was thought sufficient for the recommendation of a similar operation on the leg; careful examination showed that the local lesion differed in certain very important characteristics from the usual appearances of a sarcoma, and the operation was delayed on the advice of Sir William Bennett. Further developments showed that he was right, as the affection turned out to be of tuberculous nature. These instances are sufficient to exemplify the danger inherent in the tendency to trace all local affections to some already existing condition. Indeed, it is often wiser to consider such an explanation of some local lesion as the least probable one, so that consideration of other causes may be carried out with the least amount of bias.

Another point raised by the author is the danger of relying too much upon the laboratory investigations. The chief drawback of such reliance consists in the temptation to postpone even a working diagnosis from the clinical data and to await, instead, the dictum pronounced by a pathologist after an examination of the blood or of some other secretion. It is self-evident, of course, that a pathological condition found in the material sent to the laboratory may coexist very well with another pathological condition for the treatment of which the patient has presented himself, and which may be quite unrelated to the abnormalities discovered by the pathologist. Among the instances of errors occurring in this connection Bennett mentions a case in which the presence of a Widal reaction in a patient suffering from some affection of the clavicle immediately led to the diagnosis of post-typhoid osteomyelitis and to an incision over the lesion. The fact, however, that an abscess was found on the surface of the clavicle and not in its substance, and that the wound did not heal until potassium iodide was given, proved that a syphilitic lesion was the cause of the symptoms.

These instances are sufficient to illustrate the text of Sir William Bennett's paper, and it is certainly evident that he exposes a real danger in the tendencies of modern medical practice which he condemns. So far as the first point considered by him is concerned, the individual practitioner must, of course, be the man to work reforms in that direction. The other point, however, is of greater importance, and one can only repeat the words of the author in insisting upon the desirability of bringing the clinical man and the laboratory expert together at the bedside of the patient. The expert may then make any examinations he may consider proper, but the mere fact that he has seen the clinical condition of the patient should save him from reporting pathological findings without an attempt to bring them in relation with the clinical data. In such a case the clinical man will be saved many a mistaken act performed on the strength of a laboratory finding that is simply an accompaniment of the condition of the patient and not at all an etiological factor in the case.

TUBERCULOSIS IN CHILDREN.

OF all the subjects connected with disease and medicine none is of greater popular interest than tuberculosis. The reasons for this are not far to seek, for, owing to its widespread prevalence, tuberculosis has been discussed almost as frequently in

lay as in medical journals, and the man in the street has a fair knowledge of the malady, not only from the practical, but also from the theoretical standpoint. That this is the case has been of great advantage in so far as efforts to check the disease have been concerned. The intelligent interest manifested by the masses has greatly advanced the active crusade in all parts of the world against tuberculosis. Sanatoriums have been erected, various modes of treatment have been devised, including home treatment of the poor, and last, but not least, the milk and food supplies have undergone or are undergoing a thorough supervision. The consequences of all this activity have been that tuberculosis has greatly decreased, and the time, according to some optimists, is in sight when consumption will be extinct.

One of the most important of the subjects of study in this relation is tuberculosis in children, and this has been perhaps more exhaustively cultivated in Great Britain than in any other country; nowhere, indeed, has a more complete work on this phase of the tuberculosis question been published than the excellent treatise edited by Kelynack. On February 16 there was opened in London a conference on tuberculosis, the first portion of which was devoted to a consideration of tuberculosis in children. The statement was made by the chairman that 90 per cent. of crippled children owed their maladies to this disease. Dr. Shuttleworth stated that out of 1,056 children attending the London schools for defective children 480 were suffering from tuberculosis, naturally most frequently from the disease affecting the joints.

At the International Congress on Tuberculosis, held in Washington last autumn, Dr. Theodore Shennan, senior pathologist to the Royal Infirmary, Edinburgh, read a paper on tuberculosis in children, especially with reference to tuberculosis of lymphatic glands, and its importance in the invasion and dissemination of the disease. Dr. Shennan presented a series of tables which epitomized the results of an investigation of the post-mortem records of the Royal Edinburgh Hospital for Sick Children in the case of children dying from tuberculosis while inpatients of that hospital. His summary was as follows: (1) 1,085 patients came under review, of whom 41.3 per cent. died from tuberculosis. These cases were examined in two series, the first containing 105 and the second containing 308 cases. (2) The ages of the patients varied from three months to 13 years, approximately 68 per cent. being under 5 years of age. (3) The lymphatic glands were tuberculous in 97 cases (92.4 per cent.) in the first series and in 243 cases (78.8 per cent.) in the second series. The mediastinal glands were more frequently affected than the abdominal glands, and dissemination took place more frequently, apparently, from the former group. (4) Tuberculosis of the mediastinal glands was commonly unaccompanied by primary tuberculosis of the lungs, but was frequently accompanied by recent tuberculosis of these organs, in many cases evidently secondary to the gland tuberculosis. (5) In nearly half of the cases of tabes mesenterica there was no ulceration of the intestines, and in one-third of the cases there was no excavation of the lungs, although in some of them the lungs showed early manifestations of tuberculosis. In a number of cases excavation of the lungs was not followed by ulceration of the intestines, although in about half of such cases tabes mesenterica had resulted, the excavation being of some standing. (6) Primary ulceration of the intestines, in absence of any previous excavation of the lungs, was frequently found. It was usually accompanied by caseation of lymphatic glands, mediastinal or abdominal, or both simultaneously. In a large proportion of these cases the immediate cause of death was tuberculous meningitis. (7) Death was due to tuberculous meningitis in 44.5 per cent. of the cases. Apparently, the dissemination had taken place in the majority of cases from caseous lymphatic glands, and more often from the mediastinal than from the abdominal groups. In 24 cases of tuberculous meningitis caseous nodules were found in some part of the encephalon, but these had not given rise to the meningeal condition in every instance.

Dr. Shennan mentioned that his tables dealt with children of the poorer classes, and that it would be interesting to know in what respects, if at all, statistics dealing in a similar manner with children of the well-to-do would compare with those collected by him. In addition, he pointed out that in view of the wide divergencies which appear in statistics emanating from different countries, the only rational conclusion to be arrived at is that these differences depend not on the manner of treating the material but on the material itself. Statistics, therefore, representing the conditions prevailing in any one country should not be considered as applicable to the conditions prevailing in any other country, seeing that the circumstances and environment, hygienic and social, under which the inhabitants of that country live may differ widely in many important respects.

It is difficult from one series of tables to draw any conclusions of a definite nature in regard to the connection between tuberculosis of the lymphatic glands and the invasion and dissemination of the disease. That, however, the lymphatic glands of children are frequently attacked by tuberculosis is proved not only by the tables of Dr. Shennan, but by statistics collected from various sources. While post-mortem statistics cannot be too closely relied upon, the tables of Dr. Shennan would seem to show that the lymphatic glands play an important part in the invasion and dissemination of tuberculosis.

Acute Obliterating Bronchiolitis.

Chronic fibroid changes in the lungs that usually start in the interstitial tissues and result in the production of airless firm structure in the place of the spongy normal lung produce a condition well known to both clinicians and pathologists; the characteristic of the disease is its essentially chronic character, the cirrhotic changes occurring gradually in the course of an unresolved fibrinous pneumonia or after a bronchopneumonia. In the *Berliner klinische Wochenschrift* for January 4, 1908,

Fraenkel writes of an acute form of cirrhosis of the lung which is characterized by the involvement of the smallest bronchioles. The whole system of the small bronchioles that are free from all cartilaginous material in their walls was involved in the cases observed by him, and the course of the disease was uniform enough to justify its classification as a separate clinical entity. The symptoms are very similar to those of acute miliary tuberculosis—dyspnea, cyanosis, and rapid loss of strength being present in both diseases. The physical signs, too, are quite deceptive, frank dullness being absent, while impaired resonance, slight changes in the voice and breathing, and numerous fine râles are present in as marked a fashion as in an acute tuberculous process. The etiology, of course, is different and the taking of a careful history helps very much in arriving at a correct diagnosis. The disease described by Fraenkel depends upon the injury caused by the inhalation of some irritating or toxic material and the history of an occupation which exposes the patient to the possibility of such an accident is of the greatest value in correct interpretation of the symptoms. Pathologically the firm lung tissue bears a close resemblance in its general appearance to miliary tuberculosis, being studded by minute whitish or grayish points. Closer examination proves, however, that these points are not miliary tubercles but are due to the occlusion of the bronchioles by young granulation and connective tissue. The development of the disease usually occupies two to three weeks and it results in great embarrassment of breathing, that often ends with the death of the patient. Prophylaxis of the disease depends, of course, upon hygienic measures for the protection of workmen employed in trades where inhalation of very irritating material can occur. Treatment must be symptomatic in character, oxygen inhalations and stimulation being depended upon to keep up the processes of respiratory metabolism long enough for the adjustment of the organism to the greatly diminished lung area that remains after the inflammation has subsided. The disease in question is probably frequently unrecognized or is mistaken for the more chronic forms of induration of the lungs or for acute miliary tuberculosis; Fraenkel's publication should stimulate clinicians and pathologists to look for instances of the affection in the hospital wards and at autopsies. The results might prove to be of considerable interest.

Kuhn's Mask in the Treatment of Tuberculosis.

Stimulated by the favorable results obtained by Bier and his followers in treating tuberculous disease of the bones and joints by means of artificial hyperemia, Kuhn has constructed a mask to be worn over the nose and mouth with the aim of producing a hyperemic condition in the pulmonary tissues. This was described by Willy Meyer in the Medical Record of November 9, 1907, but the writer's experience had not been sufficient at that early period in the history of the invention to enable him to cite a series of illustrative cases. What use he had made of the mask, however, inspired him with faith in its therapeutic efficacy. Since that time a number of observers have reported very good results following the use of this appliance in the treatment of pulmonary tuberculosis, and in the *Berliner klinische Wochenschrift* for February 1, 1909, Dr. Gudzent speaks of a series of cases of anemia and of chlorosis as well as of tuberculosis which were treated by Kuhn's method. The patients with chlorosis and anemia were selected in order to investigate the validity of Kuhn's claims that increased blood formation and improvement in the general constitutional condition are as much a part of the effect produced by the use of his mask as the healing of tuberculous foci in the lungs. Dr. Gudzent's reports corroborate the claims made by Kuhn: in every case treated by him there was a noticeable increase in the weight of the patients, accompanied by a rise in the hemoglobin content of the blood and in the number of red blood cells. In addition, the subjective effects of the mask were very good, the patients declaring that their appetite, sleep, and general wellbeing were very favorably affected. These experiences were followed by a similar series of cases of pulmonary tuberculosis and the results obtained were quite as good, several patients being benefited so much that no symptoms of the disease remained, while in all others there was a marked improvement in the general welfare and in the local pulmonary condition. It is not improbable that these favorable results might be increased by the combined use of Kuhn's mask and of the creosote inhalations advocated by Beverley Robinson.

Typhoid Fever Without Intestinal Lesions.

It is somewhat difficult to conceive of typhoid fever without the intestinal lesions that have so long been considered typical of the disease. Nevertheless there is a certain number of cases, shown to be undoubtedly due to the bacillus of Eberth, in which the typical ulcerations of Peyer's patches are not found at autopsy. These cases are shown to be of true typhoid nature by the positive Widal reaction, the finding of the bacillus in the blood and in cultures made from the heart's blood and pulmonary juice, as well as by inoculation experiments in animals. Two such cases are detailed by E. Sacquépée and F. Chevral in the *Progrès Médical* for February 6, 1909. These cases are infrequent. In them there is a predominance of the signs of a severe infection, prostration and loss of strength, and a remarkably rapid evolution. While the intestine is intact the mesenteric glands are altered, swollen, and diffluent, and a pure culture of the bacillus of Eberth can be obtained from them. Whether this condition is due to a special virulence of the germs or a receptivity of the system is not known. It occurs by preference in children, who do not react to typhoid infection in the same manner as adults. The intestines of infants are less predisposed to ulceration than the adult intestines. The beginning of the disease is insidious and the triad of symptoms—headache, insomnia, and gastrointestinal disturbance—is present. There are stupor, enlarged spleen, rose spots, a typical typhoid temperature curve, and albumin in the urine. Meteorism and severe diarrhea are present. Complications involving the meninges, icterus, hematuria, joint complications, lung affections, and asphyxia are frequent, showing that the severity of the infection has no relation to the intestinal lesions, and indeed that the form here considered, in which no ulceration of Peyer's patches is present, may be of more than average gravity.

News of the Week.

Andrew J. McCosh Memorial.—The committee having in charge the collection of a fund to erect a memorial to the late Dr. Andrew J. McCosh reports that to February 12 the sum of $93,362.60 had been received, while pledges of future payments bring the total to $100,157.60. The committee fears that many people have been deterred from giving to the memorial because they thought that only large contributions would be acceptable. This is a misunderstanding and entirely contrary to the spirit of the undertaking. Any gift, no matter how small or how large, will be most gratefully received. The greatest tribute to Dr. McCosh has been the many small sums sent in, often accompanied with letters showing a keen personal sorrow and a loss that can never be replaced. The decision to remove the Presbyterian Hospital to the new site recommended by Dr. McCosh in his lifetime greatly increases the opportunity and scope of the memorial, and contributions are asked from all who are interested in keeping alive the life and work of one whose skill was surpassed only by his tenderness of heart for the suffering and afflicted.

Diseases of Occupations.—Gov. Charles S. Deneen of Illinois recently announced the appointment of the Occupational Disease Commission authorized by the last General Assembly to investigate conditions of different occupations with relation to the prevention of disease. Those named on the Commission are Dr. George W. Webster, President of the State Board of Health; Dr. J. A. Egan, Secretary of the State Board of Health; Mr. David Ross, Secretary of the Bureau of Labor Statistics; Mr. Edgar T. Davies, Chief Factory Inspector; Mr. James Simpson, of Marshall Field & Co.; Dr. Ludwig Hektoen, Chicago; Dr. Alice Hamilton, University of Chicago; Dr. Charles R. Henderson, University of Chicago, and Dr. Arnold C. Klebs, Chicago.

Medical Commission to Pass on Insane.—A change in the established custom has been brought about through the plea of the Illinois State Board of Charities and other agencies in an effort to remove from the general public its medieval superstition that insanity is a disgrace and to impress upon the legal authorities as well as the general public that insane patients are sick. The decision of Judge L. Rinaker of Chicago, after a conference with representatives of the State Board of Charities and eminent medical men, to give the medical commission plan a thorough trial is regarded by experts as an important advance in the modern treatment of insanity as a disease, which, like every other disease, it is stated, should be attacked with vigor in its incipient stage, before the mental or nervous storm bursts, and perhaps causes irreparable havoc. In addition to the members and representatives of the State Board, there were present at this conference Drs. Hugh T. Patrick, Harold N. Moyer, Daniel R. Brower, Archibald Church, and Sydney Kuh. Judge Rinaker asked for the cooperation of these physicians, and they agreed to submit to him a list of competent physicians from whom he can make appointments as need arises.

Board of Health Changes.—The Board of Estimate of New York recently voted to create the post of Sanitary Superintendent of the Department of Health at a salary of $7,000 a year. Dr. Walter Bensel, who has been assistant sanitary superintendent for Manhattan, will be advanced to the new position. Following closely upon the protest of the Kings County Medical Society against the withdrawal of the Assistant Sanitary Superintendent from Brooklyn, the Board of Health has passed an order restoring the office. Dr. Alonzo Blauvelt has been assigned to the place.

Cupola Operating Rooms.—Plans have been filed with the Building Department for remodelling the octagonal cupola of the Metropolitan Hospital on Blackwell's Island in operating theaters. There will be four of the theaters with apartments and accessories for the surgeons. Skylights will afford abundant light and ventilation. The cost of fitting the tower for its new use will be about $12,000. At the same time plans were filed for enlarging the hospital dining-rooms and kitchen.

Lodging House Hospital.—An "overnight" emergency hospital has been instituted at the new municipal lodging house in East Twenty-fifth street, New York. Heretofore persons in the house requiring medical aid have been sent to the Willard Parker or to Bellevue, and it is thought that the new arrangement may obviate unnecessary transfers.

Enlarging Flower Hospital.—The trustees of Flower Hospital have appropriated $50,000 for new wards to provide sixty additional beds to accommodate the greater number of patients brought in by the increased ambulance service. An important part of the district abandoned by the Roosevelt Hospital has been assigned to Flower Hospital. Until the new wards are ready the nurses' quarters will be used for wards, and the nurses will occupy a temporary home. The hospital has also installed an autoambulance service.

Outdoor Department for Mental Diseases.—A department has been opened at the Vanderbilt Clinic, New York, to which cases of incipient insanity or borderland conditions may be sent for examination and advice. Physicians referring patients to this department will be furnished, when desired, with diagnosis and suggestions for treatment. Clinics are held on Tuesdays and Fridays, from 2 to 4 P.M., under the direction of Dr. Frederick Peterson.

St. Lawrence State Hospital.—A free dispensary for the examination of poor and indigent persons suffering from incipient mental or nervous affections has been opened at the St. Lawrence State Hospital, Ogdensburg, N. Y. The individual treatment of such persons will not be undertaken, but their physicians will be notified of the results of the examinations, and advised regarding the medical and hygienic treatment. No fee or gratuity of any kind will be received, and no medicines will be dispensed or sold. The dispensary hours will be from 10 A.M. to 3 P.M. on Saturdays only. Attention is also called to an amendment to the law governing State hospitals, permitting the admission of voluntary patients to State hospitals upon the written application of the patient, and without the formality of certification and commitment as is necessary in the case of insane patients. Persons suffering from the effects of drug habits and alcoholism are not eligible for admission under this act as voluntary patients, but those who have become insane through the use of drugs or alcohol may still be committed upon a certificate of two physicians, as formerly.

New Tuberculosis Hospital.—The Board of Supervisors of Ontario County, New York, has appropriated fifteen thousand dollars for the erection of a hospital to care for advanced cases of tuberculosis. This is the fourth county hospital definitely started since the beginning of the State campaign a little more than a year ago.

The Metropolitan Throat Hospital.—During the year 1908 the total number of visits paid by patients at this hospital was 5,327, against 5,876 in 1907, a decrease of 549. The new applicants during that time were, however, 1,601, against 1,367 in 1907, an increase of 234. The thirty-sixth annual report of the hospital in presenting these figures calls attention to the scattering of population as a result of city improvements through which large districts have been cleared. Six blocks in the neighborhood of this hospital, for instance, have been cleared in order to develop the new system of the Pennsylvania Railroad, and some 30,000 individuals have removed, many of them to outlying districts beyond a reasonable range of the city hospitals.

Gifts to Charity.—The will of the late Mrs. Emma D. Cummings of New York bequeaths $25,000 to the pathological laboratory of St. Luke's Hospital, and $10,000 each to the Hahnemann Hospital, the Post-Graduate Hospital, the New York Eye and Ear Infirmary, and the Home for the Destitute Blind. Ten thousand dollars is also left to Rose Hawthorne Lathrop for the use of St. Rose's Free Home for Incurable Cancer, at Hawthorne, New York.

Dr. Simon Flexner was chosen president of the New York Alumni Association of Johns Hopkins University at the annual meeting and dinner held on Monday evening of this week.

New Superintendent of the New York Hospital.—A despatch from Worcester, Mass., states that Dr. Thomas Howell, Superintendent of Worcester Hospital, has resigned to become Superintendent of the New York Hospital and the Hudson Street House of Relief. Dr. Howell was elected Superintendent of the Worcester Hospital in April, 1902, after being at the Worcester Insane Asylum as First Assistant for five years. He is a native of Winona, Minn., and a graduate of Dartmouth Medical School.

Dr. Alfred Gordon of Philadelphia has been elected a member of the Société Médico-Psychologique of Paris.

Dinner to the Doctors Frauenthal.—The Board of Managers of the Hospital for Deformities and Joint Diseases of New York gave a dinner on March 6 in honor of Drs. Henry W. and Herman C. Frauenthal, surgeons in chief to the hospital. The dinner also marked the completion of the second year of the hospital's successful work.

Dr. Abraham L. Wolbarst of New York City has been appointed consulting genitourinary surgeon to the Central Islip State Hospital.

No Subway Smoking.—The Board of Health of New York on March 3 added a new section to the Sanitary Code of the city, making it a misdemeanor for any persons smoking or carrying a lighted cigar, cigarette, or pipe to enter the Subway. The new section also prohibits the smoking or carrying of lighted cigars, cigarettes, or pipes on the platforms of the stations or on the steps leading to them. The city magistrates have promised to assist in a rigid enforcement of the new rule.

The Woman's Medical School at Shanghai, China, recently awarded diplomas to six graduates. The school was founded a little more than three years ago, and during the past year there were thirty students. At the commencement exercises, each of the six graduates read an essay, two of them in English.

Plague in Ecuador.—During the month of February sixty new cases of bubonic plague were reported in Guayaquil, of which eleven were fatal. Thirty-one cases of yellow fever also were reported in that time, sixteen of which were fatal.

The American Society for the Study of Alcohol and Other Narcotics will hold a meeting in the Hotel Raleigh, Washington, D. C., March 17, 18, and 19, 1909. This society was organized in 1870 and claims to be the first medical association in the world to take up the study of alcohol and the diseases following its use from a scientific point of view. Over thirty papers will be presented for discussion at the meetings. A general invitation is extended to all persons interested. Details of the meeting and programmes can be had by addressing the secretary, Dr. T. D. Crothers, Hartford, Conn.

Association of American Medical Colleges.—The nineteenth annual meeting of this association will be held in the Academy of Medicine, New York City, March 15 and 16, 1909, beginning at 10 o'clock A.M. All those interested in medical education are cordially invited to be present and participate in the discussions. It is desired that the attendance on these meetings include not only medical educators, but educators in general, members of the State examining boards, and members of any and all organizations that have undertaken to study this subject.

Philadelphia Psychiatric Society.—This society, which was recently organized, has elected the following officers: *President*, Dr. Charles W. Burr; *Vice-Presidents*, Drs. Albert R. Moulton and William W. Richardson; *Secretary and Treasurer*, Dr. Wilfred W. Hawke; *Councilors*, Drs. William H. Hancker, John K. Mitchell, and Francis X. Dercum.

"Archives of Otology."—The editors of this journal announce that with the appearance of the number for December, 1908, which completed the thirty-seventh volume, the publication of the periodical has ceased. In making this announcement, the editors, Drs. Herman and Arnold Knapp, render their acknowledgments for the cordial support which has been extended to the *Archives of Otology* during the years of its publication by both contributors and readers.

Atropine as a Hemostatic.—Dr. William F. Waugh of Chicago writes that he is collecting material for a paper upon this subject and would be obliged to any one who would send him notes of his experience with the drug used for this purpose. Notes of cases in which the remedy has failed are especially desired.

The Late Dr. Bull.—The following minute was adopted by the medical board of the General Memorial Hospital on March 9, 1909: In the recent death of Dr. William Tillinghast Bull the General Memorial Hospital has lost not only the most distinguished member of its medical staff, but also one of the founders of the hospital and, since that time, one of the most loyal and earnest members of its Board of Managers, and the Medical Board desires

to express its deep appreciation of this double service so long and so cheerfully rendered.

It also wishes to place on record its own sense of great personal grief at the loss not merely of a distinguished colleague, but a warm personal friend who, in the midst of the urgent demands of a large practice, was ever ready to respond to the call of the humblest, and whose greatest reward was the knowledge that his efforts had brought relief to some poor sufferer.

The memory of his remarkable judgment and skill as a surgeon, of the beauty and strength of his character will endure as long as the hospital exists and will serve as a stimulus to the generations that follow him.

Obituary Notes.—Dr. James W. Moore of Easton, Pa., died suddenly, on February 28, of blood poisoning resulting from an ulcerated tooth. Dr. Moore was born in 1844, and was graduated from Lafayette College in 1864, and from the medical department of the University of Pennsylvania in 1869. Since 1872, Dr. Moore had held the professorship of mechanics and experimental philosophy at Lafayette College.

Dr. George Osborn Morgridge of Muscatine, Iowa, died at his home on February 12, aged 69 years. He was graduated from the College of Physicians and Surgeons in Keokuk, Iowa, in 1870, and from the State University of Iowa in 1875. He was a veteran of the Civil War, formerly a member of the faculty of the Kansas Medical College of Topeka, and a member of the Muscatine County Medical Society.

Dr. Eleanor Galt Simmons of Cocoanut Grove, Florida, died of tuberculosis of the brain, on February 2, aged 55 years. Dr. Simmons was graduated from the Woman's Medical College of Pennsylvania in 1879, and was a member of the American Medical Association.

Dr. Daniel Roberts Brower, Professor of Nervous and Mental Diseases at the Rush Medical College, Chicago, died at his home on March 1, aged 70 years. Dr. Brower was graduated from the medical department of the University of Georgetown in 1864, and for a time served as assistant surgeon in the United States Army. In addition to his professorship at the Rush Medical College, he had also for some years been professor of mental diseases at the Post-Graduate Medical School of Chicago. He was the author of a number of monographs and of a textbook on insanity.

Dr. Charles Brewer of Vineland, N. J., died at his home on March 4, aged 77 years. He was graduated from the medical department of the University of Maryland in 1855, after which he joined the Medical Corps of the United States Army, and served through several Indian wars. In 1861, he resigned and entered the Medical Corps of the Confederate Army, serving throughout the war. From 1891 to 1896 he was resident physician in the State prison at Trenton.

Dr. Thomas Cameron Walton, Surgeon of the United States Navy, retired, died at his home in Annapolis, Md., on March 2, aged 70 years. Dr. Walton, who was of English birth, was graduated from McGill University, Montreal, in 1860, and received the degree of M.D. from New York University in 1862. He was appointed assistant surgeon in the United States Navy in 1861, and was advanced through the various grades until his retirement in 1900 with the rank of rear-admiral. His active service covered the Civil War as well as the Spanish-American War; he was for some years medical director of the Naval Academy at Annapolis, and at one time was in charge of the laboratory at the Brooklyn Navy Yard. He was a member of the American Medical Association and of the Societé Française d'Hygiene of Paris.

Dr. Martin Hans Boyé, a scientist of wide reputation, died at his home in Coopersburg, Pa., on March 5, aged 96 years. Born in Denmark, Dr. Boyé was graduated from the University of Copenhagen in 1832, and from the Polytechnic School in 1835. In 1844 he was graduated in medicine from the University of Pennsylvania, where he continued his studies in chemistry. He was assistant geologist and chemist to the first geological survey of Pennsylvania, 1838-43; a joint discoverer of perchloric ether, the most explosive of all substances, in 1841; and the discoverer of the first process for refining cotton seed oil, in 1845. He was professor of chemistry and natural philosophy at the Central High School of Philadelphia from 1845 to 1859, when he retired from active teaching. He had written largely on scientific subjects.

Dr. William Wilbur Lunn of Houston, Tex., died on February 24, aged 62 years. Dr. Lunn was graduated from the Jefferson Medical College of Philadelphia in 1874.

Dr. James Scribner Brown of Manchester, N. H., died on February 22, of pneumonia, after a short illness, aged 37 years. He was graduated from the medical department of the University of Pennsylvania in 1896. He was a member of the American Medical Association, the Manchester Medical Society, and the Central District Medical Association of Concord.

Dr. Edward Andem Whiston of Boston, Mass., died on February 23, aged 71 years. Dr. Whiston was graduated from the Harvard Medical School, and served through the Civil War as surgeon of the First Massachusetts Infantry. Upon his return, he was for two years port physician of Boston, but later retired from practice to enter business life.

Dr. George W. Way of Portland, Me., died at his home, on February 12, of meningitis. Dr. Way was graduated from the Maine Medical School in 1882.

Dr. J. A. Creason of Jacksonville, Ky., died on February 17 of pneumonia, aged 45 years. Dr. Creason was a graduate of the Kentucky School of Medicine in Louisville, and a member of the Bourbon County Medical Society.

Correspondence.

OUR LONDON LETTER

(From Our Regular Correspondent.)

HUNTER'S DAY—LINGUAL CANCER—THE REPORT OF THE POOR LAW COMMISSION—NATIONAL CONFERENCE ON TUBERCULOSIS—LIVERPOOL TROPICAL SCHOOL; RETURN OF DR. THOMAS; RECEPTION TO DR. BOYCE—OBITUARY

London, February 17, 1909.

The Royal College of Surgeons had a gala day on Monday. As I mentioned in my letter last week, the Prince of Wales had accepted the Honorary Fellowship of the college. In accordance with the program he attended on Monday and was formally enrolled. He was accompanied by the Princess, and the royal party were received by the assembled councilors, together with the Earl of Rosebery, who is an Honorary Fellow. All Fellows wore their robes. The secretary read the minutes of the election, the president handed his diploma to the Prince, who signed the roll of

Honorary Fellows and donned the robe. The assembly then proceeded to the lecture theater to hear the Hunterian oration. Hunter's day, February 14, this year falling on Sunday, was celebrated the following Monday. The theater, as you would expect, was crowded with Fellows, members, and their guests—a large and distinguished audience. The president, Mr. Henry Morris, was the orator, so the senior vice-president, Sir Watson Cheyne, took the chair, with the Prince and Princess on his right and left. At the opening of his oration Mr. Morris said: "My first duty is to request your Royal Highness to accept the grateful and respectful thanks of this college and of the surgical profession of England, which this college represents, for the great favor you do us by honoring the memory of John Hunter, whose inheritors we are, by your presence here to-day. We shall ever remember with great pride that you, sir, have deigned to accept the diploma and to sign the roll of the Honorary Fellowship of the college and that the graciousness of this act has been deeply accentuated by its having been performed in the presence of Her Royal Highness the Princess of Wales. I will also venture to add that your Royal Highnesses' visits of sympathy and compassion, such as those made by you during the last few days to several of the London hospitals—visits which give so much gratification and delight to the patients and so much countenance and encouragement to the management and staffs—tend to qualify you, sir, for the diploma, for in the noblest spirit and best sense of the words you have been engaged in that essential part of the curriculum known as 'walking the hospitals.'" I may add that this was received with laughter and cheers, on the subsidence of which the president proceeded with the more serious duty of the oration.

John Hunter's name, he said, was not signalized by one striking discovery, but had an influence profound and far-reaching upon many sciences. His contributions to human and comparative anatomy, to the natural history of plants and animals, to geology and paleontology were of such value that through his labors progress was made in each of those sciences. He was the only great natural philosopher between Newton and Darwin. He was one of the class of untaught geniuses who had risen to the highest intellectual achievements by their own unaided power. The orator then proceeded to trace the influence on Hunter of the intellectual movements in France, England, and Scotland in the eighteenth century, leading up to his combining in an exceptional way the inductive and deductive methods in his philosophy. Hunter was a thinker rather than a scholar. He saw that for a complete scheme of knowledge deduction and induction were complementary, and when the time came that all the intellectual resources of man were fully developed and perfectly coordinated the two methods would not be regarded as hostile, but would be combined in a single system. The president disagreed with the opinion expressed by Buckle in his "History of Civilization," that Hunter's use of both methods was due to his spending his youth in Scotland, where the deductive method prevailed, and his after life in England, which had adopted the Baconian philosophy. There was no evidence that Hunter came under the influence of Scottish philosophical teaching in his youth. Mr. Morris took the view that the combination of the two methods was due to the natural scope and bent of Hunter's mind and to the nature of the subjects with which he dealt. It was not as a logician that he excelled, but as an observer and experimenter.

In the evening the Hunterian Festival Dinner was held in the college.

The Hunterian Society also observes Hunter's day by an oration, which was this year delivered by Dr. W. Rawes, whose subject was "Psychiatry—a Retrospect."

Mr. Butlin on the 12th inst. exhibited at the Clinical Section, R.M.S., his interesting and important collection of illustrations of "Early Carcinoma of the Tongue" and the conditions likely to be mistaken for it. Speaking of the operations he had performed for it—a total of 200—he said probably Mr. Whitehead was the only surgeon who had operated on a larger number of cases. It was the bad prognosis which had drawn his attention to the importance of early diagnosis and treatment. He had at one time spoken of a precancerous stage, but both patients and doctors were reluctant to resort to operative measures when it could not be stated that cancer decidedly was present. Five years ago he sent to Dr. Bashford material from precancerous condition, and it proved to be well-marked carcinoma. From that time he had had drawings made of all cases and had insisted on the necessity of operation. Since then he had operated on 14 of these early cases, of 12 of which the drawings were shown; three had died—one of nephritis and heart failure, but with no recurrence; one four years later from secondary affection of the glands, and one for which early operation was declined. Eleven were alive and well at periods from eight months to four and one-half years. There was no local recurrence in any of the 14 cases, although eight had lived from three to about four years. The glands were removed in nine of them. The diagrams showed the extent of the operation was out of proportion to the cancer, but this was to remove the leukoplakia and chronic superficial glossitis. Mr. Butlin said there were several forms of early cancer of the tongue, from which he could separate five as the most distinct. After describing them, he remarked as to radium that the air was charged with the emanations which had been positively asserted had cured epithelioma of the tongue. Until quite recently he would have declared that those best able to judge would have concurred in stating that there was no evidence to prove that radium could cure lingual cancer, and he might have added that the only case he had treated by it ended disastrously. But within a few days he had seen a case in which a typical epithelioma of the inside of the cheek had so much improved that it looked as though it would be cured. But radium must act very differently from any remedy at present understood, if it only cured locally, but followed and eradicated the disease from the glands and intervening channels.

Mr. Barker congratulated Mr. Butlin on his results. He had himself studied the precancerous stage and when in doubt extirpated the parts affected. In only one case was cancer absent. He was not sure that the glands must be removed, for many cases had recovered without removing them. There was great difference in the degree of malignancy, and perhaps some successes depended on the cases being of the low malignancy.

Mr. Walter Spencer considered that the small-celled infiltration which runs down between the muscle fibres proved malignancy and indicated early removal of glands. Therefore the patch should be completely removed and microscopical examination made before excising the glands.

Mr. Clutton supported Mr. Butlin in all he had said, both as to the growth and the glands.

Mr. Bowlby had always removed the glands except in one case, in which the patient objected. That was eight years ago, and there was no recurrence, but he considered it exceptional. He had seen the patient referred to by Mr. Butlin as treated with radium, and he did not regard it as a malignant case.

Dr. Bashford said one of the first discoveries of the Imperial Cancer Researchers was that a minute piece of growth, the size of a pin's head or less, could, by engrafting, reproduce all the evidences of cancer, including metastasis. He regarded Mr. Butlin's work as one of the first fruits of the investigation. The growth was often spread out fan-shape in the deeper structures, indicating a more extensive operation than the surface appearance suggested. New growth was modified by constitutional changes, and these might be sudden and favor rapid dissemination. We had no means of judging how a tumor might behave either from its biological characters or the constitutional symptoms set up.

Mr. Butlin, replying, admitted some cases did not lead to metastasis, but they could not be distinguished, so he did not think it safe to leave the glands. The late Mitchell Banks 25 years ago urged removal of the axillary glands in mammary cancer, a proceeding now generally adopted. He looked for the same practice to become the rule as to the glands in cases of cancer of the tongue.

This week will be notable to many social and medical reformers on account of the appearance of the long-expected report of the Royal Commission on the Poor Laws and the relief of distress. The commission was appointed in December, 1905, and the report was only issued on Wednesday as a heavy Blue Book, a thick volume of 1,252 pages, folio. It may be called reports, for there is a report of a minority, who dissent from much which the majority recommend. Between the two there is abundant provision for thought, and we may expect a good deal of controversy. The commissioners determined at the outset to consider principles,

to avoid details and to accept, as far as possible, recent or current inquiries into cognate subjects. It is proposed to abolish Boards of Guardians and set up in their place—but with largely increased duties—"public assistance" authorities. Importance seems to be attached to the change, and as it is held that it will remove some of the objections of the poor to the present methods, it may be well to signify the complete reorganization by a new name. The proposals as to medical relief will attract the attention of those occupied in it first of all. On these the majority and minority do not agree. The former recommend a provident basis. The latter think this would not be economical, but probably extravagant, and would continue the present outdoor medical service. At the same time, they recommend a unified medical service on the lines of the public health service, but are not very definite as to its extent or how it is to be established. No doubt much discussion will take place before Parliament seriously takes the report into consideration.

A conference on tuberculosis, which calls itself "national," has been held during the week. It was opened by Sir W. Treolar on behalf of the Lord Mayor. Various opinions were put forward. Sir F. Channing deplored that notification was not compulsory, on which the Rev. R. Wakefield said the matter should be handed over to the sanitary authorities. Dr. Shuttleworth dealt with the disease in children, maintaining that it was the most common cause preventing school attendance, particularly the special schools for defective children. Out of 1,050 attending these schools 480 were suffering from tuberculosis, the most common manifestations being hip disease (195 cases), spinal (186) and knee joint (80). Dr. Jane Walker dealt with "communicability of consumption." Surgeon-General Watt, who presided on one day, said he had found many prisoners at Borstall had wanted to go into the army, but could not on account of their low physique, and consequently fell into crime. Better housing and hygiene had so changed the condition of the troops that consumption had practically disappeared. Mrs. Rushton said the campaign against consumption in Ireland was educating the people on the best means of prevention.

Archdeacon Sinclair urged that the hearty support of the medical profession and its anxiety to make its experience and knowledge valuable to the country left them the duty to rouse the public interest in the matter.

Yesterday Earl Carrington spoke of the danger of infection through milk, and said the Board of Agriculture (of which he is president) was fully alive to the question of tuberculosis in animals and hoped to reduce the risks in the direction suggested by the Royal Commission.

Dr. F. S. Toogood of the Lewisham Infirmary said he had striven for open air for 20 years and was long thought a fresh-air crank. He had an open-air ward, and during certain winds the rain was blown onto the beds; so he put on mackintoshes, leaving the patients' faces uncovered. During the heavy snow last Christmas six inches of snow was on the beds one morning, and his patients were comfortable and cheerful. The most hopeless part of this work was, that after being so much ameliorated as to go to work again, the patients returned to the old environment. He advocated an adequate housing bill, better ventilation in factories, workshops and dwellings, with teaching of hygiene in schools.

Dr. Wolferton Thomas has arrived home from Manaos after three and a half years' work on yellow fever for the Liverpool Tropical School. You will remember that his colleague had to be invalided home at an early stage of this expedition (the second), and he himself suffered from the disease, but was able on recovery to continue the work along the Amazon River. Dr. Thomas regards the outlook as favorable for the eventual extermination of the disease, but his report will not be ready for some time, as he needs rest and change, part of which he may obtain in his native country, Canada, and perhaps will pay you a visit in the United States.

Sir Rubert Boyce, dean of the school, was entertained at luncheon on Tuesday at Liverpool before leaving, at 24 hours' notice, to take up the appointment under the Colonial Office of Sanitary Commissioner to Barbados and Trinidad. The American Consul called him "the valiant knight of humanity" on account of his work in New Orleans.

The death is announced of Lieutenant-Colonel Sir George King, M.D., Aberdeen, 1865, late superintendent of the Royal Botanic Garden, Calcutta, from 1871 professor of botany at the Calcutta Medical College and superintendent of the Government cinchona plantation at Darjiling. In 1891 he was appointed Director of the Botanical Survey of India. In 1890 he was made a C.I.E. and advanced to the K.C.I.E. in 1898. He was also a Fellow of the Royal Society. He wrote the "Manual of Cinchona Cultivation in India," and other works connected with botany.

Dr. John Tawse Nisbet of Liverpool, while attending a patient, was seized with syncope and died at the bedside on the 13th inst. He was M.D., Edinburgh, 1889, and formerly on the staff of the Children's Infirmary of Liverpool.

Mr. Alfred Temple Spanton of Birkenhead died yesterday suddenly at the age of 30. He was educated at Cambridge, took the license of the Edinburgh College of Surgeons, and had held various resident offices.

LETTER FROM ROME.

(From an Occasional Correspondent.)

INFLUENZA—THE EARTHQUAKE IN SICILY—HEALTH OF THE POPE—IN MEMORIAM OF THE PROFESSORS AT THE UNIVERSITY OF MESSINA.

Rome, January 23, 1909.

We have not yet this winter seen the Spanish steps and the Piazza di Spagna mantled in a good fall of snow, a very pretty sight with the towers of the Church of the Trinità de' Monte above and the tiers of flower stands with their variegated colors below. But we have had and are still having a visitation even less welcome than snow and slush under foot in the shape of coughs and colds, the appanage of an epidemic or prevalence of influenza in its milder form through which we are still passing. I think physicians are too inclined as a general rule to pass over lightly the extreme treacherousness of influenza and how quickly and unexpectedly a serious complication may arise or a fatal issue take place from syncope or heart failure, without any complication having actually declared itself.

The great mortality, estimated at from 100,000 to 200,000, and vast amount of disease and suffering caused by the earthquake and cataclysm, with the destruction of the two principal towns and many villages about the Straits of Messina, are prominent in the professional as well as in the lay mind. The best way to dispose of the tens of thousands of putrifying dead bodies would be to burn them, and thus prevent any outbreak of disease or epidemic that might result from them, and at the same time purify the places by fire. Some comment has been caused in Rome by the fact that the American Ambassador has sent three Italian physicians under the direction of a fourth Italian physician, who remains in Rome, to Sicily, and that no American physicians were called upon to take part in the work of relief, especially as the $800,000 was voted by Congress and large sums of money were and are being subscribed privately all over the country, thus making it a national work. There are able and distinguished American physicians in Rome, Florence, and Naples. We might mention Dr. W. Wilberforce Baldwin, Dr. Halsted Boylan, Dr. Parke, and others. Dr. Baldwin, the physician of royalty, and the longest established American physician in Italy, would have been a fitting person to give counsel or head a relief expedition.

The health of the Pope, about which so much is being written and said, is by no means as precarious as report would have it. His Holiness is, of course, at times suffering from the infirmities of his age, which leave him with less resistance than he once had, and the unpleasant gouty twinges in the articulations are only the ills that flesh is heir to. Being the unfortunate possessor of a uric acid diathesis and advanced in years, you may expect to hear from time to time of certain indispositions attendant upon such conditions, but which need not, and probably will not, shorten his days. He is quite well again, and busy with audiences and ecclesiastical matters, making provision for the children survivors of Messina, and taking a lively interest in his hospital, the "Ospedale Pontifico," filled with the sick and wounded from Sicily, among whom the mortality is very high, doubtless due to the exposures and privations undergone, to say nothing of the journey to Rome.

The meeting of the Medical Faculty of the Royal University on Monday was devoted to eulogizing those professors of the Messina Athenæum, who were victims of the catastrophe. Most of them had been "docents" in the University at Rome before giving instruction in that of Messina

THE ZOOPHIL-PSYCHOSIS.

To the Editor of the Medical Record:

Sir:—There is much thought in Dr. Dana's observations in the Medical Record that inordinate love of the dog and other animals at times becomes obsessive insanity.

At crossroads towns, where advantages of schooling and civilization are lacking, dogs, next following immature whiskey, are probably the leading factor in feuds and neighborhood fatalities. It is of common occurrence for some man to throw a stone or stick at an egg-sucking cur, or for some mischievous boy to pour turpentine upon or tie a tin can to some mangy mongrel, and thus within an hour bring out the entire community armed to the teeth and ready for the fray. Indeed, in Greater New York, if report is true, a week or two ago a schoolboy kicked a street fice, and, as if by magic, men with pistols, dirks, clubs, and stones appeared upon the scene, and some half-dozen adults were killed or seriously injured.

Where intelligence is reversionary or incapable of undergoing adaptative evolution, dogs and other pets receive passionate interest and hypertrophied devotion, because, to owners of this degree of intelligence, people in general give no attention, and heed not their fuss, even shun their flattery, consequently, the patient, slavish dog may be the sole recipient of both the flailing and the affection of these strange extremists. Homicide from quarrels over dogs is probably more frequent than death from hydrophobia.

New York. N. B. Jenkins, M.D.

Progress of Medical Science.

Boston Medical and Surgical Journal, February 25, 1909.

Anterior Metatarsalgia; Its Causes and Relief.—N. Allison says that the predisposing causes of this condition are for the most part a lack of muscular use of the anterior part of the foot and the tight bandaging and splinting of the anterior foot in a shoe. Secondary to these is the influence of increase of weight which comes with adult life and the pursuit of sedentary occupations. The causes which actually produce the pain are anatomical. Morton, after whom the disease is named, showed that the pain arises from the fact that the fifth metatarso-phalangeal joint is much posterior to the fourth, thus bringing the base of the phalanx of the little toe opposite the head and neck of the fourth metatarsal. Accidental compression of the external plantar nerve is thus produced, owing to the greater motility of the outer metatarsal bones. The general mechanical factors involved in the production of the malady are elaborated by the author, who gives in his paper some excellent illustrations. His treatment consists of support and developmental exercises, any error in footwear being corrected. The appliance he recommends is made on a cast of the dorsum of the foot which is taken as high on the dorsum and sides as the medio-tarsal joint. Under the anterior arch of this cast a depression is cut, deep or shallow, circular or elliptical, to suit the individual case. This depression should have the greatest point of concavity behind the location of the heads of the second and third metatarsals and should be so cut that it approximately restores the normal relationship of the metatarsal bones. Into this depression the leather worker fits either a hard leather or a compact felt pad and to this he sews a circular leather bandage which is made of light nonstretchable leather, the dimensions of which are marked out by the surgeon on the cast of the foot. It will be found that this slight hallux valgus which exists in most cases will aid in keeping this pad and bandage from slipping backward as the leather is made to fit closely the shape of the foot at the head of the first metatarsal. The bandage is laced together through holes cut in the two edges of the dorsum of the foot with a light string. No eyelets should be placed in these holes, and the leather should be soft and non-creasable. Advantages claimed for this appliance are that it is light, durable, gives firm support where most needed, and is held constantly in the right spot.

Nerve-Strain of School Children.—L. W. Flanders describes the typical modern school child with its multiplicity of school duties and consequent nerve disorders, and offers the following suggestion for its avoidance. No child should enter the public school until he is seven years old. There should be separate rooms for study and recitations. At least once a year there should be an examination of the eyes by a competent oculist, furnished by the State. There should be a more elastic curriculum for pupils in feeble health. There should be a most careful examination of children by both teacher and parents, to see that no more mental work is required of them than they can endure without detriment. Better a race of healthy fools than of wise invalids. The best of teachers should be selected and they should be well paid.

Death from the Electric Current from Turning on an Electric Light.—F. E. Jones relates the case of a healthy young man of 21 years who worked in a machine shop tending a small forge. He stood on a gravel floor mixed with considerable iron chips. Over the forge hung a 16-candlepower, 110-volt incandescent lamp. He reached to turn the light on, uttered a sudden cry, was found stiff and rigid, with one hand clutching the lamp, and leaning against certain iron bars. The contact being broken, he fell to the floor. It was supposed that death was instantaneous. An examination of the wiring system supplying the light showed that the wire to the lamp had come in contact with a wire carrying a voltage of 2300 in connection with a street car system near by. The fuse of the lamp was in good order. These fuses are made of soft metal which breaks when a sufficient amperage goes through them. It is said that the soft metal ages and becomes less resistant, allowing electricity to pass through without burning it out. It only takes from four to five amperes to kill a man. Just how the high voltage current touching the secondary wire jumped across the lamp socket is hard to tell, except that the man was standing on ground highly impregnated with metallic dust and so formed the shortest conductor to the ground. Some interesting facts in connection with commercial electricity are given in the article.

New York Medical Journal, February 27, 1909.

The Treatment of Malignant Growths by Injections of Mercury, Arsenic, and Iron.—W. L. Harris records his experience with a few years' use of the therapy indicated. He has made it a practice to use on every patient he has operated on for malignancy, a course of injections of the remedies named. In far advanced cases he has not urged it. For sixty days after operation he has injected daily one-half grain of a soluble iron salt and one-twenty-fourth grain of arsenious acid. Every ten days he has injected two and a half grains of salicylate of mercury until ten grains have been given, then one-half or one grain every twenty days for the first year. In the second year he gives similarly, one grain doses until ten grains have been taken, and then one-half grain every month. More recently he has used succinimide of mercury in doses of one-fifth grain hypodermically every five or ten days for ten doses, then every fifteen or twenty days. The iron and arsenic injections are repeated from time to time. Of this form of therapy the author has high expectations.

Is the Human Body Supplied with an Autoprotective Mechanism?—C. E. Sajous says that man is supplied with an autoprotective mechanism which includes: (1) The immunizing center, an organ of special sense annexed to the heat center, both centers being located in the pituitary body; (2) the thyroparathyroid glands; (3) the adrenals; and (4) special nerves which connect the immunizing center (through the heat center) with these two sets of organs. The immunizing center, which governs the autoprotective mechanism, is the developed "osphradium" or "test organ" described by zoologists in mollusks and certain ancestral vertebrates. While the osphradium of primitive animals tests their respiratory fluid, sea water, its prototype, the immunizing center of higher animals, including man, tests the blood, also a respiratory fluid and a qualitative homologue of sea water. When the functional activity of the immunizing center is increased through the presence in the blood of some toxic, *i.e.* wastes, toxins or endotoxins, mineral and vegetable poisons, certain venoms, drugs, etc., capable of exciting this center, it stimulates correspondingly the heat center and thus awakens the immunizing process. Fever indicates that the autoprotective mechanism is active. The rise of temperature is due to the increased production of thyroparathyroid and adrenal secretions, and the resultant increment of metabolic activity. The immunizing process is a consequence of this hypermetabolism, all the immunizing agents, plasmatic and cellular, being produced in greater quantities. Absence of fever in toxemia of any kind is due to inability of the immunizing center to react under the influence of the toxic, owing to deficient sensitiveness (inherited or acquired) of this center, or to the fact that the toxic is itself a paralyzant or anesthetic of its sensory elements. Excess of fever (above 105.5° F.) is due to excessive excitation of the immunizing center and a corresponding overproduction of defensive bodies. This condition exposes the red corpuscles and the endothelial cells to proteolytic destruction (hemolysis and autolysis) along with the pathogenic substances or bacteria.

Journal of the American Medical Association, February 27, 1909.

The Abuse of Surgery.—J. L. Wiggins remarks on the lack of training of many would-be surgeons at the present time, and says that the claim that one must learn surgery by practical experience is not valid now as it was twenty years ago. Attempts that were permissible or commendable then would be inexcusable now. There is, moreover, a wide difference between the words "operator" and "surgeon," and the recent graduate, except in rare instances, is not competent to operate. No medical man would choose an occasional operator to perform an important operation on himself or family, and, he asks, is not the public entitled to the same protection? There should be some minimum qualification for any one who professes to practise a specialty and, while he does not think it practicable at present to adopt for this country the measures proposed in Germany and Austria, he holds that one who wishes to specialize in surgery should file notice of his intention with the State Board and be furnished by it with a list of accredited postgraduate schools. His course of special postgraduate study should be for not less than a year and should give him a firm, practical, as well as theoretical grounding for his work. No one should be permitted to practise surgery or call himself a surgeon unless specially licensed. One advantage of such a rule would be to limit the number of surgeons and give those licensed full opportunity to keep up and increase their skill. Every surgeon, moreover, should have his trained assistant and his skilled anesthetizer who should share his responsibilities in their respective departments. He owes it to himself, to his consultant, and, most of all, to his defenseless patient, that every possible avenue of danger is safeguarded. Against the alleged difficulty of obtaining trained assistants, he says he knows of at least a score of men in smaller cities who, engaged in general practice, have found it possible to attain a high degree of proficiency as assistants. The position of the general practitioner is assured, the specialist can never displace him and the welfare of the community is in his keeping. He is the first consulted; and when he deems a disease amenable to surgical treatment his opinion is sought as to the surgeon who can safely be trusted. He may err, but there is little danger when he is actuated by honest impulses.

Publicity in Public Health Work.—E. C. Levy remarks on the importance of educating the public as to what is being done by the public health authorities of their own municipalities, and cites as an example of how it should be done, the instruction and creation of public sentiment in regard to tuberculosis which is being carried on at present in most parts of the country. The more completely the public has the workings of the local health department placed before it the more active and cordial will be the support given. He speaks, however, of two classes of difficulties met with by the health officer in utilizing the newspapers on the support of which he must chiefly depend. One of these is the difficulty of getting the papers to follow up any of the work of the health department in a systematic way, in spite of editorial good will; the other is the tendency to sensationalism which always stands in the way of such publicity as the sanitarian most desires. Not even by writing the article himself can he always insure against sensationalism; there still remain the possibilities of editorial introduction and of flaring headlines not borne out by what appears beneath them. He gives examples of such experiences of his own. Still these drawbacks are, on the whole, more than counterbalanced by the advantages of newspaper publicity, and even the "scare heads" may sometimes be the only means of securing a hearing from those who need the information, but can only be induced to give their attention by such highly seasoned presentations of the facts. But if newspapers err sometimes in this way, there is never a time when they will not willingly give space to public health questions. There are other methods, bulletins, lectures, etc., that may be utilized to advantage, though these too may have some drawbacks. The health officer will always find some to criticise his methods, to charge him with self-advertising, etc. These he must endure, being always on his guard to give them no real excuse.

Typhoid Perforation.—A. J. Brown calls attention to two new signs which seem to him to be important in the early diagnosis of typhoid perforation. These are what he calls the "dipping crackle" and the tendency of the pain and tenderness to approach the side that is lowermost when the patient is turned on the side. Both of these signs are illustrated by cases. The "dipping crackle" sign is heard on placing the bell of the stethoscope over the right iliac fossa and dipping suddenly with it as in dipping palpation. A very fine crackle is then heard which sounds much like a fine crepitant rale, or as if two sticky surfaces were being drawn apart. This was present in three of his seven cases, and appears to him to be a rather valuable confirmatory sign, as it seems to be due to the fact that in dipping suddenly the parietal and visceral layers of the peritoneum come in contact for an instant, and apparently the inflamed surfaces stick together for a moment and then pull apart. He has never found the sign present over an area of more than two inches in diameter, and never later than four hours after the initial symptom, presumably because the accumulated gas prevents the surfaces from coming in contact. The second sign is due to the gravitation of the extruded contents of the intestine. On the occurrence of a sudden, sharp pain in the lower part of the abdomen, and especially in the right iliac fossa, accompanied by tenderness, with or without rigidity, the abdomen should be carefully examined and the area of the tenderness mapped out. The patient should then be turned on the unaffected side, and if, in from fifteen minutes to half an hour, the tenderness has moved one or two inches, or if, at any time, the tenderness and rigidity become marked, immediate operation is indicated.

Cerebral Arteriosclerosis.—G. A. Moleen describes the symptoms, diagnosis, and treatment of arteriosclerosis of the cerebral vessels, and remarks that an important element in its etiology is the toxic one, which is most often due to syphilis. Whether high blood pressure is a cause or consequence of arteriosclerosis is a matter in which opinions differ, but it is sufficient to observe that they generally exist together. Two points, however are deserving of mention: (1) With the thickening of the vessel wall the elasticity must be impaired, causing greater resistance and more continuous strain; (2) it also should be borne in mind that a tendency to arteriosclerosis is an individual peculiarity, possibly through inheritance. There are two forms of arteriosclerosis recognized—the diffuse and the nodular—both of which may coexist in the same vessel. The condition of the general arterial system, however, is not a proof that it exists everywhere, and that the cerebral vessels may not escape. With the nodular form aneurysms are often produced, and occur either as miliary aneurysms, affecting the smaller vessels, or larger ones elsewhere. They are most frequent on the left side of the brain, and a point worthy of attention is that they may be temporary, the dilated vessel returning to its normal dimensions and injury not be demonstrable postmortem. In the diffuse form of arteriosclerosis, when uniform, the changes are mainly nutritional, but may, as the thickening increases, affect one side more than another. Thrombus may occur, but partial or incomplete occlusion is more frequent, producing softening. Of the general symptoms, headache stands first, usually dull, not throbbing, appearing in the morning and going off as the day advances, except in syphilitics, in whom it is usually severe and nocturnal. Dizziness and vertigo are next in importance, numbness, tinkling, twitching, weakness in the limbs or hemiparesis and disturbances in articulation are also common. The diagnosis is not difficult if the condition be carefully studied, or if localizing symptoms be present. The ophthalmoscope is of greatest service, revealing arteriosclerosis of the retinal vessels. The paradoxic reflex, lately described by Gordon, elicited by firm digital compression of the calf muscles at about the insertion of the gastrocnemius while the foot is resting and relaxed may be of value; it appears before the Babinski symptom; if the pyramidal tracts are irritated there is extension of the toes, with some separation; and if not; they are flexed and almost immovable. Stupor or coma are not infrequently associated with cerebral vascular disease, and low blood pressure, combined with a slow pulse during coma, should speak rather for sclerosis than uremia. In treatment, the all-important factor is rest and quiet as soon as definite symptoms appear. The diet should be restricted and digestible in quality, as these patients are inclined to overeat. The plan Moleen adopts is, first, absolute rest in bed; second, saline catharsis, preceded by calomel if necessary; third, potassium iodid in gradually increasing doses till 50, 60, or 70 drops a day are given. Then it should be diminished until 30 or 20 drops are given, and then discontinued. A tonic may then be given, such as strychnine, beginning with 1-30 of a grain, and later increasing to 1-24 or 1-20 of a grain. If the hemoglobin is low, iron and arsenic may also be useful, alternated with the above. If syphilis is present it should be combated with mercury alone as soon as possible, followed by iodides and later tonics. With sudden weakness,

twitching, or spasm coming on suddenly, nitroglycerin or sodium nitrate may be used with advantage until by saline catharsis the hypertension can be reduced. Thyroid extract has also been recommended for the hypertension. Modeen speaks also favorably of thiosinamin, which he has used with seemingly good results. It is given in substance or with milk sugar in increasing doses of from ½ to 2 grains. He thinks much can be done if the patient is obedient and the physician understands the case. The alternative may be stated as six weeks or more in bed, on the one hand; and death, life in a wheel-chair, or permanent defectiveness on the other.

The Lancet, February 20, 1909.

Water as a Diet for Premature Infants.—A. G. Cole and J. E. Prentis delivered a woman at the sixth month, of a male child. It was too weak to take the breast, so breast milk was withdrawn and fed to it, but the milk was not digested. He was then fed with water containing a little sodium bicarbonate and aromatic spirits of ammonia were given in addition. Any attempt to add even the most dilute foods to the water was followed by indigestion. For four and a half days the child lived on this water diet and began to increase in vitality and was finally able to digest very weak peptonized milk and water. Alternation of the two diets was followed for about a month. He weighed two pounds at birth, and had now gained over ten ounces. On the thirty-first day he suddenly became cold and rigid, with fixed jaws, slow and shallow breathing, feeble and rapid pulse; no twitchings, but the legs could not be drawn up. Under the usual measures he rallied somewhat, but on the thirty-fourth day he died in an attack similar to the above. The authors say that it may be presumed that the continuation of life and maintenance of the natural eliminative functions were due to the water assimilated plus the small continuous doses of ammonia.

Henoch's Purpura and Intussusception.—H. Lett describes a case of this nature, referring back to Henoch's statement in 1874 that he had met with a series of cases of purpura which were associated with intestinal colic, vomiting, intestinal hemorrhage, and frequently painful swelling of the joints. In the author's case the immediate cause of death was septic peritonitis following operation. He analyses the literature of such cases and notes that there is a certain number in which diagnosis is extremely difficult, especially those cases presenting a purpura but in which the existence of intussusception is doubtful. Many of the symptoms of this intestinal condition may be present, even in its absence. If its existence is assumed and the skin lesions are extensive, attempts at reduction should be made by means of injections into the bowel and laparotomy reserved as the last resort. A laparotomy is complicated by the fact that, owing to the general systemic condition, the after-condition of the wound may become a serious factor. Intussusception is a rare complication of Henoch's purpura, and in the majority of cases of this intestinal lesion a tumor can be palpated. Unless such palpation is possible, it would hardly seem advisable to open the abdomen. The wound may become purpuric and there is on record at least one case of fatal hemorrhage from the wound itself.

An Historical Instance of the Adams-Stokes Syndrome Due to Heart-Block.—G. A. Gibson and W. T. Ritchie record the history of a clergyman of 75 years who, while on a train, was suddenly attacked by unconsciousness and muscular rigidity. His pulse was only six per minute and registered regularly every heart-beat. In the course of a few hours the attack passed off. In the course of the next few months he had a series of such attacks and it was possible to examine him closely. He finally died in one of the attacks. Examination had shown during life a partial heart-block. There was a distinct cervical venous pulse of the auricular type. The heart was enlarged and dilated. Vessels were somewhat thickened. The first heart sound was replaced by a murmur heard all over the precordium, especially loud at the apex. The second sound was loud and ringing, especially about the aortic cartilage. Following every second sound, two additional sounds were heard, due probably to pulsation of the auricles. There was no absolute dissociation of the ventricular and auricular movements, the ventricular pulsation being immediately preceded by an auricular impulse although the interval between auricular and ventricular pulsations was not always exactly the same. The arterial pressure was extremely high during the systolic period, reaching to 230 and falling to 75 during the diastolic period. Autopsy confirmed the diagnosis as to the condition of the heart and vessels. The case was one of, at first a partial, and later a complete heart-block.

British Medical Journal, February 20, 1909.

Reflex Cough.—J. R. Bentley records the case of a severe cough following pertussis in a boy, which was finally proven by exclusion to be due to a foreign body imbedded in cerumen in the right ear. In a few hours the boy was free from a cough which had lasted for over a year and a half. He had had no symptoms referable to the ear.

Unna's Method of Treating Leg Ulcers.—This is described by G. Pernet. The ulcer is cleaned up with a 1-2,000 solution of bichloride of mercury solution. Iodoform is then dusted on the ulcer floor only. Unna's gelatine paste liquefied in a hot water bath is then painted on the parts surrounding, but not on the ulcer itself, well beyond the latter, and on all parts showing redness or discoloration. To make the paste, 15 parts of gelatine are soaked in 45 parts of water for two hours. A gentle heat is applied, with the addition of the glycerine till dissolved. Then the zinc is stirred into a smooth consistence and the whole allowed to cool. Double-headed bandages in one piece, rolled from either end, are used, similar in material to those used in plaster-of-Paris work. Such a bandage is wrung out in warm sterile water and its middle is placed on the leg opposite the ulcer. The first turn is made with pressure enough to diminish the diameter of the limb, the bandage being brought well over the ulcer. It is then taken round the leg with firm pressure, especially over the actual ulcer, allowing the turns to take no more or less where they list, the two hands being used for this purpose, and the turns being evenly applied, an easy matter, as they are wet. Meanwhile the liquid paste is painted on the bandage as it is wound. A few figure-of-eight turns can be taken under the foot to fix the whole. Renewal of the bandage depends on the amount of discharge. The crucial point of the whole application is firm pressure on the ulcer edges in order to bear them down.

Early Diagnosis of Cancer of the Tongue and Results of Operation in Such Cases.—H. T. Butlin makes the following classification: (1) A little plaque like a hard sore, smooth and polished, but neither ulcerated nor excoriated. (2) The transformation or replacement of a simple ulcer by a cancerous ulcer, which only differs from the simple variety by feeling a little stiffer and a very little firmer. (3) The transformation of an entire plaque of leukoplakia into a plaque of cancer. The difference is marked by very slight thickening, a denser white and a furrowing or fissuring in various directions, but without ulceration or excoriation. (4) The transformation of one small area of leukoplakia into cancer, marked at first only by very slight and superficial hardening. (5) A white, warty growth or compound wart, neither broken nor ulcerated, and feeling at first as if it were fixed to the mucous membrane and quite superficial. Of fourteen cases operated on, three are dead, one of nephritis and heart disease eighteen months after operation and without recurrence, one of affection of the cervical glands but without recurrence, and one operated on for cancer of the right border of the tongue from cancer of the left border. The remaining eleven patients are alive and well at periods of from eight months to four and a quarter years.

Berliner klinische Wochenschrift, February 1, 8, and 15, 1909.

Iodophilia of the Leucocytes.—Stumpke corroborates the findings of Winkler according to whom iodophile substances are present in the pus and epithelial cells of gonorrheal discharge; the iodophile reaction is more marked in acute cases than in chronic gonorrheal affections. Stumpke believes that the iodophile phenomenon is a sign of some reaction in the protoplasm to new conditions and may appear and disappear in the cells with the different stages of the disease. These views were substantiated in the examination of the pus from chancroid ulcers which gave the iodophile reaction at the height of the development of the ulcer; the iodophile substances, however, diminished markedly with the beginning healing of the lesion. Syphilitic lesions appear to cause but little appearance of iodophile substances, that is, of glycogen, in the cells forming the lesion; mixed lesions on the other hand show the presence of cells with abundant glycogen content. In all affections of the skin accompanied by the production of vesicles and blisters the leucocytes of the serum filling these lesions proved to have abundant iodophilic substances. As the leucocytes of the blood were quite free from these substances, Stumpke concludes that the iodophile reaction

of the leucocytes is due to changes that take place at the site of the lesions and have some close relation to the character of the lesions.

Artificial Respiration.—Loewy and Meyer describe the method of artificial respiration proposed by Schäfer, in which the patient is placed on his abdomen and the respiration is carried on by the intermittent application of pressure to the sides and back of the thorax. In principle it is a method of artificial expiration, only the resiliency of the thorax causing the inspiration: it is therefore comparable to Howard's method in which compression was applied to the thorax while the patient was placed on his back. Loewy and Meyer think that the older method resulted in better ventilation of the lung, while still better is the Sylvester method that has been used almost universally before the Schäfer method was proposed. The Sylvester method leads to very active ventilation of the lungs and has the advantage of aiding inspiration as well as expiration. Such effect upon the inspiration is especially valuable as it helps the circulation of the blood as well as its aeration. Schäfer claims that one great advantage of his method consists in the ease with which the water that has entered the lungs of the patient is got rid of, when the artificial respiration is carried on with the patient in the prone position. However, the same results may be obtained by a momentary prone position or even by lifting the patient by his feet for a moment which allows the water to escape from the trachea and the larger bronchi, after which the Sylvester method may be continued. Moreover, there is danger not only from the water in the lungs but likewise from the water in the gullet and stomach; in the Schäfer method this water can easily be drawn into the air passages so that aspiration pneumonia is a very possible consequence. The dorsal position of the Sylvester method diminishes this danger very much. The danger of the tongue falling backward and asphyxiating the patient is, of course, a real one in the dorsal position, but it is easly prevented by pulling the tongue forward and holding it there during the resuscitation attempts. The Sylvester method is to be preferred, likewise, in other asphyxias in addition to those caused by drowning, for it has the one great advantage of providing better ventilation of the lungs than any other method.

Sacroiliac Tuberculosis.—Stieda says that tuberculosis of the sacroiliac joints is very hard to diagnose in the early stages because pain radiating to the back and to the limbs that is often present in this affection simulates simple neuralgic conditions. Tenderness over the joint is likewise hard to elicit and only the appearance of swelling, of an abscess, or, finally, of a tuberculous fistula confirms the diagnosis. Stieda calls attention to the fact that the so-called Trendelenburg phenomenon usually present in congenital dislocation of the hip is also very frequently present in the early stages of tuberculosis of the sacroiliac joint. This phenomenon consists in the sinking of the pelvis on the healthy side when the patient is compelled to lift the healthy leg while standing on the foot belonging to the affected side. This result is occasioned by the insufficiency of the gluteal muscles which normally keep the pelvis in a horizontal position when either limb is raised from the ground. In congenital dislocation such insufficiency is caused by real anatomical changes in the muscles, while in tuberculosis it is probably due to the fact that sufficient contractions of the muscles are prevented by the pain which would accompany the attempt to keep the pelvis in a horizontal position while the weight rests on the leg of the affected side. Diminution in the sinking of the pelvis on the healthy side is often observed with improvement in the disease and its grade may be used as a measure of such improvement.

Acute Serous Meningitis.—Axhausen says that the few cases of acute serous meningitis reported have usually been traced to edema occasioned by the presence of a neighboring infection; undoubted cases of such meningitis occurring quite independently of bacterial invasion have not been published, though several reports justify the supposition that such an affection may arise in connection with trauma without infection. Axhausen reports his case, that of a child struck by a stone in the left temporal region. The external wound was infected and fever appeared. As cerebral symptoms, including vomiting and stupor, were present, operation was decided upon, the possibility of purulent meningitis being suspected. The operation, however, showed that cerebrospinal fluid under great pressure had accumulated in the subdural space, this fluid being clear, free of leucocytes, and bacteriologically sterile. The temperature dropped to normal immediately after the operation and remained thus, while a very large amount of cerebrospinal fluid flowed from the wound. All at once, however, this discharge stopped, the temperature again rose to a high point, and general convulsions occurred. Another operation disclosed the repetition of the previous condition, cerebrospinal fluid under great pressure being liberated by a puncture of the dura. The course of the disease after this was uneventful, the child recovering completely. As infection of the meninges could be excluded because of the negative results of cytological and bacteriological study of the fluid and the rapid recovery of the child, Axhausen is inclined to believe that the case is that of a meningitis of serous nature caused by trauma to the skull.

Viceroptosis as a Constitutional Anomaly.—Albu has examined a great number of youthful individuals and of children in reference to the occurrence of viscerоptosis in them irrespective of the causes usually named in the possible etiology of the condition. He concludes that in the great majority of cases viscerоptosis is not an acquired condition, but is a congenital anomaly, which is simply latent so far as symptoms are concerned until some contributing factors increase the abnormalities of sensations and of function caused by the existence of ptosis. Viscerоptosis accompanies a certain form of the body characterized by excessive development in the long axis with imperfect development of the framework in the directions of breadth and depth. The extremities are usually elongated and thin, the face small, the throat long and thin, the thorax narrow and flat, and the abdomen narrow and long. The whole figure inclines to be very angular and among the bony irregularities accompanying this type of body we meet with stenosis of the upper thorax aperture, made so much of by Freund in the etiology of tuberculosis, and a freely floating tenth rib. The superficial coverings of the body show much diminished panniculus adiposus and a flaccid, weak musculature, especially evident in the abdomen. Albu thinks that the condition in question cannot be brought in connection with any temporary causes such as the wearing of tight corsets, lessened nutrition, etc. The congenital origin of this "habitus paraliticus" is well shown by the fact that it occurs among the many types of figures represented by painters and sculptors of older generations at a time when the conditions which are now looked upon as causative of the affection did not at all exist. This type of figure was the favorite one with Boticelli and lately it has been made almost a cult by men like Watts, Rosetti, Burne-Jones, and the latest impressionist and secessionist school of art. There is no question that the frequency of this congenital anomaly has been increased in the modern era by various abnormal conditions of life leading to illnutrition and to exhaustion of individuals whose children are then much more apt to show congenital deformities. The prophylaxis of viscerоptosis lies, therefore, not so much in measures directed toward individual cases, but in the improvement of general hygienic and social conditions, such improvement having most effect upon the physical and psychic development of future generations.

Münchener medizinische Wochenschrift, February 9 and 16, 1909.

Effect of Castration and of Hysterectomy.—Pankow says that the removal of the ovaries is followed by the well-known disturbances of vasomotor, psychic, and trophic nature. The first consist of attacks of dizziness, of increased perspiration, of various abnormal sensations in the eyes and ears, and of severe headaches. Psychic phenomena are rare and consist of weakness of memory and of frequent states of depression. Trophic disturbances are characterized by atrophy of the genital organs, which may be very rapid, and by great increase in the fat of the body. The sexual sphere is depressed quite markedly, so that the normal characteristics of a woman in this respect are either completely lost or may be perverted. These results have been attributed to the loss of internal secretion produced by the ovaries. On the other hand, hysterectomies have not at all been thought to produce any results comparable to castration and the possibility of such results does not usually enter the mind of the surgeon. Pankow has followed one hundred and fifty cases of hysterectomy in order to observe the phenomena resulting from this operation. The phenomena included under the term menstrual molimina never appeared after a hysterectomy unless they had

been present before the operation. If present, they usually continued for several months in undiminished intensity and then gradually diminished or disappeared completely. Only in very nervous individuals these complaints were sometimes more pronounced after the operation. Other phenomena, however, occurred in the intermenstrual periods and differed from those noted above as occurring after castration. No such atrophy of the external genitals ever took place as usually occurs after castration; great increase in the weight was noted but very rarely, except in women who were nearing the climacterium and would have gained weight at that period in the natural order of things; no such pronounced nervous disturbances as have been noted after castration were ever observed after simple hysterectomy; vasomotor disturbances frequently appeared in nervous patients or were intensified after the operation, but never reached the degree frequently seen after castration. Moreover, youthful individuals seemed to bear the operation of hysterectomy very much better than elderly women so far as sequelæ are concerned, which was quite different from the results in castration. In general, the phenomena noted after hysterectomy were so different from those noted after castration that they could not be explained by the atrophy of the ovaries occurring as a result of the removal of the uterus. Their intensity and character were such, moreover, that it is quite justifiable to assume that the uterus is not simply an organ of gestation, but is the source of an internal secretion as important for the general metabolism and life of the organism as is that attributed to the ovary.

Typhoid Infection of a Fetus.—Gaehtgens says that typhoid fever may exist as a pure septicemia without the presence of the characteristic lesions in the gastro-intestinal tract and in the mesenteric lymph nodes. Such infections have been found in newborn whose organism succumbs to the disease before local lesions arise. Gaehtgens reports a case of a woman who aborted during the fourth month of pregnancy while in the fourth week of typhoid. The organs of the fetus proved to contain typhoid bacilli in great numbers, although no bacilli were to be found in the placenta. The gastrointestinal tract did not show the typical lesions of typhoid. The author thinks that the infection of the fetus occurred either through a direct invasion of the chorionic villi by the bacilli or because of some hemorrhage destroying some portion of epithelium lining the villi. This must have occurred at the time when the bacilli were present in the blood of the mother, the absence of infection in the placenta showing that the bacilli disappeared from her blood at a later date. The observation shows once more the permeability of the placental tissue to pathogenic organisms as well as the power of the typhoid bacilli to produce death in the tender organism of a newborn child or of a fetus without giving rise to local lesions of the disease.

Wassermann's Reaction in Surgical Syphilis.—Baetzner has tried this reaction as an auxiliary diagnostic measure in over one hundred and twenty cases at Bier's clinic and has found it to be of great value in differential diagnosis of luetic affections from tuberculous or malignant disease. The serum reaction is a specific one and he has found that its positive result always showed the presence of syphilis. However, the reaction depends upon constitutional changes and not upon local manifestations of the disease, so that care must be taken not to look upon a positive reaction as surely signifying that a given local affection is syphilitic in character. Negative outcome of the reaction is to be given much less value than a positive result. He reports a score of cases in which the reaction was the deciding factor in making the diagnosis. The greater number of them were gummata of the soft parts in locations where malignant or benign tumors could not be easily excluded; some were cases showing all the characteristics of lupuoid affections, the serum reaction proving that a syphilitic process was present; frequently ulcers of the legs having the appearance of the usual lesions accompanying varicose veins, etc., were proved to be syphilitic in origin by the outcome of the reaction, and the therapeutic test fully confirmed the results of the reaction. Of especial use was the reaction in cases of joint disease where the differential diagnosis from tuberculosis affection is frequently very difficult. Baetzner concludes that the introduction of the reaction in question has very greatly simplified the recognition of syphilis as the cause of many obscure lesions of the soft parts, bones, and joints.

Deutsche medizinische Wochenschrift, February 4, 1909.

Operative Treatment of Stomach Carcinoma.—Kuttner says that two things may be considered as proved: that carcinoma of the stomach may be cured completely by a timely radical operation, and that in many cases where the life of the patient cannot be saved his comfort can be materially increased by a surgical procedure. It is therefore the plain duty of the internists to send their cancer patients to the surgeons as early as possible so that the patient may be given all possible chances of recovery from his disease. That this custom is not equally observed in all lands may be concluded from the statistics of the operations for cancer; the very good results obtained by some operators such as Kocher are due to his technique as well as to the fact that a great number of his patients are referred to him in the early stages of the disease. The best chances of radical cure are present in cases where the tumor is situated at the pylorus or at the lower curvature of the stomach; tumors of the greater curvature and of the posterior or anterior walls of the stomach are seldom operated upon early enough to be totally removed, while tumors of the cardia form a hopeless condition in the great majority of the cases. In addition to the situation of the tumor the following points are of most importance in deciding the chances offered by an operation: the state of the nutrition of the patient, the amount of stomach tissue involved, the adhesions to other organs, and finally the presence of metastases. The state of nutrition is best judged by a complete examination of the blood, and operation is not advisable where the hemoglobin is very low. The opinions as to the size of tumor permitting an operation are divided, but many operators claim that a palpable tumor is always too late for surgical interference. This, however, is not correct, Kuttner having had cases in which a palpable tumor was removed and the patient recovered. The presence of adhesions often makes the tumor inoperable as the adhesions are usually due to infiltration of the surrounding tissue: it must be remembered, too, that the adhesions are much more extensive and frequent than is shown by the external examination. The presence of metastases in the lymph glands is not thought by some to speak against the success of the operation, for the possibility of the cancer cells dying in the lymph nodes has not been disproved. As far as gastroenterostomy is concerned, Kuttner always tries to limit the indications for it as in most cases removal of the tumor or resection of a portion of the stomach is the more promising procedure. Kuttner defends the propriety of exploratory operations if any doubt exists as to the condition of the stomach. In cases of chronic ulcer of the stomach that are most frequently taken for carcinoma this procedure may be followed by extirpation of the ulcer so that the diagnosis is not the only result of the exploratory incision. Kuttner concludes with a plea to strike the right note between the pessimism of some and the optimism of other surgeons, and to operate in all cases where the least chance of saving the patient's life or increasing his comfort is present.

Operative Interventions Upon the Stomach and the Modifications of the Intestinal Chemismus.—Betagli has made experiments on gastroenterostomized animals as to the condition of the intestinal chemismus. He produced a stenosis, or an occlusion, of the pylorus. He then examined the function of the pancreas and the secretory action of the duodenal mucosa. When the pylorus is left pervious all the functions go on normally. But when the passage of the acid chyme into the duodenum is prevented there are modifications of the normal condition. These cause dyspeptic symptoms and probably assist in causing a return of the original disease process or an alteration of the anatomo-pathological condition of the organ.—*La Riforma Medica.*

Action of the Mucosa of the Bladder on Microorganisms.—V. De Bonis and A. Pane have experimented on animals to ascertain whether the mucosa of the bladder has any bactericidal effect on bacteria introduced into the bladder. They conclude that there is no bactericidal effect produced by the mucosa of the bladder. All the bacteria that were used in their experiments increased in numbers progressively, and their colonies grew larger. The colonies examined microscopically were entirely typical in form. While the urine flows freely through the bladder it presents a medium in which the germs grow normally. There is very little absorption of the bladder contents, and the increase in growth of the colonies is not due to the concentration of the urine, but to a true multiplication of the organisms.—*Giornale Internazionale delle Scienze Mediche.*

Book Reviews.

The Campaign Against Tuberculosis in the United States, Including a Directory of Institutions Dealing with Tuberculosis in the United States and Canada, Compiled Under the Direction of the National Association for the Study and Prevention of Tuberculosis. By Philip P. Jacobs. New York: Charities Publication Committee, 105 East Twenty-second Street, 1908.

This most useful publication which is mainly a directory of sanatoria, hospitals, clinics, dispensaries, "classes," etc., for the treatment of tuberculosis, and also of associations and committees for the study of the disease in the United States and Canada, is published for the Russell Sage Foundation. There is first a list of the sanatoria, hospitals, and day-camps for the treatment of tuberculosis, alphabetically arranged; then a similar list of hospitals for the insane and of penal institutions making special provisions for their tuberculous inmates; following are lists of dispensaries and clinics for the special treatment of tuberculosis, and tuberculosis classes; then a list of the associations and committees for the study and prevention of tuberculosis, and specimen constitutions and by-laws of typical associations of this sort. A chapter follows on legislation affecting tuberculosis in the United States, including an outline of the activities of State and local boards of health; and this is succeeded by a section giving typical laws regarding notification and sanatoria, antispitting laws, and municipal ordinances. An appendix contains a chart and tables showing the growth of the antituberculosis movement. The book is indispensable to all interested in the campaign against tuberculosis, and will be found extremely useful by physicians who may be consulted regarding the various sanatoria and other places for the treatment of the tuberculous.

Studies in Puncture Fluids. A Contribution to Clinical Pathology. By O. C. Gruner, M.B. (Lond.); Clinical Pathologist at the General Infirmary, Leeds; Late Hon. Pathologist to the Leeds Public Dispensary. London: H. K. Lewis; Philadelphia: P. Blakiston's Son & Co., 1908.

The progress made by clinical pathology in recent times is shown by the appearance of numerous monographs dealing with special features of the subject. The volume before us is such a monograph and combines a presentation of our scientific knowledge of normal and abnormal fluids that can be obtained from the cavities of the human body, with practical application of this knowledge for purposes of diagnosis. The general part of the book deals with the chemical and physicochemical methods employed in the examination of puncture fluids; every detail of the technique to be employed is noticed, which makes the book very valuable for purposes of reference. The special chapters consider the characteristics of pleural and peritoneal fluids, of joint effusions, of the cerebrospinal fluid and of the fluids obtainable from cysts. Cytological findings are likewise noted, and the literature of the subject is appended. Dr. Gruner's work will be appreciated by every pathologist, for the book will undoubtedly save many a weary search through recent literature for scattered accounts of technique and findings in the examination of puncture fluids; his judicious statements of the interpretation of such findings are especially to be commended; they show the futility of seeing in any one special method of examination the only path to be followed in diagnosing disease and at the same time serve to place a correct valuation upon the service that a competent examination of the puncture fluids can furnish as a valuable means in aiding such diagnosis. The book is heartily commended to the attention of laboratories, libraries, and individual workers in clinical pathology.

Tuberculosis in Infancy and Childhood; Its Pathology, Prevention and Treatment. By various writers. Edited by T. N. Kelynack, M.D., Member of the Royal College of Physicians of London; Hon. Physician in the Infants' Hospital, Westminster; Medical Adviser to the National Children's Home and Orphanage; Hon. Physician to Mount Vernon Hospital for Consumption and Diseases of the Chest; Member of Hon. Medical Consulting Staff of the National Association for the Feeble-minded. New York: William Wood & Company, 1908.

The present work, consisting as it does of a very full symposium on tuberculosis in early life, is an elaboration and expansion of a series of articles which appeared on the subject in the July, 1907, number of the *British Journal of Tuberculosis*. It is quite unique in its arrangement and is a really valuable addition to the voluminous literature on tuberculosis. Thirty-eight authors, well known in their respective branches, have contributed each a short essay to this work. The papers are all of them brief and to the point, and are evidently written with the principal object of bringing the sum of our knowledge on this subject, in as few words as possible, down to the present hour. The opening chapter by the editor discusses the problem of prenatal, infantile, and childhood tuberculosis, showing very graphically the prevalence of tuberculosis in early life, its frequency among school children, the early development of predisposition, and various pathological considerations. The closing chapter, also by the editor, on the "Prevention and Arrest of Tuberculosis in Infancy and Childhood" summarises our knowledge of prophylaxis and treatment of the disease in the earlier years of life. Among the more interesting chapters, which are especially well conceived, may be mentioned those on "Pulmonary Tuberculosis in Infancy and Early Childhood," by Dr. L. Emmett Holt; "Tuberculosis of the Urinary Tract and Genital Organs in Early Life," by David Newman; "Tuberculosis Among Children in Scotland," by R. W. Philip; "Tuberculosis Among Children in France," by Calmette and Breton; "Exercise in the Management of Tuberculous and Tuberculously Predisposed Children," by Harry Campbell; "The Hygiene of the Nursery in Relation to Tuberculosis," by Mary D. Scharlieb, and "School Hygiene and Medical Inspection in Relation to Tuberculosis in Children," by W. Leslie Mackenzie and J. Hally Meikle. As might be expected, most of the contributors to this symposium are Englishmen, but there is a good representation from the United States, France, Germany, Switzerland, Sweden, and Norway. The work is indexed both for authors and subjects.

Clinical Bacteriology and Hæmatology for Beginners. By W. D'Este Emery, M.D., B.Sc. (Lond.); Clinical Pathologist to King's College Hospital and Pathologist to the Children's Hospital, Paddington Green; Formerly Assistant Bacteriologist to the Royal College of Physicians and Surgeons, and Sometime Lecturer on Pathology and Bacteriology in the University of Birmingham. Third Edition. Philadelphia: P. Blakiston's Sons & Co., 1908.

Dr. Emery's handbook appears in the third edition with only a few changes. These include a brief account of the preparation of bacterial vaccines, some new methods of taking blood cultures by means of all-glass syringes, full description of the technique of spinal puncture as a diagnostic procedure, etc., etc. The book is a concise account of the apparatus and processes of bacteriology, of the methods used in the laboratory diagnosis of certain diseases, of the technical procedures to be followed in collecting material for bacteriological examination and for the examination of the blood. A short account of the newer cytodiagnostic methods is also given. The book is written very clearly and affords a safe guide for the student and the practitioner. Though meant for a beginner in hematology and bacteriology, it should meet the needs of most practitioners of medicine not engaged in extensive bacteriological and hematological work.

Burdett's Hospitals and Charities, 1908; Being the Year Book of Philanthropy, and the Hospital Annual, Containing a Review of the Position and Requirements, and Chapters on the Management, Revenue, and Cost of the Charities; an Exhaustive Record of Hospital Work for the Year; It Will Also Be Found to Be the Most Useful and Reliable Guide to British, American, and Colonial Hospitals and Asylums, Medical Schools and Colleges, Nursing and Convalescent Institutions, Consumption Sanatoria, Religious and Benevolent Institutions and Dispensaries. By Sir Henry Burdett, K.C.B., Author of "Hospitals and Asylums of the World"; "Hospitals and the State"; "Pay Hospitals of the World"; "Cottage Hospitals: General, Fever, and Convalescent"; "Burdett's Official Nursing Directory"; "The Nursing Profession"; "Helps in Sickness and to Health"; "The Relative Mortality of Large and Small Hospitals," and Editor of "The Hospital." London: The Scientific Press, Limited, 1908.

The very comprehensive subtitle of this most useful work of reference explains fully its character and the scope of its contents. This country does not receive as much attention as we wish it might, but the editor explains this by the failure, through press of work, of his American collaborator to contribute a chapter on hospital affairs here. The editor promises "to give more space in future editions to the important work and developments which the American people have undertaken and are pursuing with so much zealous energy." Chapter XII does, however, contain a good deal of practical and useful information relating to American and Colonial hospitals in a form which cannot fail to be of value and interest to all intelligent workers in the field of charity

Society Reports.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Annual Meeting, Held January 18, 1909.

The President, Dr. Robert T. Morris, in the Chair.

A New Method of Recognizing the Presence and Location of an Ulcer of the Stomach.—Dr. Max Einhorn referred to the difficulty of making a positive diagnosis in ulcer of the stomach, where one frequently had to rely upon the presence of blood. Some months ago, while treating a case of suspected gastric ulcer, he introduced a duodenal bucket, which passed through the pylorus into the duodenum, and upon its withdrawal the following morning the white thread to which it was attached was found to be blood-stained at a point corresponding to the pyloric orifice. This led to the idea of the present method, which consisted, essentially, in introducing the duodenal bucket and leaving it over night in the digestive tract. After its withdrawal, the thread was inspected. If there was distinct impregnation of blood, it indicated the presence of ulcer. The thread test was applicable only if the ulcer was situated along the esophagus, cardia, lesser curvature of the stomach, pylores, or duodenum. For ulcers in other regions of the stomach the following procedure could be applied: A thin rubber bulb with a rubber tube attachment, through which it could be inflated, and inclosed in a white linen-mesh bag, was introduced into the stomach and then inflated and allowed to remain in contact with the stomach walls for thirty minutes. Then it was deflated and withdrawn. After its withdrawal it was again inflated and allowed to dry. The linen-mesh bag surrounding the rubber bulb would then distinctly show traces of blood or ulcerated tissue with which it had come in contact in the stomach. In one of the cases in which he had resorted to this expedient, Dr. Einhorn said, the presence of an ulcer on the base of a cancer was discovered; in others there were evidences of ulceration and blood. The location of the ulcer could often be ascertained by this method.

Some Serious Lapses in Administrative Hygiene.—By Dr. Homer Wakefield. (See page 220.)

Dr. Charles E. North said he agreed entirely with what Dr. Wakefield had said in regard to undrawn cold storage poultry. With reference to cold storage eggs, the speaker referred to the method of keeping broken eggs in liquid form in large cans. These were not evaporated, but simply broken, and were largely used by bakers in making cake. Under proper restrictions, this was not a bad method of preserving eggs for baking purposes, and was certainly better than allowing the bakers to use cracked and discarded eggs, which was not infrequently done, the bakers depending on the heat of the oven to get rid of the odor and taste. Whether this also destroyed the toxins of bad eggs the speaker was unable to say. He said he agreed with Dr. Wakefield that rotten ensilage should not be fed to cattle. The more reputable dairies fed their cattle with good ensilage. The question arose whether toxins were ever produced in milk before it soured. As to pasteurized milk, he had been unable to kill guinea pigs by injecting them with milk thus treated. Probably the heat destroyed most of the toxins, or else the bacteria that remained after pasteurization did not produce toxins.

Dr. J. Herman Branth said the climax of commercial greed had been shown in the process of storing undrawn poultry by the freezing process, and then selling this, manure and all, as food. He had been told that many hunters drew partridge, quail, rabbits, squirrels, etc., at once, and fed the dogs on the entrails, which they believed improved the hunting quality of the dogs, while they claimed that game thus drawn possessed the finest flavor. Others leaned towards the so-called French style, where the gourmand had cultivated the "gamey" or "high" taste which the early stages of putrefaction furnished. The French, for instance, cooked or baked reed birds with the entrails, claiming that the contents of the intestine, owing to the food of the bird, imparted a certain "nutty" taste. Then, Dr. Branth asked, why not cook squirrels the same way? Or, better still, take out the entrails, cook these and discard the carcass. This was said only to show contrast and absurdity. The speaker then quoted from Dr. Harvey W. Wiley, U. S. Government Chemist, who testified before the Congressional Committee on Agriculture in Washington to the effect that while cold storage for a short time was a good thing for some foods, it was positively harmful for others, and that he was carrying on certain experiments in order to learn how long certain articles of food might safely be kept. In the manner of our feeding, Dr. Branth said, we were getting too far away from nature. Food preserved for a long time must deteriorate. The best we could do was to preserve some foods until the season for their production arrived again, but let such a process of preservation be clean, like the steps of an aseptic operation, a process in which the entrails of animals or of birds had no place. The sale of undrawn poultry ought to be prohibited. From a Jewish rabbi he had learned that Jews dressed the fowl on the day of killing and that they did not eat meat kept for a long time. Our Board of Health took great pains to inspect every cow stable and dairy, so that the milk supply of the city might be wholesome; why not urge a movement that similar attention be given to poultry farms?

Dr. Henry G. Piffard said that some years ago the Board of Health declared that undrawn poultry was more wholesome and less liable to bacterial infection than were fowls that had been opened and drawn. That was one of the foolish regulations adopted by our health authorities. Dr. Wakefield, in his paper, had referred to ensilage containing butyric and lactic acid, which was known as sour ensilage, but he had said nothing about that in which there was not an acid but an alcoholic fermentation; this was the kind that many dairymen preferred to use and many cattle preferred to eat. In speaking of raw fresh fish, which was a recognized article of diet among the Japanese and certain other nations, the speaker thought that in some respects it was less objectionable than raw oysters. Referring to the use of tuberculin, Dr. Piffard said that about seventeen years ago he wrote a paper objecting strongly to its use in human beings. Personally, he believed that tuberculin had seen its day, and that it would soon be superseded by other methods of detecting tuberculosis. One of these methods, recently devised by a Japanese investigator, was to obtain blood serum or blister serum from a suspected subject; this was injected into a rabbit and the animal was then injected with tuberculin and its effects noted. Still another method was now being experimented with by Dr. Rosenberger of the Jefferson Medical College. Briefly, this was as follows: He drew five c.c. of blood from the median cephalic vein; this was put into a test-tube which already contained a solution of sodium citrate and salt. After twenty-four hours' sedimentation the serum was removed with a pipette, and the thick sediment was spread over a slide. The hemoglobin was washed out and the slide stained with carbol-fuchsin, followed by acid alcohol. In this manner Dr. Rosenberger claimed that he had been able to find the tubercle bacilli in over one hundred cases of clinically recognized tuberculosis, and they had also been found in a number of other cases in which tuberculosis had not been recognized. This method could be applied not only to pulmonary cases, but also to glandular and joint cases. Many years ago, Dr. Piffard said, Jonathan Hutchinson declared that leprosy

was due to eating fish, which were sometimes tuberculous, some species more so than others. In Hawaii it had been found that many of the lepers responded to the tuberculin test, and the lepra bacillus was practically indistinguishable from the tubercle bacillus.

Dr. Achilles Rose said that Küchenmeister, our best authority on helminthiasis, found that the frequency of tapeworm among the Swedish people could be traced to their custom of eating raw salmon.

The discussion was continued by Dr. Branth and closed by Dr. Wakefield.

Demonstration of Models Illustrating Certain Phases of Syphilis.—Dr. William S. Gottheil showed colored wax models, illustrating various lesions of syphilis, including initial lesions of the lip and elsewhere, various forms of scleroses, rupia syphilitica, dactylitis syphilitica, gumma of the penis, tertiary ulceration of the auricle, and one case showing eleven initial lesions on the penis of a man who contracted syphilis during the outbreak of a crop of herpes præputialis. He also showed an interesting model of a bullous iodide eruption of the hemorrhagic type.

The Serum Reaction (Wassermann's Reaction) in Syphilis. The Principles and Technique of the Reaction.—By Dr. Howard Fox. (See page 421.)

The Practical Application of the Reaction and Its Value in the Diagnosis and Treatment of Syphilis.—Dr. Boleslaw Lapowski, discussing this phase of the subject, said the reaction was not a specific one in the bacteriological sense, in that it was not directly due to the products of syphilis, but it might be considered as a clinically specific sign of syphilis, owing to the great number of syphilitic cases where the reaction was positive, reaching the average of 90 per cent. In a very small number of nonsyphilitic cases, such as malaria and leprosy, the reaction was also positive while no syphilis was present. The positive reaction indicated only the presence of syphilis in the organism, but not necessarily the focus of the syphilitic disease. In cases of doubtful diagnosis the positive reaction was of great importance, especially for the surgeon. Many operations would be avoided, and active specific treatment substituted. A positive diagnosis meant syphilis, but a negative one could not always be considered as proof of absent or cured syphilis, as a negative reaction might occur in cases with manifest syphilis. In shaping our plan of treatment, the reaction was not entitled to any more weight than was given to any other clinical symptom of syphilis. We should not be influenced by the reaction alone, but by other considerations, such as the age of infection, the toleration of the patient to mercury, etc. The value of the reaction in the treatment was limited to those stages of syphilis in which we formerly abstained from treatment because, not being able to demonstrate the activity of the syphilitic virus, we acted upon the supposition that the syphilis was either inactive or cured.

Dr. H. Noguchi of the Rockefeller Institute for Pathological Research demonstrated briefly a reaction evolved by him during some experimentation with the various albumin reactions in the spinal fluids of general paralysis and other disorders. This was obtained as follows: 0.1 c.c of the spinal fluid to be tested was placed in a test tube whose diameter was 1 cm. or less. To this was added 0.5 c.c. of a 10 per cent. solution of butyric acid. The tube was now heated until the fluid was bubbling, and while still hot 0.1 c.c. of a normal (4 per cent.) solution of sodium hydrate was added. In nearly all spinal fluids an opalescence or cloud occurred, but in the spinal fluid of general paralysis the cloud soon separated into a definite flocculence which was characteristic The flocculence usually appeared in a few moments—rarely requiring more than twenty minutes. The reaction shown by Dr. Noguchi had the advantage of being positive in a quantity of 0.1 c.c. or less, and of being a qualitative as well as a quantitative test. What the flocculence might mean was not known, but it might consist of some globulin fraction which was found only in syphilitic or metasyphilitic disorders of the nervous system. That the reaction was not entirely quantitative, Dr. Noguchi said, was shown by the fact that many fluids from nonparalytic cases gave much richer clouds than those from paresis, but in such cases the clouds did not flocculate.

Dr. Charles Wood McMurtry said that while these newer methods, especially that of Noguchi, were exceedingly interesting, he thought that for the sake of clinical accuracy we should confine ourselves to the Wassermann reaction—the complement fixation test as laid down by Wassermann-Neisser-Bruck. The speaker suggested that obstetricians should carry test-tubes in their obstetric bags and obtain some of the blood that was lost in delivery, to be utilized for the purpose of securing blood serum for the Wassermann test. This would lead to the detection and treatment of many cases of latent syphilis in apparently healthy women and babies. In abortions, miscarriages, premature deliveries, or the birth of dead fetus, the test would prove of great value. Another suggestion he made was the various health boards should add the Wassermann test to their facilities for diagnosis, so that even the more modest practitioners could avail themselves of this test in treating the poorer classes of patients. Syphilis was a highly dangerous, infectious disease, and as such merited the attention of our health authorities.

Dr. Edward D. Fisher said that his experience with serum reactions in syphilis had been limited to the report of such cases as had come under his observation and not from personal investigation. In the majority of cases of general paresis, the diagnosis could be made from the clinical symptoms; it was in the doubtful cases that the value of these reactions would be tested, and until a greater number of cases had been recorded, and a greater number of control cases had been examined, the true diagnostic value of the Wassermann reaction was still open to question. It was well known that cancer, tuberculosis, typhoid fever, and multiple neuritis had shown the Wassermann reaction. Dr. Fisher said he was very much in favor of experimental work in this direction, but was opposed to optimism when further investigation was still necessary. He asked whether the reaction was present in cases of syphilis after the patients had been subjected to energetic antisyphilitic treatment. He was not aware that any observations had been made covering that point.

Dr. James Pedersen, quoting Dr. Francis Carter Wood, said that such tests as the Wassermann usually passed through four stages, namely, the stage of universal acceptation, the stage of doubt, the stage of almost total neglect, and, finally, the stage of equilibrium—when its true value had been determined by much testing and research. He thought Dr. Lapowski's paper stated admirably the present status of the test under discussion, namely, that it was, and probably always would be, a laboratory aid to the usual clinical facts on which a diagnosis must be based The test should not be regarded as pathognomonic

Dr. B. Sachs said that he had personally applied the Wassermann test in about one hundred cases, and eighty of these he had full control of. While the technique of the method was not easy, it could be acquired by a little patient study, and he advised as many practitioners as possible to take the time and trouble to do this. In every hospital and in every clinic there should be at least one man—preferably one of the younger members of the staff—who was fitted to make these examinations. The value of the test was admitted in all the clinics abroad, and it was a distinct help in the recognition of late syphilitic manifestations. In one case of supposed amyotrophic lateral sclerosis coming under the speaker's observation some doubt was raised as to the correctness of the diagnosis,

and both the blood and cerebrospinal fluid gave a positive Wassermann reaction. The subsequent autopsy proved the case to be one of diffuse cerebrospinal lues. In several cases of supposed disseminated sclerosis the test was employed and showed them to be cases of multiple cerebrospinal syphilis. In one case of transitory paraplegic attacks with sudden unilateral blindness, the patient was referred to an ophthalmologist, who found nothing in the fundus of that eye and regarded it as a retrobulbar neuritis. A syphilitic lesion was suspected, and a positive Wassermann reaction was obtained. Dr. Sachs, in reply to Dr. Fisher's question, said he thought the reaction was modified by energetic specific treatment, and he had noted that under such conditions it became less and less positive.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting, Held February 18, 1909.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

Animal Experimentation.—Dr. JAMES PETER WARBASSE read this paper. Animal experimentation, from the medical standpoint, meant the examination of living animals for the purpose of discovering and observing the functions of organs; determining the effects of operations, injuries, or diseases; ascertaining the reaction of the body to medicinal substances; making diagnoses by injecting suspected materials; discovering the disease-carrying nature of animals; manufacturing prophylactic, curative, or diagnostic sera; discovering antidotal remedies; practising surgical operations; experimenting with the view of finding means for accomplishing the extermination of harmful animals; and studying the nature of diseases which were common to both man and animals. The animals used in these experiments represented practically all animals. The most commonly employed were fishes, mosquitos, mice, rats, guinea-pigs, chickens, dogs, cows, horses, monkeys, and men. A comparatively small amount of experimentation involved operations upon animals, and these operations were practically all performed with the animal under the influence of an anesthetic. In 1907 in England 73,000 experiments upon animals were made, and 96.5 per cent. of these were inoculations; in the remaining 3.5 per cent. anesthetics were used. At the present time not more than one experiment in 100,000 was actually painful to the animal. Pain appreciation was dependent upon the mental development of the individual, and primitive people had an insensitiveness to pain which was beyond comprehension. Their self-mutilations were made possible not so much by bravery as by this low degree of pain sense. Do animal experimenters inflict unnecessary and wanton pain? If an operation had been done that would have a painful result, the animal was usually killed while unconscious. In the physiological laboratory the condition of dogs after operation was not unlike that of their human brethren; they were comfortable and happy, playing about their kennels, and enjoying better care than had before been their lot. Of all the destruction of animals which was now in progress on the face of this earth, he said, he knew of none which was giving greater returns to humanity in contributing to man's health, culture, and happiness, animal for animal, than that practised in the interest of advancing the medical and biological sciences. Every department of physiology owed its best development to animal experimentation. Typhoid fever, tuberculosis, the plague, cholera, diphtheria, yellow fever, malaria, cerebrospinal meningitis, syphilis, smallpox, myxedema, cretinism, and snake-bite were but a few of the maladies that had been studied by animal experimentation and, in consequence, rendered more amenable to treatment. There were a large number of diseases, peculiar to the animals which were useful to man, the natures of which had been discovered and the prevention and cure of which had been accomplished by experiments upon living animals. Professor Huxley said of Pasteur that his discoveries in money value alone had been sufficient to make good the war indemnity of one thousand million dollars, paid by France to Germany. The conquest of diphtheria was due to Pasteur more than to any other man. His experiments were carried on with guinea-pigs, rabbits, and dogs. Regarding the dog as a public menace, the City of New York in one month last year caused 6,000 to be killed. London killed by suffocation more than 30,000 dogs annually. Boston killed 3,500 dogs and 14,000 cats annually. It was just such stray animals as these that were used to increase biological knowledge and help humanity. Which was the better way for them to die, in contributing to man's relief from the scourge of disease, or by being suffocated in closed chambers filled with carbonic acid gas?

It should be remembered that animal experimentation did not mean animal cruelty. The number of experiments in which painful operations without anesthesia were practised was comparatively small. The reference to "cutting up" of living animals, popularly made by those unfortunate persons who spoke in ignorance of these things, was as absurd as it was malicious. The dignity of this subject would not permit the speaker to pay his respects to those deluded persons who opposed these investigations. Most were prompted by ignorance. The psychology of their opposition was well understood by students of sociology and by students of the derangements of the nervous system. There was no great work for human betterment which had not had its "anti" movement. The real cruelty to animals was not in the hands of those who were making animal studies. All of the experiments upon vertebrate animals of every character, with or without anesthesia, everywhere in the world, were inconsiderable compared with the cruelties of the huntsmen and of the drivers and trainers of animals. Animals were ruthlessly slain and dragged away from their young, to clothe our bodies in the skins of wild beasts like prehistoric savages; they added their plumage to the abounding glory of women's hats; they were stripped of their skins to cover our feet and hands; we ate their flesh. Where one animal was mercifully destroyed for the sake of science, tens of thousands were brutally slaughtered for man's vanity. When the question of vivisection was receiving legislative consideration in England thirty-five years ago, Huxley declared that he trusted to the fox-hunting instincts of the House of Commons rather than to any real interest in science in that body for a moderate treatment of the question. As an evidence of unenlightened sentimentality in England, they now had a law which made no objection to a boy trolling for fish or setting lines baited with live frogs, but laid the teacher of the boy open to imprisonment and fine if he used the same animal to demonstrate to the boy the circulation of the blood in the web of its foot without inflicting any pain, and only subjecting the animal to the annoyance of being wrapped and restrained in a wet cloth. Now English scientists were going to France and Germany to carry on their studies.

SECTION ON SURGERY

Stated Meeting, Held January 8, 1909.

DR. ELLSWORTH ELIOT IN THE CHAIR.

Fracture of the Os Magnum.—Dr. EDWARD W. PETERSON presented this case. He said that in the December number of the *Annals of Surgery* Dr. A. H. Harrigan of New York reported cases of fracture of the os magnum

and, in a search through the literature, he had succeeded in finding but five authentic cases of fracture of this bone. Therefore, he thought it might be of interest to show another case. The patient was a man, fifty-eight years old, who tripped and fell upon the extended hand. An examination two days later showed the dorsum of the hand swollen and a painful joint. There was a particularly painful and tender point over the head of the os magnum. Upon manipulation there was a distinct bony crepitus. Dr. Peterson showed radiographs taken of the joint. He presented the patient because of the rarity of the injury sustained. It might have been mistaken for a sprain. To-day there was proper function of the joint.

Dr. CONNELL took exception to the *x*-ray findings shown in the radiograph presented by Dr. Peterson, and said that the line demonstrated as fracture of the os magnum was quite common in pictures of the wrist. This was caused by an overlapping of the os magnum by the posterior margin of the scaphoid.

Dr. SAMUEL LLOYD regretted that a picture of the normal wrist was not shown. The plate shown by Dr. Peterson should be considered with the clinical symptoms. There was, in his opinion, no doubt as to the diagnosis of fracture of the os magnum. There was a distinct crepitus produced when this bone was seized with the fingers.

Dr. PETERSON said that the diagnosis of fracture of the os magnum was made before the patient was sent to be *x*-rayed.

Direct Blood Transfusion for Gastric Hemorrhage.—Dr. CHARLES H. PECK presented a woman, twenty-eight years old, who was admitted to the hospital July 1 with a history of having had ten severe hemorrhages from the stomach in the seven days preceding her admission. She had indigestion and epigastric pain, and was greatly exsanguinated. Operation was deferred because of her critical condition, and in the hope that the hemorrhages would cease. The day after admission she passed a large quantity of blood in the stools, showing that fresh bleeding had occurred. It was then decided to do a direct transfusion of blood, with her husband as the donor. The flow was maintained for thirty-five minutes, with an immediate improvement in the patient. Before the transfusion was begun the hemoglobin was 30 per cent., the red cells 990,000, and the blood pressure 105. Immediately after the transfusion the hemoglobin was 60 per cent., the red cells numbered 2,400,000 and the blood pressure was 144. On July 6 the pallor was seen to be increasing, and she had a slight icteric tinge. On July 7 the pallor still increased, the hemoglobin was again 30 per cent., the red cells 1,040,000, and it was then that they decided upon doing a gastroenterostomy. This was done with the posterior suture and no loop method. There were no macroscopical evidences of ulcer found. Following the operation she was able to take nourishment and medication well. Up to July 12 the red cells numbered about 1,000,000. From then on the convalescence was uneventful. She left the hospital twenty-four days after the gastroenterostomy. This case was of interest because of the immediate benefit that followed the direct blood transfusion. Just what part the operation of gastroenterostomy had to play in her recovery he could not say.

Sarcoma of the Calf of the Leg.—Dr. JOHN F. ERDMANN presented this case. The patient was a dentist, twenty-two years old. His illness began two years before his visit to Dr. Erdmann's office. The right calf was swollen and larger than the left. It gradually increased in size, becoming hard and fixed. It was semifluctuant, and the size of a cocoanut. It presented the appearance of a sarcoma. The circumference was nineteen and a half inches. On August 6, Dr. Erdmann excised the tumor, taking away with it the gastrocnemius muscle, as well as everything that looked at all suspicious. The man made a perfect recovery, and now had no difficulty in walking or standing during the long periods required by his occupation as a dentist. He could raise the body while standing on the affected foot alone.

Foreign Body in Intestines.—Dr. W. S. SCHLEY presented a boy whom he had seen at the dispensary that same afternoon. At four o'clock the day previous, while attempting to demonstrate his ability to pass into his throat a stick, he met with this accident. The stick of wood, four inches long and about the thickness of the finger, was grasped by the muscles of the pharynx and passed to the esophagus and from there to the stomach and intestines. This foreign body was first felt in the intestines about the level of the umbilicus and, upon examination, was later felt in the jejunum. Dr. Schley thought that it would be passed in the natural way and operation would not be required.

The Operation of Direct Blood Transfusion, with the Description of a Simple Method.—Dr. JOHN A. HARTWELL read this paper, which dealt with the technique of direct transfusion and its dangers, with the means of guarding against the latter. The improved method of end to end suture of the donor's artery and the recipient's vein, as practised by Carrel, gave perfect results in animals, and had been used with success in the human subject. It was an operation, however, of very difficult execution, and in the hands of many surgeons had failed because of the formation of a clot. Its success depended upon the most rigid asepsis, and a most careful attention to every detail. His own experiences, as well as the experiences of others, led Dr. Hartwell to devise some simpler and more certain method for the transfusion of blood. The radial artery of the donor was dissected out for a distance of two inches, or more if convenient, under cocaine anesthesia. The small branches were isolated and tied, and a ligature thrown around the distal end, but not tied. The wound was covered with a moist, warm pad. An accessible vein in the forearm of the recipient, below the bend of the elbow, was exposed for the same length. If possible, a small tributary was dissected free for an inch at some point central to the proposed site of anastomosis. This was loosely clamped at its distal end. A ligature was then tied around the distal end of the main vein, and the vein divided just central to it. If needed, a light obstructing clamp was put on the vein higher up, but it was not always required. The adventitia was carefully stripped from the cut end of the vein, and three sutures of fine silk impregnated with vaseline were passed through the media and intima at a distance of 120° on the cut circumference of the vein. The wound was then covered with a moist, warm pad. The artery ligature was then tied, an obstructing clamp was gently placed on its exposed central part, and the artery divided with sharp fine scissors just above the ligature. The adventitia was removed from the cut end, and then a small roll of it was slid upward along the artery for a distance of an inch or more, and left attached. Through this a silk ligature was passed, tied, and cut about one-half an inch long. The artery was then immersed in liquid vaseline, and by means of a small forceps gently grasping it at about one inch from its cut end, was passed directly into the mouth of the vein, which was held open with the three sutures. The arterial wall was sufficiently rigid to make this step very easy. One, or if need be, two, of the venous sutures were then clamped either to the suture in the adventitia, or to a radial branch, in order to prevent the separation of the two vessels, and the excess of venous circumference clamped so as to snugly hold the artery, but not to constrict it. The obstructing clamps were then removed, and the flow proceeded. The dangers to the recipient attending the operation fell under four heads, viz., a hemolytic action of one blood on the other, the entrance of blood

or air emboli into the circulation, the use of a donor who had some undemonstrable communicable blood disease, and over distention of an enfeebled right heart. Dr. Hartwell offered the following conclusions: (1) The operation of direct blood transfusion as practised with suture and cannula showed a large percentage of unsatisfactory results. It required special instruments and unusual skill for its successful execution. (2) The direct entrance of the artery into the vein had proved a simpler and more satisfactory method in a large series of experiments and in one clinical case. (3) At present they had no means of obtaining accurate knowledge of the quantity of blood entering the vein. The changes in hemoglobin, red cell count, pulse rate, and blood pressure must all be given weight in estimating this quantity. Actual weighing of the donor might solve the problem. (4) The operation was not without danger from hemolysis, embolus, or over distention of the right heart, but with proper care these should be avoidable. All the animals used in the work were fully anesthetized with ether.

Plastic Surgery of Blood-vessels and Direct Transfusion of Blood.—Dr. Isaac Levin read this paper. He said that plastic surgery of blood-vessels was one of the great achievements of modern experimental surgery. This late development of vascular surgery was due to the special difficulties encountered in dealing with this organ. In repairing a loss of continuity of such a tube, the surgeon, besides the usual aseptic precautious, had to take into consideration the possibility of a secondary hemorrhage and the formation of thrombosis with subsequent arrest of the circulation and embolism in some vital organ. Only in 1889 were reported the first successful results of the suturing of arterial wounds with preservation of the lumen of the vessels. Since then quite a number of investigators had studied the subject. Some had used different mechanical devices to unite the severed ends of the blood vessels; others produced the anastomosis with the help of sutures of various forms. Plastic surgery of blood vessels consisted in lateral sutures of veins and arteries, circular sutures of veins and arteries, arteriovenous anastomosis, and transplantation of arteries and veins. To implant an arterial segment successfully meant to avoid the formation of an intravascular thrombus after the operation. Blood remained fluid so long as it circulated in a vessel lined with an unimpaired living endothelium. Should the endothelium be injured through infection or trauma, a thrombus must form. In incomplete transplantations the segments certainly remained alive. In complete autoplastic and homoplastic transplantations, it seemed probable that the implanted segments remained alive. But in implantation of arterial segments of different animal species and segments, that had been kept for days in the refrigerator at a temperature between 0° and 1° C., the question presented itself whether these segments really remained alive, or whether it was possible to implant devitalized arterial segments; and the theories of intravascular coagulation of blood had to be revived. Dr. Levin had therefore performed in collaboration with Dr. John Larkin, a series of experiments with the transplantation of devitalized arterial segments. The technique followed in their operations was the one elaborated by Carrel. In the first series of experiments, they transplanted into the abdominal aorta of two dogs and two cats, segments of the abdominal aorta of the same species of animals placed for a few minutes in boiling water. In the second series they transplanted into the abdominal aorta of two dogs segments of a human ureter procured at a fresh autopsy and hardened in 4 per cent. formalin. In both series the circulation in the femoral arteries ceased very soon after the operation; there developed paralysis of the lower extremities, and the animals died within twenty-four hours after the operation. The autopsies showed that the implanted segment had collapsed and presented a much smaller lumen than the abdominal aorta of the host. In the third series of experiments they implanted in the abdominal aorta of two dogs and two cats, segments of the abdominal aorta of the same species hardened in 4 per cent. formalin. The segments selected had the same lumen as the aorta of the host. The result in every experiment was the formation of a thrombus, paralysis of the lower extremities, and death within two or three days after the operation. They then decided to select segments which would have at the time of operation a wider lumen than the aorta of the host. The operation was done on two dogs. The first did well for ten days; there was normal pulsation in both femoral arteries. On the eleventh day, the animal was found in the morning with protruding intestines. A secondary laparotomy was performed, but the dog died during the day. Both anastomoses held perfectly; the implanted piece was patent, without any thrombi The other animal did well for ten days. One the eleventh day they gave the animal anesthesia to dress the wound, and it died in a few hours, apparently from the influence of the ether. An analysis of these results showed that for ten days the circulating blood was passing through a dead canal and it remained fluid. It seemed, therefore, that blood need not necessarily run through a vessel lined with living endothelium in order to remain fluid. The implanted tube need have only a very smooth inner surface, its lumen corresponding perfectly to the lumen of the rest of the blood-vessel, and the line of anastomosis being perfectly smooth and even. While in plastic surgery the suture had proved to be of more value than the different cannulas, the temporary anastomosis required for the direct transfusion of blood was more readily and quickly accomplished with the aid of some mechanical appliance.

A Clamp Designed for Direct Blood Transfusion.—Dr. Isaac Levin presented this new instrument. This clamp required a less complicated technique and less time for the performance of the operation than Crile's instrument did. The instrument was an artery clamp without the grooves. At the tip of each blade there was attached a small cannula with a smooth bore. At the inner edge of each cannula there were attached four small pin points, and on the other surface of the cannula there were cut four grooves. When the clamp was closed, the pins of one cannula lay in the grooves of the other. The cannulas had a pyramidal form because the pins were bent outward. At the beginning of the operation both halves of the cannula were separated. The vein was pushed through one cannula and its wall was hooked on the pins. The same was done with the artery and the other half of the clamp. Then both halves of the clamp were united and clamped. When the clamp was closed, both blood-vessels were connected by the serous surfaces.

Dr. George E. Brewer said that he had had similar ideas to those expressed by Dr. Hartwell, and he believed that Dr. Crile's method with the cannula had an objection in being rather complicated and being difficult of performance. Dr. Brewer had experimented with this method and felt that he had developed a good technique; but when one was in a hurry, the circumstances surrounding the case were not so favorable. It had occurred to him that a simpler method was to be desired, and last spring he experimented further, with the result that it was his privilege to present two glass tubes that he had had made. At each end there was a small nodule and a sulcus in which the vessel was to be tied. It was coated within with liquid paraffin. These tubes he had tried on animals with perfect success. The operation was easy and results marvellous.

Dr. George Woolsey said that when he saw Dr. Crile do the operation a year and a half ago he thought it was an easy procedure; but in four cases that he had used the

Crile cannula, he had found the technique not so easy. But it should be borne in mind that after a few experiments the technique was not so difficult. The improvement was in the diminution of the time consumed in operating.

Dr. C. Clarence Sichel reported a case of transfusion performed on a woman who had a profuse hemorrhage following delivery, the donor being the husband. The glass tube was used and a perfect recovery followed the operation. The hemoglobin went from 19 per cent. to 25 per cent. and the red cells from 900,000 to 2,500,000 while the leucocytes diminished from 23,000 to 14,000.

Dr. Charles H. Peck said that he had used the cannula for transfusion in three cases and successfully.

Dr. Clarence A. McWilliams hoped that Dr. Hartwell's method would prove successful. He said he had had four cases in which he had transfused with the Crile cannula, two being successful, and two being failures. The failures were due to the fact that the radial arteries were small; the cannulas, too, were so small that when the vein was pulled through, there was no lumen left.

Dr. Charles A. Elsberg presented a simplified transfusion cannula which he had devised.

Case of Exarticulation of Shoulder for Carcinoma of the Humerus.—Dr. Joseph Wiener reported this case, which was illustrated by *x*-ray plates: The patient was a Russian, fifty-six years old. He had had endocarditis for several years. One and a half years ago he fell upon his elbow and said that he had a fracture at the upper third of the humerus. This was followed by good union. One year later (six months ago) he began to have pain in the right arm which steadily became worse. During the past two months there was almost complete disability of the right arm and forearm which he carried in a sling. He could pronate, supinate and flex the forearm only slightly. On examination the whole right upper extremity was seen to be atrophied from the disease. At the upper one-third of the humerus there was a bony tender swelling. The patient had chronic bronchitis, emphysema, endocarditis, etc. A small hard nodule was noted in the median lobe of the prostate. There were, however, no urinary symptoms. The fluoroscope showed bone in the upper one-third of the humerus almost completely destroyed. There was a thin shell of bone present and the entire medulla was occupied by a new growth. An exarticulation at the shoulder was performed. The tumor involved the shaft of the humerus and had perforated into the muscles. The diagnosis was made of metastatic carcinoma, possibly primary in the prostate.

Supracondyloid Fracture of the Left Humerus, with Malposition of Fragments.—Dr. Joseph Wiener reported the case of a boy, sixteen years old, who was admitted to the hospital September 14. Two and a half weeks before admission he ran into a fence while riding down hill on a bicycle, fracturing his arm above the left elbow. The arm was put up at the dispensary in full extension for a week. The arm was then put up in flexion with an anterior and posterior moulded splint and had remained in this position since the several *x*-ray pictures had been taken. Upon examination the arm was shown to be held at an angle of 110 and with great limitation of flexion and extension, only 10 flexion being possible. The outlines at the elbow were almost obliterated. The olecranon was not displaced. The distance from the oletranon to the internal condyle was normal. The distance from the olecranon to the external condyle was greatly increased. There was a large deposit of callus at the lower end of the humerus, chiefly around the external condyle. On September 16, a three-inch incision was made over the outer condyle and the line of fracture exposed. The upper fragment was found to be forward, the lower fragment was displaced backward and drawn upward by muscular action. The line of fracture was very oblique. Attempts to approximate the fragments by traction on the forearm and counterextension on the arm failed. Accordingly the lower end of the upper was freed of periosteum and a section of the bone was sawn off obliquely on the posterior aspect of the upper fragment in such a manner that it could be properly and perfectly approximated to the upper surface of the lower fragment. The two fragments were then approximated by a few chromic sutures, as well as the periosteum. A single nail was then hammered through both fragments. The muscles were sutured. The elbow was not opened. The arm was placed in plaster-of-paris at an angle of 110°. Twenty-one days later the wound was found to have healed by primary union. The stitches were removed and the nail easily withdrawn. The arm was placed in a sling. On October 23 the adhesions were broken up under gas. The patient left the hospital with almost complete extension and flexion to 110°.

Pathological Society of Philadelphia.

At a stated meeting held February 12 Drs. Arthur V. Meigs and C. B. Farr exhibited "A Heart Showing an Extreme Degree of Aortic and Mitral Stenosis." The specimen came from a woman 66 years old and the lesions were known to have existed for 57 years, though three generations of physicians in one family. Dr. John Funke exhibited a specimen of "Lymphosarcoma Involving the Omentum." The omentum was the seat of an enormous number of growths of varying size, while the pelvis contained quite a large tumor. Dr. Funke exhibited also "A Heart With a Congenital Malformation." The foramen of Botal was but partially closed, the orifice of the pulmonary artery was greatly diminished in size, the ductus arteriosus was patulous, while the aorta had a joint origin from both ventricles. Dr. Funke further exhibited for Dr. W. M. L. Coplin preparations of gelatin demonstrative of the mechanism of the development of edema. The application of formic acid gave rise to the formation of an elevation on the surface of the gelatin, and this could be prevented by the previous application of other substances of different reaction, such as fuchsin. The phenomenon was intended to illustrate the physiochemical origin of edema. Dr. R. S. Lavenson exhibited a specimen of "Sacculated Aneurysm of Arch of the Aorta and Cylindrical Aneurysm of the Descending Aorta." Dr. H. S. Wieder exhibited a specimen of "Ruptured Double Sacculated Aneurysm of the Arch of the Aorta." The specimen came from a woman who had had right hemiplegia and aphasia and who died suddenly without obvious cause. The first aneurysm arose from the arch of the aorta, while the second involved also the innominate and the left carotid and subclavian arteries. In celebration of the hundredth anniversary of the birth of Charles Darwin, Dr. Arthur Erwin Brown delivered an address entitled "Darwin and His Work." He pointed out that the Philadelphia Academy of the Natural Sciences was one of the first learned body to confer honorary membership on Darwin following the publication of his "Origin of Species," and he dwelt upon the several phases of Darwin's life, how he failed to exhibit any fondness for medicine or the ministry, and how his opportunity came in the fitting out of the brig-of-war "Beagle" for a voyage of scientific exploration, Darwin receiving appointment as naturalist to the expedition. The expedition occupied five years, during most of which, while at sea, Darwin was sick. However, he made a vast number of observations, which furnished the basis for forty years of subsequent literary and scientific activity, in the face of serious physical disability resulting from impairment of health consequent upon his earlier voyage. Dr. Chas. W. Burr delivered an address on "The Influence of Darwin on Medical Thought."

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

North Dakota State Board of Medical Examiners.

Grand Forks, October 6, 1908.

ANATOMY.

1. Name the coverings of an oblique inguinal hernia.
2. Bound the axilla and name the contents of the axillary space.
3. Describe the femur and the joints which it forms a part of.
4. Where is Poupart's ligament? What structures lie beneath it?
5. Locate and describe the gall-bladder and ducts.
6. Describe the colon and give its relation to other abdominal organs.
7. Name the divisions of the auditory apparatus.

HISTOLOGY.

1. Describe fully the process of indirect cell-division.
2. Name and describe fully the cells found in the red marrow.
3. Describe a non-medullated nerve fibre and tell where they occur.
4. Give the histology of the stomach and describe the differences between the pyloric and cardiac ends.
5. Give the histology of the nasal mucous membrane.

PHYSIOLOGY.

1. Describe the course of the blood through the heart. Give the causes of the heart sounds.
2. What factors produce pulsation in the arteries?
3. Describe and give an example of reflex movement.
4. Give the composition of pancreatic juice. Mention the foods it acts upon.
5. What changes take place in the blood during its passage through the lungs?
6. Describe the process of coagulation of blood.

CHEMISTRY AND TEXICOLOGY.

1. Define organic chemistry.
2. Describe Heller's test and discuss its value.
3. Define (*a*) specific gravity, (*b*) an acid.
4. Describe the indican test in urine. Of what value is it?
5. How would you decide whether a patient was suffering from opium poisoning or uremic coma?
6. Describe condition of a patient ten minutes after drinking one ounce of carbolic acid. What treatment would you order?
7. Give symptoms and treatment of opium poisoning.
8. Give antidotes for poisoning by (*a*) aconite, (*b*) corrosive sublimate, (*c*) "poison fly paper."

MATERIA MEDICA.

1. What is an escharotic? Give names of three.
2. Write prescription for a suppository for irritable hemorrhoids.
3. Give dose of following: (1) urotropine, (2) phenacetine, (3) extract of opium, (4) sulphate of atropine, (5) trional, (6) sulphate of strychnine, (7) sodium salicylate, (8) tincture of strophanthus, (9) Dover's powder, (10) aromatic spirit of ammonia.
4. Define the following: (1) analgesic, (2) narcotic, (3) hypnotic, (4) sudorific, (5) mydriatic, (6) hepatic stimulant, (7) anthelmintic, (8) collyrium, (9) ecbolic.
5. Name all the different methods of administering drugs.
6. What official glandular extracts do we have, and from what obtained?
7. Give antidotes for following: (1) arsenic, (2) strychnine, (3) iodine, (4) phenol, (5) cocaine sulphate.
8. Name the official preparations of opium and the dose of each.
9. From what is pilocarpine hydrochlorate derived? Give its dose and physiological action.
10. Name contraindications for the use of digitalis.

PATHOLOGY.

(Answer any five questions.)

1. Give the pathology of acute tonsillitis.
2. What are some of the cardinal signs of inflammation?
3. Describe the changes occurring in the lymphatic structures in typhoid fever.
4. What is gonorrhea?
5. Give the pathology of acute dysentery.
6. What are cysts? How are cysts formed? Give the varieties of cysts.
7. Give the pathology of the false membrane of the throat in diphtheria.
8. Mention the neoplasms. Describe a slough.

PRACTICE.

1. What is angina pectoris and with what may it be confounded?
2. Define hemoptysis, etiology, prognosis, treatment.
3. What is edema of the lungs, and what medicines will produce it?
4. What is asthma, and why do the paroxysms usually occur at night?
5. What is myxedema, and what treatment gives best results?
6. Scorbutus—predisposing causes, symptoms, diagnosis, prognosis, treatment?
7. How would you handle a case of diabetes insipidus?
8. What is muscular rheumatism? Name some varieties.
9. Given a case of incipient tuberculosis—your method of taking care of it, based on latest scientific principles.
10. Define and treat a case of erysipelas.

SURGERY.

1. What are the indications for trephining the skull, and describe your method?
2. How would you treat a simple fracture of the femur at the middle third?
3. Give diagnosis and treatment of osteomyelitis.
4. How would you administer ether? How guard against accidents, and what are the contraindications for its use?
5. How would you treat a fracture of the inferior maxillary bone?

DISEASES OF WOMEN AND CHILDREN.

1. Give treatment, local and general, for leucorrhea.
2. What is salpingitis? Give etiology and treatment.
3. Differentiate ovaritis from appendicitis.
4. Give the symptoms, diagnosis, and treatment of vomiting in pregnancy.
5. Cause and treatment of dysmenorrhea.
6. Write a prescription for treatment of acute eczema, in infant.
7. Diagnosis and treatment of whooping cough.
8. Differential diagnosis between scarlet fever, measles, and German measles.

OBSTETRICS.

1. Name subjective and objective signs of pregnancy.
2. Causes and treatment of post-partum hemorrhage.
3. Etiology, symptoms, and treatment of placenta prævia.
4. Your treatment of abortion.
5. Describe your first case of labor.

NERVOUS DISEASES.

1. Define Cheyne-Stokes respiration; give its diagnostic significance.
2. What is the significance of the patellar reflex as a sign of disease?
3. Give causes, symptoms, and prognosis of Bell's paralysis.
4. Describe the symptoms and treatment of a case of apoplexy due to cerebral hemorrhage.
5. Give symptoms and treatment of locomotor ataxia.

EYE AND EAR.

1. How would you treat conjunctivitis of gonorrheal origin?
2. What are the causes of iritis? Give your treatment.
3. Give causes and treatment of mastoiditis.
4. How would you perform paracentesis of the membrana tympani?
5. Give causes and treatment of earache.

MEDICAL JURISPRUDENCE.

1. (*a*) After receiving a license to practise medicine, surgery, and obstetrics in the State of North Dakota, what must the recipient do with the same before he can legally embark upon the practice of his profession?

(*b*) What is the penalty for practicing medicine, surgery, or obstetrics in this State without complying with the law?

(*c*) Is a duly licensed physician exempt from jury duty in the courts of justice in this State?

(*d*) When a physician has knowledge of a contagious, epidemic, or infectious disease within the jurisdiction of a local board of health, what does the law of this State require him to do?

(*e*) In case of the death of a patient, what does the law of this State require of all practicing physicians concerning the report of the same?

2. (*a*) Give six commonly known signs of death.

(*b*) Is it possible to determine to an absolute certainty without postmortem, whether or not death has in fact occurred? If so, how?

3. Give the usual motives which, in a general way underlie malingering, and state what general observations would assist you in differentiating between the feigned and the real condition of a suspect.

4. (*a*) What is medical expert testimony?

(*b*) Upon what is it based?

(*c*) Who is qualified to give it?

(*d*) Distinguish between medical expert testimony and positive testimony.

5. (*a*) Define malpractice.

(*b*) What is the statutory limitation for the commencement of a civil action against a physician in this State, to recover damages for alleged malpractice?

(*c*) Is a physician by law authorized to perform an abortion under any circumstances?

(*d*) Is a successful abortion, performed with criminal intent, but with great skill and for compensation, in a case where the parties interested desire such an operation, in law malpractice.

PREVENTIVE MEDICINE.

1. How would you fumigate for smallpox, in the country?

2. If called to a family with diphtheria, what would be your course regarding: (*a*) Those afflicted with the disease, (*b*) those who have not, (*c*) the community at large.

3. Name all the diseases that you know might result from drinking impure water, and how prevent them.

4. Outline a plan for the disposal of garbage and sewage in a prairie town of 1,500 people.

5. How is glanders contracted in man, and how prevented?

6. Name two important diseases that may be contracted from milk and what steps could be taken toward preventing same?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

NORTH DAKOTA STATE BOARD OF MEDICAL EXAMINERS.

Grand Forks, October 6, 1908.

ANATOMY.

1. *The coverings of an oblique inguinal hernia* are from without inwards: Skin, Superficial fascia, Intercolumnar fascia, Cremasteric fascia, Infundibuliform fascia, Subperitoneal areolar tissue, and Peritoneum.

2. The axilla is *bounded: Anteriorly*, by the clavicle, Subclavius, Pectoralis major, costocoracoid membrane, Pectoralis minor; *posteriorly*, by the Subscapularis, Teres major, and Latissimus dorsi; *internally*, by the first four ribs, first three Intercostal muscles, Serratus magnus; *externally*, by the humerus, Coracobrachialis, and Biceps.

Contents: Axillary vessels; brachial plexus of nerves and their branches; some branches of the intercostal nerves; lymphatic glands, fat, and loose areolar tissue.

4. *Poupart's ligament* is the lower border of the aponeurosis of the External oblique, and extends from the anterior superior spine of the ilium to the spine of the pubis.

The anatomical structures which lie beneath Poupart's ligament are (from without inward): External cutaneous nerve, Iliacus, anterior crural nerve, Psoas, femoral artery, femoral vein, femoral ring.

6. The COLON is divided into ascending, transverse, descending, iliac, and pelvic.

The *ascending colon* extends from the cecum to the under surface of the liver to the right of the gall bladder, where it turns to the left, forming the *hepatic flexure*. It lies in the right iliac and right hypochrondriac regions. The peritoneum covers the anterior and lateral surfaces. Length, 8 inches.

Relations.—In front: The convolutions of the ileum

Behind: Iliacus, quadratus lumborum, outer side of right kidney.

The *transverse colon* passes from right to left, from the gall-bladder to the spleen. It forms an arch, convex anteriorly and below: *the transverse arch of the colon*. It is entirely surrounded by peritoneum, which is attached posteriorly to the spine, forming the meso-colon. Length, 20 inches.

Relations.—Above: Liver, gall-bladder, large curvature of stomach, lower end of spleen.

Below: Small intestines.

Anteriorly: Anterior layers of great omentum, anterior abdominal wall.

Posteriorly: Right kidney, second part of duodenum, transverse meso-colon, panereas, and small intestines.

The *descending colon* passes from the end of the transverse colon by a bend, *the splenic flexure*. Between the splenic flexure and the diaphragm, opposite the tenth left rib, is a fold of the peritoneum, the *costocolic ligament*, which slings up the spleen. The gut then passes downwards to the iliac crest, ending in the iliac colon. The peritoneum invests its anterior and lateral surfaces. Length, 4 to 6 inches.

Relations.—Behind: Left crus, left kidney, quadratus lumborum, and psoas.

In front: Small intestines.

Inner side: Outer border of left kidney.

The *iliac colon* is continuous with the descending colon at the left iliac crest, and ends at the inner border of the left psoas. Peritoneum invests its anterior and lateral surfaces; it has no mesentery. Length, 5 to 6 inches.

Relations.—In front: Small intestines; when distended, the anterior abdominal wall.

Behind: Left ilio-psoas.

The *pelvic colon* extends from the inner border of the psoas to the level of the third sacral vertebra. Length, 16 or 17 inches; very variable. It has an extensive mesentery.

Relations.—Passing over left brim of pelvis, it crosses the left external iliac vessels and left ureter, and passes to right margin of pelvis, resting on bladder in male and uterus in female; above lie coils of small intestine. It then turns back to mid-line on posterior wall of pelvis, and forming a second bend, descends to end in the rectum. (From *Aids to Anatomy.*)

7. The *auditory apparatus* is divided into: (1) The external ear; (2) the middle ear, or tympanum; and (3) the internal ear, or labyrinth.

PHYSIOLOGY.

1. The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

2. *Pulsation in the arteries is caused by:* The ventricular systole, the elasticity of the arterial walls, and the volume of blood in the vessels.

3. *Reflex movements* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve.

Reflexes are classified as: (1) Superficial, (2) deep, and (3) visceral.

Example: The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck: the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

4. *Composition of pancreatic juice:* Water and solids, the latter consisting of three enzymes (trypsin, amylopsin, and steapsin), proteid material, soaps, fats, lecithin, and inorganic salts (carbonate of sodium, chloride of sodium, and phosphates of sodium, calcium, and magnesium).

It acts upon proteids, fats, and starches.

5. The changes which take place in the blood during its passage through the lungs, are: (1) the giving up of CO_2 by the venous blood, (2) the absorption of oxygen during inspiration, (3) the blood is cooled, and (4) it also loses a small amount of watery vapor

6. When blood is withdrawn from the blood vessels of the living body, it first becomes viscid, then sets, and is

converted into a jelly-like mass. This is due to the formation of fibrin. The jelly contracts, forming the clot; and at the same time the serum is squeezed out from the clot. Various circumstances and conditions will hasten or delay the process of coagulation. In man, the blood generally becomes viscid in from two to three minutes; it forms the jelly-like mass in from five to six minutes; a few minutes later the serum begins to appear; and the whole process is completed in from twenty-four to thirty-six hours. The clot then floats in the serum. The process is thus summed up by Haliburton: In the plasma a proteid substance exists, called Fibrinogen. From the colorless corpuscles a nucleo-proteid is shed out, called Prothrombin. By the action of calcium salts prothrombin is converted into fibrin ferment, or Thrombin. Thrombin acts on fibrinogen in such a way that two new substances are formed: one of these is unimportant and remains in solution; the other is important, viz., Fibrin, which entangles the corpuscles, and so forms the clot.

CHEMISTRY AND TOXICOLOGY.

1. *Organic chemistry* is the chemistry of the carbon compounds.

2. *Heller's test for albumin in the urine:* "Place in a test-tube a layer of HNO_3 about 2 centim, in thickness; then, with a pipette, carefully float upon the surface of this a layer of the urine in such a manner that the liquids do not mix. If albumin be present, a cloudy ring appears *at* the point of junction of the two layers, the borders of the cloud being sharply defined. A cloudy ring may be formed by the presence of an excess of urates, but in this case it is not *at,* but *above,* the point of junction of the layers, and its upper border is not sharply defined, but fades off gradually." (Witthaus' *Essentials of Chemistry.*)

3. (*a*) *Specific gravity* of a substance is the weight of a given volume of that substance as compared with the weight of an equal volume of some other substance taken as a standard of comparison, under like conditions of temperature and pressure.

(b) An *acid* is a compound of an electro-negative element or radical with hydrogen, part or all of which hydrogen it can part with in exchange for an electro-positive element without the formation of a base.

4. *Test for indican in the urine:* The urine is mixed with one-fifth its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless, or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess.—(From Witthaus' *Essentials of Chemistry.*)

Excess of indican is found in the urine "in hypochlorhydria; in hyperchlorhydria of gastric ulcer; in conditions in which there is diminished peristalsis of the small intestines, as in ileus and peritonitis, not in simple constipation; also in conditions in which putrefactive changes occur in the body elsewhere than in the intestine, as in empyema, putrid bronchitis, gangrene of the lungs, etc."

5. In *uræmic coma* there may be a urinous odor to the breath, the urine is scanty and contains albumin, there is slow pulse with high arterial tension, the pupils are usually small and equal, respiration is deep and may be quickened, the body temperature may be above normal or subnormal.

In *opium coma* the pupils are contracted, respiration is slow, pulse slow and full, body temperature is normal or subnormal, there may be the odor of laudanum on the breath. There may be death, or complete collapse.

6. *Symptoms of carbolic acid poisoning:* Buccal mucous membrane is whitened and hardened; vomiting; burning pain in mouth, esophagus, and stomach; pulse and body temperature are lowered; the pupils are contracted; collapse, and finally death. The urine may become dark.

Treatment: Emetics, white of egg, stimulants. Alcohol is said to be antidotal.

7. *Opium poisoning: Symptoms:*—In opium poisoning there may be three stages: (1) a period of excitement, in which the patient is active, talkative, and has hallucinations; (2) a period of drowsiness, in which the patient is sleepy, but may be aroused; his face is pale, lips livid, pupils contracted; this passes into (3) the stage of coma, from which the patient cannot be aroused, the reflexes are abolished, the pupils are very contracted, the pulse is slow and irregular, and the respirations are infrequent and shallow.

Treatment consists in washing out the stomach, preferably with a dilute solution of potassium permanganate; ambulatory treatment, to keep the patient awake; artificial respiration is indicated, and strong coffee should be administered by the mouth or rectum; the bladder should be emptied by the catheter.

8. The *antidotes* for poisoning: by (*a*) *aconite,* are digitalis, strychnin, atropin, and amyl nitrite; (*b*) *corrosive sublimate,* white of egg in moderate quantity, followed by an emetic; (*c*) *"poison fly paper,"* the antidote is that for arsenic, *viz.,* freshly prepared ferric hydroxide.

MATERIA MEDICA.

1. *Escharotics* are agents which destroy tissues to which they are applied, and produce a slough.

Three escharotics: Cautery, nitric acid, silver nitrate.

2. Prescription for a suppository for irritable hemorrhoids:

℞. Extracti opii, gr. x.
Extracti belladonnæ, gr. iij.
Olei theobromatis, 3ijss. Misce.
Fiant suppositoria No. x.

Sig: Introduce one into the rectum at bed time.

3. *Dose:* of (1) urotropin, gr. iv; (2) phenacetine, gr. vijss; (3) extract of opium, gr. ss; (4) sulphate of atropine, gr. 1/160; (5) trional, gr. xv; (6) sulphate of strychnine, gr. 1/64; (7) sodium salicylate, gr. xv; (8) tincture of strophanthus, ℥viij; (9) Dover's powder, gr. vijss; (10) aromatic spirit of ammonia, ℥xxx.

4. (1) *Analgesic* is an agent which relieves pain, by blunting sensation.

(2) *Narcotic* is an agent which produces profound sleep, and may depress the respiratory and circulatory functions.

(3) *Hypnotic* is an agent which produces sleep somewhat resembling natural sleep.

(4) *Sudorific* is an agent which promotes the secretion of sweat.

(5) *Mydriatic* is an agent which dilates the pupil.

(6) *Hepatic stimulant* is an agent which increases the activity of the liver cells, and the secretion of bile.

(7) *Anthelmintic* is an agent which destroys or removes intestinal worms.

(8) *Collyrium* is an eyewash.

(9) *Ecbolic* is an agent which tends to make the uterus contract; it may, therefore, produce an abortion.

5. *The different methods of administering drugs,* are: By the mouth, stomach, rectum, inhalation, inunction, hypodermatically, by inoculation, cataphoresis.

6. The *official glandular extracts* are: Pepsine (from the stomach of the hog); Pancreatin (from the enzymes in the pancreas of the hog); Desiccated thyroid glands (from the thyroid of the sheep); Desiccated Suprarenal glands (from the suprarenals of the sheep).

7. The *antidote:* (1) for *arsenic,* is freshly prepared ferric hydroxide; (2) for *strychnine,* is chloroform, chloral, tannic acid; (3) for *iodine,* is starch; (4) for *phenol,* is alcohol, or sodium sulphate, (5) for *cocaine hydrochloride,* chloral, chloroform, strychnine.

8. *The official preparations of opium, with doses:* Powdered opium, gr. j; extract of opium, gr. ss; powder of ipecac and opium, gr. vijss; vinegar of opium, ℥viij; tincture of opium, ℥viij; camphorated tincture of opium, 3ij; deodorated tincture of opium, ℥viij; granulated opium, gr. jss; wine of opium, ℥viij; morphine, gr. 1/5; morphine sulphate, acetate, and hydrochloride, each, gr. 1/4; codeine, gr. 1/2; codeine sulphate and phosphate, each, gr. 1/2; apomorphine hydrochloride, gr. 1/10.

9. Pilocarpine hydrochloride is derived from Pilocarpus Jaborandi. The dose is gr. 1/5. It causes increase of saliva and of perspiration; increased peristalsis; it increases and then diminishes blood pressure and heart action; it causes the pupil to contract; and depresses the nervous system.

10. Digitalis is contraindicated in diseases of the heart (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong and arterial tension high.

PATHOLOGY.

1. In *acute tonsillitis,* the mucous membrane covering the tonsil is inflamed, the crypts are also similarly affected and become filled with exudate which, later, appears as cheesy material composed of epithelium and micrococci. The tonsils are enlarged and hyperæmic. The exudation covers the tonsils and looks like the false membrane of diphtheria.

2. The cardinal signs of inflammation, are: Redness, swelling, pain, heat, and disordered function.

3. The lymphatic structures involved in typhoid fever, are the lymphatics of the intestines, mesenteric glands and spleen. In the first stage of typhoid fever Peyer's patches

become swollen, hyperemic, and reddened; a few days later they appear as whitish or gray elevations, and the hyperemia has disappeared; the surface of the patch is smooth and its edge is sharply defined; after the first week necrosis may occur; the center of the patch becomes softer, more yellow, or sometimes even red from the absorption of blood pigment. The necrotic portion falls off, leaving an irregular ulcer with necrotic and undermined edges. These ulcers are elongated, with the long axis parallel with that of the intestine, and a smooth floor. The ulcers may heal or go on to perforation.

The spleen becomes congested and enlarged, is liable to infarction, and contains the bacilli.

4. *Gonorrhea* is a specific contagious disease; usually affecting the urethral mucous membrane in males, and the vulva in females. It is generally acquired from sexual intercourse, and is due to the Gonococcus of Neisser.

5. In amebic dysentery the mucosa of the large intestine is edematous and infiltrated, and finally ulcerated. These ulcers have undermined edges, and several of them may coalesce or connect by means of sinuses; the mouth of the ulcer is comparatively small. Much of the mucosa may be necrosed and slough, and the ulceration may extend down to the muscular coat or even to the serous coat of the intestine. Occasionally the lower portion of the ileum is involved as well as the large intestine. Perforation is rare.

The condition is due to the *Ameba dysenteriæ* or *Ameba coli*, an ameboid body, three or four times as large as a red blood corpuscle, granular in the center and clear at the margin, nucleated, and containing vacuoles, sometimes also containing pigment, bacteria, or other foreign matter.

Abscess of the liver is often associated with this condition.

6. A *cyst* is a circumscribed cavity containing liquid or pultaceous material. Cysts may be *formed:* (1) By the accumulation of secretions and other products within cavities which are already in existence; and (2) independently, by the softening or liquefaction of tissues.

Varieties: Retention cysts, dilatation cysts, exudation cysts, extravasation cysts, parasitic cysts, congenital cysts, dermoid cysts.

7. The false membrane consists of fibrin, degenerated leucocytes and epithelial cells, and a few red cells. It is tough, elastic, covers and is adherent to the mucous membrane; but it does not penetrate the submucosa. The mucosa degenerates and becomes necrosed. In the membrane are also found the Klebs-Loeffler bacillus and other bacteria (chiefly cocci).

8. The *neoplasms* are: Myoma, neuroma, angioma, lymphangioma, lymphadenoma, fibroma, myxoma, lipoma, chondroma, osteoma, sarcoma, glioma, adenoma, papilloma, epithelioma, carcinoma.

A *slough* is a disorganized portion arising from the mortification of a part, and distinguishable from the living parts by its color, consistence, and other physical properties. Inflammation excited in the contiguous parts gives occasion to a secretion of pus between the living and dead parts, ultimately completely separating the latter.

PRACTICE.

1. *Angina pectoris* is a paroxysmal affection, characterized by agonizing pain over the region of the heart, faintness, and anxiety; of more or less sudden onset, and associated with a dread of impending death.

It may be confounded with pseudo-angina, locomotor ataxia, and gastralgia.

2. Hemoptysis is a condition in which an appreciable amount of blood is spit up.

Etiology: Pulmonary tuberculosis, lobar pneumonia, bronchiectasis, abscess or gangrene of the lung, valvular disease of the heart causing pulmonary venous obstruction, cardiac hypertrophy, rupture of thoracic or innominate aneurysm, hemophilia, scurvy, purpura, vicarious menstruation.

Prognosis: depends upon the cause; it may be good or extremely grave.

3. *Edema of the lungs* is a condition in which, owing to extreme congestion of the lungs, serum is transuded from the distended capillaries into the alveoli and their walls.

Medicine that will produce it: Pilocarpine.

4. *Asthma* is a condition in which there are paroxysmal attacks of dyspnea, due to spasm of the bronchi, or to sudden swelling of the bronchial mucous membrane.

5. *Myxedema* is a condition characterized by atrophy of the thyroid gland, mental dullness, sluggish movements, and thick speech.

The best results are probably obtained from the administration of thyroid extract.

8. *Muscular rheumatism* is a condition characterized by pain, spasm, and rigidity in certain of the voluntary muscles.

The *varieties*, are: Lumbago, Torticollis, Pleurodynia, and Cephalodynia.

DISEASES OF WOMEN AND CHILDREN.

3. In *ovaritis* the pain is not localized, but may be bilateral, and spreads to the vagina and rectum; there is no tenderness at McBurney's point; it is usually worse just before the menstrual period, which sometimes affords relief; on vaginal examination the ovary is found to be tender.

In *appendicitis* the pain is of sudden onset, and is localized in the right iliac fossa; there is abdominal rigidity, chiefly of the right rectus muscle, and tenderness at McBurney's point; there are usually fever, nausea, vomiting, and constipation.

6. For *acute eczema in an infant*, Holt recommends:

℞. Pulveris calaminæ præparatæ..... ʒij
Zinci oxidi ..... ʒss
Glycerini ..... ʒj
Liquoris calcis ..... ʒij
Aquæ rosæ ..... ʒviij Misce.

A piece of muslin should be dipped in this solution, and applied to the affected part, being kept in place by a bandage. If there is much itching 1 per cent. of carbolic acid may be added.

8. *Scarlet fever.* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent.

Measles. Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small dark red papules with crescentic borders, beginning on face and rapidly spreading over the entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present.

German Measles. Period of incubation, ten to seventeen days. Stage of invasion one day. Eruption appears on first day, is most intense on second day, consists of red papules, often fades from face before it is seen on the limbs. The pulse is not much accelerated, all the symptoms are slight. Desquamation is very slight. There may be slight sore throat and swollen cervical glands. Koplik's spots are absent.

OBSTETRICS.

1. The *subjective* signs of pregnancy are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements.

The *objective* signs of pregnancy are: Softening of the cervix, changes in the mammary glands, discoloration of the vulva and vagina, pulsation in the vaginal vault, Hegar's sign, active fetal movements, ballottement, palpation of the fetus, intermittent uterine contractions, hearing the fetal heart-beat, rate of growth of the uterine tumor.

NERVOUS DISEASES.

1. In *Cheyne-Stokes respiration* the respirations gradually increase in volume and rapidity until they reach a climax, when they gradually subside, and finally cease for from ten to forty seconds, when the same cycle begins again.

It generally denotes a fatal issue.

It is found in apoplexy, brain tumor, meningitis, fatty degeneration of the heart, uræmia, diabetes, and some infectious diseases.

2. The *patellar reflex* is nearly always present in health, and denotes a healthy condition of the entire reflex arc (tendon, afferent, or sensory nerve, posterior roots and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself). It is *absent* when there is a lesion which affects any part of this reflex arc; such is the case in locomotor ataxia, poliomyelitis, Landry's paralysis, neuritis, in apoplexy just after the shock, and in epilepsy following the convulsion, etc. It is *exaggerated* in irritability of the spinal cord, organic diseases of the cerebrum, and some incomplete lesions of the cord.

MEDICAL JURISPRUDENCE.

1. (*a*) After receiving a license to practise medicine, surgery, and obstetrics in the State of North Dakota, the

recipient must file it for record, with the register of deeds of the county wherein he resides, before he can legally embark upon the practice of his profession.

(*b*) The penalty for practising medicine, surgery, or obstetrics, in North Dakota, without complying with the law, is: A fine of from $50 to $100, or imprisonment in a county jail not exceeding thirty days, or both.

2. (*a*) *Six commonly known signs of death:* (1) Complete and permanent cessation of circulation; (2) complete and permanent cessation of respiration; (3) rigor mortis; (4) loss of bodily heat; (5) pallor of the body; (6) putrefaction.

(*b*) Yes; putrefaction is generally allowed to be an absolutely certain sign of death.

4. In *expert* testimony, the witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically,* this can be done only by those perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practise is accepted as an expert witness.

In *ordinary* testimony, the witness testifies only to *facts* which he has seen, or heard, or with which he has become acquainted by personal observation.

5. (*a*) Malpractice is a failure on the part of a medical practitioner to use such skill, care, and judgment in the treatment of a patient as the law requires; and thereby the patient suffers damage. If due to negligence only, it is *civil* malpractice. But if done deliberately, or wrongfully, or if gross carelessness or neglect have been shown, or if some illegal operation (such as criminal abortion) be performed, it is *criminal malpractice.*

(*c*) If an abortion is absolutely necessary, a physician is authorized by law to perform it, to the same extent as he is authorized by law to perform any other surgical procedure.

(*d*) Yes; if performed *with criminal intent,* it is malpractice.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION		
Alabama*	W. H. Sanders, Montgomery	Montgomery	July	13
Arizona*	Ancil Martin, Phoenix	Phoenix	April	5
Arkansas*	F. T. Murphy, Brinkley	Little Rock	April	13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April	6
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	April	6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July	13
Delaware	J. H. Wilson, Dover	Dover	June	15
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	April	13
Florida*	J. D. Fernandez, Jacksonville	Tallahassee	May	19
Georgia	E. E. Anthony, Griffin	Atlanta, Augusta	May	—
Idaho	W. F. Howard, Pocatello	Boise	April	6
Illinois	J. A. Egan, Springfield	Chicago	April	15
Indiana	W. T. Gott, Indianapolis	Indianapolis	May	25
Iowa	Louis A. Thomas, Des Moines	Des Moines		
Kansas	D. P. Cook, Clay Center	Kansas City	June	8
Kentucky*	J. N. McCormick, Bowling Green	Louisville	April	27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May	20
Maine	Wm. J. Maybury, Saco	Portland		
Maryland	J. McP. Scott, Hagerstown	Baltimore	June	15
Massachusetts*	E. B. Harvey, State House, Boston	Boston	May	11
Michigan	B. D. Hanson, 205 Whitney Building, Detroit	Ann Arbor	June	8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	April	6
Mississippi	S. H. McLean, Jackson	Jackson	May	11
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	May	4
Montana*	Wm. C. Riddell, Helena	Helena	April	6
Nebraska	E. J. C. Sward, Oakland	Lincoln		
Nevada	S. L. Lee, Carson City	Carson City	May	3
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	July	—
New Jersey	J. W. Bennett, Long Branch	Trenton	June	15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	April	12
New York	C. P. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb.	2
N. Carolina*	B. K. Hays, Oxford	Asheville	June	9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	April	6
Ohio	Geo. H. Matson, Columbus	Columbus	June	8
Oklahoma*	F. P. Davis, Enid	Chicasha		
Oregon	B. E. Miller, Portland	Portland	July	6
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	June	22
Rhode Island	G. T. Swarts, Providence	Providence	April	1
S. Carolina	H. H. Wyman, Aiken	Columbia	June	8
S. Dakota	H. E. McNutt, Aberdeen	Watertown	July	14
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May	—
Texas	M. E. Daniel, Honey Grove	Cleburne	June	22
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	April	5
Vermont	W. Scott Nay, Underhill	Burlington	July	13
Virginia	R. S. Martin, Stuart	Richmond	June	22
Washington*	K. Turner, Seattle	Seattle	July	6
W. Virginia	H. A. Barbee, Point Pleasant	Huntington	April	13
Wisconsin	J. V. Stevens, Jefferson	Madison	July	13
Wyoming	S. B. Miller, Laramie	Laramie	June	23

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending March 6, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	464	163
Diphtheria	332	44
Measles	642	20
Scarlet Fever	352	23
Smallpox	—	—
Varicella	255	—
Typhoid Fever	28	7
Whooping Cough	62	3
Cerebrospinal Meningitis	8	7
Malarial Fever	—	—
Totals	2143	267

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending March 5, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Los Angeles	Feb. 6–13	3	..
District of Columbia, Washington	Feb. 13–20	1	..
Georgia, Cobb County	Jan. 16–Feb. 7	8	
Paulding County	Jan. 16–Feb. 7	15	
Illinois, Danville	Feb. 14–21	1	
Galesburg	Feb. 13–20	1	
Indiana, Elkhart	Feb. 13–20	1	
Evansville	Feb. 13–20	4	
Kansas, Kansas City	Feb. 13–20	6	
Topeka	Feb. 13–20	9	
Wichita	Feb. 13–20	1	
Kentucky, Covington	Feb. 13–20	1	1
Lexington	Feb. 13–20	3	
Paducah	Jan. 16–20	25	
Louisiana, New Orleans	Feb. 13–20	4	
Michigan, Grand Rapids	Feb. 13–20	1	
Saginaw	Jan. 30–Feb. 6	1	
	Feb. 13–20	2	
Minnesota, Minneapolis	Jan. 1–31	22	
Missouri, Kansas City	Feb 13–20	1	
St. Louis	Feb. 13–20	1	
Montana, Butte	Feb. 2–16	5	
Nebraska, Lincoln	Jan. 1–30	2	
North Carolina, Wilmington	Mar. 1	3	
Ohio, Cincinnati	Feb. 12–19	16	
Dayton	Feb. 13–20	1	
Tennessee, Memphis	Jan. 30–Feb. 13	55	
Nashville	Feb. 13–20	6	
Texas, El Paso	Feb. 9–23	3	
San Antonio	Jan. 24–31	15	..
Washington, Spokane	Feb. 16–13	1	Imported
Wisconsin, La Crosse	Feb. 13–20	7	..
Manitowoc	Feb. 13–20	1	..

SMALLPOX—FOREIGN.

Brazil, Bahia	Jan. 2–16	43	2
British Honduras, Stann Creek	Feb. 5–11	1	Imported
Canada, Halifax	Feb. 6–13	22	..
Chile, Talcaguano	Jan. 23–30	..	Present
Egypt, Cairo	Jan. 14–21	62	18
France, Marseille	Jan. 31	1	1
Great Britain, Bristol	Jan. 30–Feb. 6	7	..
London	Jan. 30–Feb. 6	1	..
India, Bombay	Jan. 19–26	..	10
Calcutta	Jan. 9–16	117	Epidemic
Madras	Jan. 16–22	..	1
Naples	Jan. 2–9	2	1
Indo-China, Saigon	Jan. 31–Feb. 7	9	..
Italy, General	Jan. 31–Feb. 7	25	5
Naples	Jan. 9–16	1	..
Japan, Formosa	Jan. 2–9	4	1
Batavia, Java	Jan. 9–16	1	..
Manchuria, Dalny	Jan. 16–23	..	4
Mexico, Acapulco	Jan. 18–24	..	2
Guadalajara	Feb. 6–11	..	24
Mexico City	Dec. 26–Jan. 2	..	1
Monterey	Feb. 7–14	..	Present
New Foundland, South Coast	Jan. 13	..	2
Norway, Bergen	Jan. 23–30	..	In lazaretto
Peru, Lima	Jan. 21	5	10
Russia, Moscow	Jan. 23–30	19	..
Odessa	Jan. 16–23	3	2
St. Petersburg	Jan. 16–23	9	..
Salvador, San Salvador	To Feb. 6	3	..
Santa Ana	To Feb. 6	40	14
Spain, Madrid	Jan. 1–31	..	4
Valencia	Jan. 23–30	3	
Turkey, Constantinople	Jan. 24–Feb. 7	..	

YELLOW FEVER.

Brazil, Bahia	Jan. 2–16	32	8
Para	Jan. 16–30	..	4
Dutch Guiana, Paramaribo	Jan. 1–31	11	1
Ecuador, Guayaquil	Jan. 23–30	..	2
West Indies, Curacao	Jan. 8–15	1	..

CHOLERA.

India, Bombay	Jan. 19–26	..	4
Calcutta	Jan. 19–16	..	15
Rangoon	Jan. 19–16	..	1
Russia, General	Jan. 9–16	247	59
St. Petersburg	Jan. 16–23	273	114

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Original Articles.

SOME OBSERVATIONS ON NEPHRECTOMY, WITH A REPORT OF FIFTY-THREE PERSONAL OPERATIONS.*

By GEORGE EMERSON BREWER, M.D.,

NEW YORK.

ALTHOUGH to Simon is generally given the credit of the first nephrectomy, Watson in his treatise on genitourinary diseases calls attention to the fact that two Americans antidated the famous German surgeon in the performance of the operation.

In 1861 Walcott removed a carcinomatous kidney by the transperitoneal route from a woman fifty-eight years of age. Seven years later, in 1868, Peaslee, another American surgeon, performed the second transperitoneal nephrectomy. In 1869 Simon successfully removed a kidney by the lumbar route for the relief of a urinary fistula. One year later Gilmore, also an American surgeon, removed a kidney from a woman five months pregnant without interrupting the period of her gestation. It will thus be seen that of the first four nephrectomies on record three were performed by Americans.

It is only fair to state, however, that credit should be given to Simon for the first successful operation and also for the fact that his operation was undertaken after a thorough study of his case, and after a conclusive demonstration by animal experiments that one healthy kidney was sufficient for the needs of the economy.

In reviewing the history of all pioneer surgical work on important organs or diseased conditions, one finds as a rule that the earlier work was accompanied by a high rate of mortality. So high, in fact, that very few were willing to submit to the risk of surgical relief unless the condition in itself was desperate or the suffering intense. As time went on and more operations were performed, improved methods were devised, old difficulties were overcome and the results were correspondingly better. At a later period after a decade or two of accumulated experience the operative technic was so improved that the mortality was reduced to a point that patients in less dangerous condition gradually availed themselves of surgical relief which still further reduced the mortality and placed the operation on a firm therapeutic basis.

This sequence of events occurred noticeably in the surgery of the female pelvic organs, the vermiform appendix, the gall-bladder, the stomach, and to a certain extent also in the surgery of the brain and of the intrathoracic organs.

There is at present, however, a widespread impression that the majority of operations upon the kidney, and particularly the operation of nephrectomy, are to be regarded as dangerous procedures, and medical men are at times somewhat slow in referring to the surgeons patients presenting indications for these operations.

That this impression has in the past been well grounded is evident from the actual statistics stated in many groups of recorded cases. This high mortality, in the writer's opinion, is largely due to the fact that in the earlier days of kidney surgery only the most desperate conditions were brought to the surgeon for treatment, and also to the fact that until quite recently many surgeons have failed to avail themselves of the advantages furnished by the *x*-ray, cystoscopy, ureteral catheterization, examination of the separated urines, cryoscopy, the indigo-carmine, and phloridzin tests, in estimating the competence of the opposite organ.

The object of this communication is to demonstrate if possible that the old ideas regarding the danger of nephrectomy *per se* are exaggerated, and that with our modern methods of examination one can in suitable cases remove a kidney with comparatively little risk to the life of the patient.

Perhaps the best idea regarding the mortality following nephrectomy can be gained by a perusal of Von Schmieden's classical paper, which was published in the *Deutsche Zeitschrift für Chirurgie*, Vol. LXII, page 205. In this communication he gathered from all reliable sources statistics of the operation from Simon's nephrectomy in 1869 up to the year 1902. These he divided into three groups each representing practically a decade.

The first group comprised those cases reported up to 1880, when the pioneer work was being done, largely upon a desperate class of cases representing the terminal stages of renal infection and malignant disease. The second group comprised the cases between 1880 and 1890 during a period when the technique of the operation was largely improved. The third group was composed of the cases subsequent to 1890, a period when our present modern methods of investigating renal function were beginning to be employed.

Von Schmieden's report was based upon 1,118 cases of nephrectomy. His gross statistics, taking all the cases, were for the first decade a mortality of 50.6 per cent.; for the second, 34 per cent., and for the third, 17.4 per cent.

Three hundred and twenty-nine cases of malignant growth showed a death rate of 32.8 per cent., and only twenty cases could be found to be free from recurrence three years from the date of operation.

Of 201 nephrectomies for tuberculosis the mortality was 29.4 per cent.; of 124 cases of hydronephrosis, 18.5 per cent.; of 138 for pyonephrosis, 23.2 per cent.; of 108 for pyelonephritis, 33.3 per cent; of 47 for acute trauma, 17.9 per cent.; of 30 for urinary fistula, 17.0 per cent.; of 26 for cystic kidney, 30 per cent.; of 11 for solitary cysts, 36 per cent.; of 25

*Read before the Harvard Medical Society, January, 1909.

for floating kidney, 30.4 per cent.; of 24 for benign tumors, 12.5 per cent.; of 16 for unilateral hematuria, 18.7 per cent.; of 14 for echinococcus disease, 28 per cent.

It may be noted in passing that Von Schmieden's statistics confirm the view long held by the writer that the lumbar route is safer, and in the majority of instances a far easier procedure, than the abdominal approach; for in every class in which this point is mentioned the mortality of the lumbar operation is conspicuously less than the abdominal.

In the new growths, for instance, the mortality following the lumbar operation was 28 per cent.; that following the abdominal, 38 per cent.; in the tuberculous cases, 27 per cent. for the lumbar as against 42 per cent. for the abdominal; in pyelonephritis 31 per cent. for the former and 41 per cent. for the latter.

These statistics represent the entire period covered by the report. It is interesting to note that in practically every class a marked improvement was noticed in each succeeding decade. Thus taking the graver conditions, in the class of malignant growths the death rate, which was 64 per cent. in the first decade, was 43 per cent. in the second, and 22 per cent. in the last. In pyonephrosis it declined from 33.3 per cent. in the first to 15.3 per cent. in the third decade; and in pyelonephritis from 64.3 per cent. in the first to 16.7 per cent. in the third.

This brief résumé of Von Schmieden's statistics, while it conveys the impression of a great improvement in results in the thirty odd years since the beginning of renal surgery, leaves one with the impression that even six years ago the best available statistics for the operation as a whole showed the mortality to be in the neighborhood of 17 per cent.

That these statistics give an erroneous impression of the risks of the operation at the present day, the writer believes not alone from his own experience, but from the unpublished statistics of some of his professional colleagues.

Up to January 1, 1909, I have performed nephrectomy fifty-three times; of these fifty-one patients recovered and two died as a result of the operation, a mortality of 3.8 per cent. To avoid any misunderstanding regarding the meaning of the term recovered, permit me to state that with the exception of one patient recently operated upon, who is still in the hospital, every patient who recovered left his or her bed with a completely healed wound, with an actively functionating kidney on the opposite side, and was able to resume ordinary work or household duties.

The following are the various pathological conditions found in these fifty-three cases, many of the cases presenting two or more lesions: New growth, seven cases; tuberculosis, eight cases; pyonephrosis, eighteen cases; calculus, nineteen cases; septic infarcts, nine cases; hydronephrosis, four cases; pyelonephritis, three cases; hemorrhage, one case; necrosis of the organ from twisted pedicle, one case; urinary fistula, three cases; acute trauma, three cases.

I desire first to report the two fatal cases. The first of these occurred in a middle-aged man, upon whom nephrotomy was performed for the removal of multiple calculi of the right kidney pelvis. There was considerable laceration of the renal tissue in the removal of the four stones, giving rise to a severe hemorrhage, which was only controlled by generous gauze packing. Four hours later the hemorrhage recurred. I was summoned and performed a hasty nephrectomy on a moribund patient. Although the removal of the kidney was accomplished without more than a trifling loss of blood, and although the patient received a large intravenous infusion of physiological salt solution and was otherwise stimulated, he never rallied, and died at the end of four days from suppression of urine and edema of the lungs. Autopsy revealed chronic left-sided pyelonephritis and several calculi that had not been revealed by the *x*-rays.

This case occurred early in my experience at a time when we were just beginning to employ the *x*-rays; the urines were not separated, and to the best of my recollection the left side was not radiographed. Had either of these tests been properly carried out the condition of the opposite kidney would doubtless have been revealed, and I probably would not have removed the organ. As it was, I probably removed the only functionating kidney the man possessed. The procedure was undoubtedly an error of judgment on my part and probably would not have occurred at the present time.

The other death occurred in a feeble and profoundly prostrated girl, who had been suffering for weeks from pain, vomiting and septic intoxication. She had a movable tuberculous kidney, which had become adherent in the pelvic cavity, and had acquired a mixed infection. The operation was an exceedingly difficult one and was accompanied and followed by profound shock, which did not respond to active stimulating measures. I cannot blame myself for this fatality, as the difficulty in the operation consisted in exposing the kidney, it would scarcely have been less if only drainage had been employed, and it is exceedingly doubtful if simple drainage would have sufficiently relieved the grave toxemia to allow a secondary nephrectomy had she survived the primary operation.

Of the seven cases of new growth there were three of carcinoma, two of hypernephroma, one adenoma, and one large suppurating cyst probably echinococcus. All recovered from the operation. One of the carcinoma cases is still living and well eight years and eight months after the operation, the other two died of recurrence within two years. One case of advanced hypernephroma with lymph node metastasis in the neck and a complicating pyonephrosis died two months after operation, the other cases were well when last reported.

Of the eight nephrectomies for tuberculosis, one only died as a result of the operation, one other died two years after operation of general tuberculosis. All of the others were well or improving when last reported. It is an interesting fact that in two or three cases with moderate bladder involvement at the time of operation, a progressive improvement in the bladder symptoms occurred, and in at least one case complete absence of bacilli from the urine was noted at the end of two years, illustrating the well recognized fact that if the primary or chief tuberculosis lesion is removed, Nature often is able to cope with the remaining secondary deposits.

As my calculus cases have recently been analyzed and reported, I will not dwell upon this subject except to state that in my opinion a kidney containing one or more calculi, and also the seat of an advanced septic process should be removed if the opposite organ is healthy. To leave such a kidney is to invite subsequent trouble from recurrence of stone, pyonephrosis, or long continued sepsis.

It is also often safer to remove a kidney with

multiple calculi imbedded in its substance, than to inflict the trauma necessary to remove them, as alarming primary or secondary hemorrhage is apt to occur.

While no fatality occurred in my cases of pyonephrosis, pyelonephritis, septic infarcts, hydronephrosis, urinary fistula, hemorrhage, necrosis of the organ, or severe injury requiring removal, a few facts of clinical interest have been noted.

One frequently hears the advice, that in cases of acute renal suppuration, the kidney should at first be drained until the patient recovers sufficiently from the toxemia to bear the shock of a secondary nephrectomy.

While the advice may be wise in certain rare instances, as a general rule primary removal of a hopelessly diseased kidney will give better results, for in the writer's experience no operation in surgery can be more difficult or hazardous than the removal of a chronic suppurating kidney when surrounded by dense adhesions, as the following two cases will illustrate.

A man, aged 40 years, consulted the writer for the relief of a long standing urinary fistula of the right kidney. Several years before he had been operated upon for a calculous pyonephrosis. The wound had never healed and continued to secrete a moderate amount of purulent urine. Examined by a probe the presence of calculi was easily detected. Under ether anesthesia the kidney was exposed by a generous Koenig incision. On attempting to separate it from the surrounding structures it was found to be densely imbedded in a thick layer of connective tissue, evidently the changed fatty capsule, which was so adherent to the renal parenchyma as to absolutely preclude the possibility of manual separation. After a very laborious dissection, accompanied by a considerable loss of blood, the renal pelvis was reached. On attempting to lift the kidney upward to expose the vessels it was found that the vessels were so surrounded by dense cicatricial tissue that separation without rupture was impossible. As this firm fibrous exudate extended well over to the spinal column and did not allow the exposure of any part of the renal vessels, we strongly considered abandoning the operation. As the bleeding from innumerable sources on the separated adhesions was becoming alarming, I decided to secure the pedicle by a deeply placed purse string ligature of strong chronic gut around the vessels in the connective tissue bed. This was finally accomplished and when the knot was tied the kidney and afterwards the remaining part of the pelvis were cut away. The wound was partly united and packed with gauze. He made a slow but satisfactory convalescence.

The following case was without question the most difficult nephrectomy I ever encountered.

A boy, aged 20 years, was referred to the writer by Dr. W. H. Murray of Plainfield in August, 1908, suffering from a urinary fistula in the right inguinal region. Several months before this he had been operated upon for a supposed acute appendicitis. The operation was a difficult one and associated with considerable hemorrhage necessitating the use of numerous clamps, some of which were left temporarily in the wound. After rather a stormy convalescence urine was observed to flow from the wound in considerable quantity. One or two subsequent efforts were made to close the fistula but without result. On examination a scar of the previous operation was found in the right inguinal region, in the center of which was the opening of the fistulous tract which on probing was found to lead backward and toward the median line. Here on careful palpation there could be felt a mass which seemed to be a rather small malformed ectopic kidney.

Cystoscopy and ureteral catheterization by Dr. Osgood demonstrated normal urine from the left ureter. The ureteral catheter could only be passed a short distance into the right ureter, and from this no urine could be obtained.

Under ether anesthesia an incision was made to the outer side of the original scar dividing the several layers of muscle until the peritoneum was reached. This was slowly reflected from the iliac fossa until the outer edge of the misplaced kidney could be felt and seen. As a dense mass of adhesions now seemed to bind the skin and various intraperitoneal structures to the kidney, further attempts to expose it by this route seemed unwise, as the location of the vessels entering the organ could not be determined. The peritoneal cavity was next opened by a median incision and the free intestines packed off with large masses of handkerchief gauze It was then found that the cecum and several adherent loops of small intestine apparently surrounded the fistulous tract. A median incision was next made in the parietal peritoneum covering the great vessels and this was gently reflected from the median line until the kidney was finally exposed. Several large vessels were seen passing from the aorta and right iliac vessels to a cleft on the anterior surface of the kidney. These were secured and divided. After this with one hand in the external wound, and the other in the median incision, the kidney was with great difficulty separated from the overlying adherent intestines and removed. The parietal peritoneum was then replaced and sutured, both wounds were united by layer suture and the fistulous tract packed with formalin gauze.

His convalescence was prompt and uneventful.

Eight cases of acute septic infarcts of the kidney were treated by nephrectomy without fatality.

As the writer has already called attention to this type of renal infection in previous papers, and discussed the relationship between it and the other gross forms of kidney suppuration, I will mention but a single instance which will serve to illustrate the type.

A woman, aged 22 years, experienced a severe pain in the epigastrium and right side of the abdomen, with vomiting and high fever. She was sent to the Roosevelt Hospital with a diagnosis of acute appendicitis. On examination, the appendiceal region was free from evidences of inflammation There were, however, pain and muscular rigidity in the right hypochondriac region, with tender points over the gall-bladder and in the costovertebral angle Temperature, 105° F.; pulse, 120; leucocytes, 18,000 Cystoscopic examination was negative; urine from the right kidney scanty and slightly albuminous, a few pus and blood cells, that from the left kidney was abundant and apparently normal. Widal negative; no plasmodia; no tubercle bacilli in the urine The diagnosis rested between an acute infection of the gall-bladder or the kidney.

Small anterior incision, gall-bladder, and liver, found to be normal, but the right kidney seemed to be enlarged. Anterior incision united and the kidney exposed by lumbar route. The perinephric fatty tissue was edematous; the kidney enlarged highly congested and the seat of innumerable small in

farcts. Nephrectomy was performed. After operation the temperature fell from 105.5° F. to 97° F. within twelve hours and thereafter remained practically normal. The patient made a satisfactory convalescence. Microscopic examination of the specimen showed it to be filled with minute embolic abscesses. One year later this patient married and became pregnant. I had an opportunity of examining her urine before and after her confinement. It was normal in every respect. Her confinement was normal, and she presented the picture of robust health two months later.

A single case of gangrene of the kidney has fallen under the writer's observation.

A married woman, aged 40 years, suffered for two months from right-sided renal colic, with vomiting and pyuria. An exploratory operation was done by another surgeon. The kidney was delivered through a lumbar incision, and carefully examined for stone and other lesions. As the examination proved negative, the kidney was replaced and anchored by catgut sutures. Considerable pain followed the operation, with fever, vomiting, and great tenderness. These symptoms increased in severity, and the general condition became alarming. The wound was therefore reopened and the kidney found to be completely necrotic, evidently from strangulation of the vessels due to a twisting of the pedicle, the kidney having been replaced at the first operation in an inverted position, with the lower pole uppermost. The necrotic kidney was removed and the patient made a satisfactory recovery.

As an example of a traumatic case the following will be of interest:

Colored man, aged 28, fell from a height injuring his left side and abdomen. Hematuria immediately after injury; second specimen of urine clear. Complained of pain and soreness in left flank; moderate tenderness and slight fullness; no shock. Several hours later complained of sharp abdominal pain, vomited and became restless and thirsty. Second examination showed abdominal muscles rigid, free fluid in peritoneal cavity and increased fullness in left flank. Pulse 120, temperature 101°. Under ether anesthesia the abdomen was opened and found full of fluid and clotted blood, stomach, intestines, liver, and spleen examined with negative result. Abdominal cavity thoroughly irrigated with hot salt solution and wound closed. Patient's condition became alarming and an intravenous saline infusion was given, also strychnine and other stimulants. Left kidney exposed by lumbar incision found to be divided by two transverse ruptures into three unequal portions, one of which lay free in the large collection of fluid and clotted blood, the other two were attached to the vessels forming the pedicle. The pedicle was clamped, the renal tissue hastily removed and the wound packed. Slow recovery from shock; no febrile reaction. Pedicle clamp removed on the eleventh day. Recovery.

In conclusion I desire to state that this series includes every case of nephrectomy upon which I have personally operated and that no effort has been made to select favorable cases. Every case seeking advice and presenting clear indications for the operation has been advised to submit to operative treatment. A fairly large number of these operations was performed before our present more refined methods of examination had come into vogue, and where we were obliged to depend upon the history and the results of an ordinary physical examination for data regarding the functional activity of the other kidney.

I feel confident that had we been able to carry out methods which we now habitually employ, only one death would have occurred in the series.

CASES ILLUSTRATING THE RESULTS OF THE SO-CALLED HEATH OPERATION.*

By S. MACCUEN SMITH, M.D.,

PHILADELPHIA.

The fact that the various professional periodicals, especially those devoted exclusively to diseases of the ear, nose, and throat, contain so many papers repeatedly describing the various surgical procedures for the relief of aural disease is proof positive that this branch of surgery is still an art, and has not yet assumed the dignity of a science; and yet it is only by repetition and investigation that we finally arrive at certain conclusions which embody the best that the present age has contributed. In other words, it is through the recording of our various mistakes and numerous failures that we are enabled to distinguish between the right and the wrong, and thereby to receive the stimulus of such recognition for better and more accurate work. This is true in point of diagnosis as well as in the improvement manifested in various surgical procedures for the relief of pathologic conditions involving the organ of hearing.

The evolution of operative otology from the time when the first imperfect simple mastoid operation was performed, consisting of little more than boring a hole through the cortex, up to the time when Schwartze, Stacke, and others devised the comparatively perfect radical operation, has shown great strides in a procedure calculated to save the lives of thousands, and in this respect is scarcely secondary to the great boon conferred upon suffering humanity when the operation for appendicitis was first devised.

In the very recent past we have heard much of what might be expected of the so-called Heath operation, especially in its relation to the preservation of hearing. If this procedure, under whatever name it may appear, will succeed in relieving dangerous pathological processes in the tympanic and accessory cavities, and at the same time insure not only the preservation but the actual improvement of the hearing power, the further evolution of aural surgery has certainly had a tremendous impetus.

On general principles it is difficult for one to accept as good surgical procedure that which advocates the non-disturbance of necrotic tissues, be it either diseased ossicles or carious bone that must necessarily remain in the narrow space connecting the tympanic cavity with the mastoid antrum, and yet this is precisely what is claimed for the Heath operation. In other words, we aim to perform a radical operation, which includes the complete exenteration of the cells comprising the temporal bone, with the exception of the tympanic ring and the fragment of ossicles and membrana tympani which are left undisturbed, as the extent of their necrotic involvement seems to make but little difference in the final result. In my limited experience some of the more extensive necrotic cases have made the very best recoveries, both in the way of entire ces-

*Read before the Eastern Section of the American Laryngological, Rhinological, and Otological Society, at Philadelphia, Pa., January 9, 1909.

sation of discharge and in more or less complete regeneration of the membrana tympani, while the ultimate restoration of hearing power has been carried to almost normal. On the other hand, I have to report that in some cases of shorter standing, where the necrosis seemed to be limited, I was unable to arrest the otorrhea, due, probably, to my faulty technique; nevertheless, the hearing distance was greatly increased.

In some patients, where to all appearances not even a fragment of drumhead and ossicles remained, the removal of the inflammatory débris within the mastoid antrum, tympanic cavity, and aditus, preserving intact the annulus tympanicus, has certainly been the means of arresting a chronic discharge and greatly improving the hearing, without, however, causing a regeneration of the membrana tympani. The principal contention of Heath, therefore, that the mastoid antrum is more frequently the site of a continued suppuration, rather than the cavity of the middle ear, would seem to be substantiated. Such being the case, we can readily realize how easily the narrow, unyielding aditus may become obstructed by pathological débris, causing the antrum to fill with inflammatory products, this in turn producing a degree of pressure which may extend upward into the middle fossa, downward into the mastoid process and backward toward the lateral sinus.

In the past few years excision of the membrana tympani and ossicles, instead of the usual mastoid operation, has been revived and strongly urged, with a view of curing certain cases of chronic discharging ears. We have felt it our duty, in certain instances, to advise this operation, with a view of arresting the discharge. Obviously, all of us have frequently been disappointed in the results, no doubt owing to the aforementioned fact that the principal site of the trouble, being located in the antrum, was not reached by an excision of the ossicles, and the operation did not even provide for drainage through an obstructed aditus, which omission in the end compelled us to resort to the usual radical procedure. My more recent experience, therefore, teaches me that the Heath operation, for the reasons above mentioned, will largely supplant that of the excision of the ossicles for the cure of an otorrhea.

I have performed the Heath operation in some cases of acute mastoiditis with extensive bone necrosis, where, owing to the great destruction, I should otherwise have felt obliged to perform the usual radical operation. This was especially true in cases where extensive erosion had destroyed the greater part of the bony external auditory canal, the discharge from the antrum and cells escaping through this opening.

In another class of cases I believe this operation to be of the greatest importance. We all see cases of chronic otorrhea in children involving both ears, where the hearing is practically normal. Some of these cases are persistently unyielding to any line of treatment other than operative. The simple mastoid operation does not relieve the discharge, and in performing the radical operation there is great danger of interfering with audition. If such a condition were present in only one ear in a young child, the gravity of one-sided deafness would not be so great; but suppose we should perform a radical operation on both ears of a child for the relief of an otorrhea. There is almost a certainty that the hearing will be greatly interfered with, which condition is likely to grow worse. In this event the child, if young, will in all probability become dumb as well as deaf. Even though the aural disease may endanger the child's life, the responsibility of advising a double radical mastoid operation, in view of the possible danger to the hearing power and the consequent loss of speech that may follow, should not be lightly assumed by any surgeon. Another point in favor of this modified operation is that there is less liability of injuring the tympanic branch of the facial nerve, but the most important benefit to be derived from this surgical procedure is the eradication of the danger zone, which is located in the antrum, thus removing the source of a disease most prone to cause intracranial complications.

There are in attendance for your inspection about a dozen cases showing the results of the operation for the relief of the various forms of suppuration, and detailed histories of five of these cases follow:

Case I.—Dr. C. S. H., male, white, age 29 years. Presented himself for treatment on April 1, 1908.

History.—Eighteen years ago he contracted a suppurative otitis media of the right ear, which has continued to date. Ten years ago the membrana tympani and ossicles were excised with a view of relieving the otorrhea. This very materially lessened the quantity of the discharge, but it never entirely ceased. For the past year the patient has complained of increasing nausea and vertigo, both in frequency and severity, the continuation of which caused him to seek relief through operative interference.

Examination.—Right ear shows the absence of the membrana tympani and ossicles. The canal is well filled with a non-offensive, yellow, purulent discharge. The roof of the tympanic cavity has been absorbed through carious erosion, exposing the dura.

Operation.—The Heath operation was performed on April 6, 1908. The cortex looked entirely healthy, the entire process having undergoine sclerotic changes, being, therefore, quite filled with new bone formation and exceedingly hard. No actual disease of the bone was noted until the antrum was reached, and at this point we found considerable granulation tissue and the exposed dura above mentioned. The patient made an uninterrupted recovery, the discharge having ceased in six weeks from the date of operation and the membrana tympani regenerating in about the same time. The hearing, although not in any sense acute, has improved considerably. The chief point of interest here, however, as in some other cases, is from the fact that the discharge has entirely ceased and there is a regeneration of the membrana tympani. The patient's general health has improved considerably, he weighing more than at any time in his life.

Case II.—H. O., male, white, age 16 years. Came to Jefferson Hospital Clinic for treatment on July 23, 1908.

History.—The patient gives a history of having suffered about nine years ago from a suppurative otitis media. It is uncertain, however, how long this continued. The present attack of otitis dates back about two weeks, the patient apparently suffering the usual amount of pain incident to such a condition.

Examination.—The canal of the left ear is filled with a yellowish discharge, offensive in character and streaked with blood. The membrana tympani is largely destroyed, very red and edematous, the inflammation involving the osseous external auditory canal, which bleeds freely on the slightest irritation

from a cotton covered probe. I have no note of the exact condition of the ossicles at this time. The boy hears the tuning fork at about three inches, aerial conduction. Ordinary conversation can be heard only in close proximity to the ear.

Treatment.—The patient was provided with an antiseptic solution for irrigation, returning to the hospital September 29, or about two months later. The examination at this time showed the discharge to be of the same character. There was not at any time during the course of his disease pain over or in the region of the mastoid process, not even on deep pressure. A skiagraph of the mastoid was taken and portrayed the process as well filled with pathological débris.

Operation.—The Heath operation was advised and performed on October 16, or after three months of continuous discharge following the last attack. A separation of the soft parts showed the cortex to be rather hard, but bleeding at several points. The interior of the mastoid process was well filled with granulation tissue and extensively necrotic. There was not, however, very much free pus found. The operation consisted of the complete exenteration of the cells. The patient states that about one month after the operation he began to notice some improvement of hearing. The membrana tympani has regenerated with the exception of a small pear-shaped opening in the posterior part. The hearing has materially improved. The boy now hears the tuning fork at about eight inches and ordinary conversation at from six to eight feet.

Case III.—M. W., male, white, age 42 years. Patient first appeared before me on October 12, 1907.

History.—About four years ago, while swimming, he contracted an acute suppurative otitis media of the right ear. The discharge has continued to date. The patient claims that the attack occurred without pain and that he was entirely free from suffering of any kind until about four weeks before seeking treatment, or about three years and ten or eleven months after the initial attack, at which time he began to have pain in the ear, especially over the mastoid process, which was aggravated by pressure or percussion. The patient also states that this pain was considerably increased by bending forward. The only treatment he has received up to the present time has consisted of syringing the ear with salt water.

Examination.—An examination shows the discharge to be copious, greenish-yellow in character, and very offensive. There is destruction of the lower two-thirds of the membrana tympani, Shrapnell's membrane being intact. The ossicles and landmarks are entirely obliterated on account of the swelling, and there is considerable granulation tissue in the tympanic cavity. No marked bulging of the superior and posterior wall of the external auditory canal is present. There is, however, rather marked tenderness on moderate pressure over the mastoid process, more especially pronounced at the tip. The patient hears only when spoken to very distinctly and in a loud voice. Tuning fork is not heard by aerial conduction. Bone conduction, however, appears to be fairly good.

Operation.—The Heath operation was performed on October 25, 1907. The patient noticed a considerable improvement in hearing about two weeks after the operation. This improvement was progressive for about four months, he retaining this increased hearing power at the present time.

Examination, January 2, 1909.—The membrana tympani in this case has never regenerated. The discharge, however, has entirely ceased. The fragment of malleus and also that of Shrapnell's membrane remain about as they were before the operation. The hearing power, according to the patient's statement, assumes that of almost normal. Hears tuning fork at about four inches and a low voice at about five or six feet.

Case IV.—E. S., female, white, age 11 years. Presented herself at the Jefferson Hospital Clinic for treatment on November 10, 1908.

History.—Eight years ago, without known cause, she contracted an acute suppurative otitis media of the left ear, which has continued recurrently to date. The mother states that the discharge is usually less during the warm weather.

Examination.—Examination shows the canal well filled with thick, yellowish pus, without any particular odor. The membrana tympani is practically destroyed except Shrapnell's membrane. There is marked redness and some edema of the external auditory canal, especially the superior and posterior part adjacent to the tympanic ring. There is no pain over the mastoid, even on deep pressure. The child has great difficulty in hearing at school, it being necessary to place her near the teacher so she can properly receive instruction.

Operation.—The Heath operation was performed on November 17, 1908. The exposed cortex was found to be practically normal in appearance, but unusually hard and thick. The entire mastoid cells, however, were necrotic, which required their complete removal. The sinus was more superficial than normal and pushed far forward. Six days after the operation the patient was discharged from the hospital and returned to the Out-Patient Department for the usual dressings. The mother feels that the hearing has gradually improved somewhat, although she lacks the marked improvement that is shown by some of the other patients. The discharge, however, has entirely ceased and the membrana tympani has regenerated.

Case V.—H. D., male, white, age 18 years. Came to Jefferson Hospital Clinic on October 11, 1907.

History.—Family history good. Only disease from which patient has suffered is whooping cough, which is said not to have had any influence on the aural disease. Has suffered from a recurrent suppurative otitis media of the right ear from infancy, the trouble recurring at intervals ever since. Pain is worse during the period of cessation of discharge. The last exacerbation occurred about two years ago, causing severe suffering. The discharge continued uninterruptedly until patient came to the clinic. With each acute exacerbation the patient becomes quite ill, and before the appearance of the discharge suffers from high fever, nausea and vomiting, severe headache and great prostration. The hearing power is very much impaired, the patient involuntarily turning the good ear toward the speaker, feeling that the right ear is more or less useless for ordinary conversation.

Examination.—Examination at this time revealed a discharge in the external auditory canal, the greater part of the membrana tympani being destroyed. The history of the case does not define the character of the secretion nor state definitely as to the presence of granulation tissue in the tympanic cavity. Deep pressure over the mastoid process elicited some tenderness.

Operation.—The Heath operation was performed

on December 6, 1907. The mastoid process was found to be of the diploic variety, the accompanying osteomyelitis extending backward beyond the mastoid bone. The cells were extensively necrotic, the carious erosion exposing the sinus for almost its entire length. The boy was entirely well about six weeks following the operation; that is, the discharge had ceased, there was a complete regeneration of the membrana tympani and the hearing power had improved almost to normal, the patient reporting that he was free from all discomfort.

Examination on January 2, 1909.—Improvement has continued uninterruptedly, and if anything there is still further betterment in hearing and the entire absence of any discharge. Hears ordinary conversation at from twelve to fifteen feet.

Notwithstanding the fact that the results seem to justify this surgical procedure in certain cases, yet it is most difficult to reconcile myself to the belief that it is sound operative technique to deliberately retain pathologic products, however minute, within the organ of hearing. However, as you will see from the cases present for your examination, the results generally are good and in some instances brilliant. Therefore, the manifest betterment of the aural condition of the patients compels us to give some recognition to this procedure, and at the same time serves to stimulate us to still further investigation.

Generally speaking, the operation should not be performed in the presence of suppurative or necrotic diseases of the labyrinth, where cholesteatomata are present within the cavities of the tympanum or antrum, or abscess formations involving the interior of the skull, especially if the infection gains entrance through the tegmen tympani.

On the other hand, we would feel inclined to advise the operation in appropriate cases, from the fact that it does not interfere with the membrana tympani and ossicles, thereby not jeopardizing the power of hearing. It would seem best, as a rule, for this reason, that the operation be performed early, before the disease has caused much destruction of the conducting apparatus. Some other points in its favor are that the danger of injury to the facial nerve is very much reduced: the shock from the surgical procedure is considerably lessened, and the recovery is notably quick, while at the same time it corrects the pathologic process within the danger zone, the antrum.

This procedure, furthermore, not only preserves the hearing present at the time of operation, but actually improves it to a noticeable degree in the majority of cases. Then, again, it is suitable in both the acute and chronic variety of cases, and will probably supplant the operation known as ossiculectomy for the cure of an otorrhea.

THE HYGIENIC AND CLIMATIC PROPHYLAXIS OF TUBERCULOSIS IN CHILDHOOD*

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The higher aims of medical science seek prevention rather than cure. In combating tuberculosis, which so often begins in infancy, blights the fair promise of childhood and adolescence, usually terminates in premature death, and imposes a tremendous economic burden on the community, our energies must needs turn to an efficient prophylaxis. As our knowledge of the etiology and pathology of tuberculosis has increased, it has become more and more evident that this prophylaxis must be begun early, in infancy and childhood. The subject of the prevention of tuberculosis in its entirety is far too vast for discussion in one short paper; those portions that relate to public hygiene in its manifold aspects have been disposed of by other members of this Congress. I shall therefore deal here only with such matters as relate to personal hygiene, including the general regimen of life and the choice of residence, the last considered essentially as regards the elements of climate.

Good general nutrition has always been considered one of the best preventives of tuberculosis. This is so far true that a loss of weight invariably accompanies a progressive state of this disease, but is of course not true of the converse. It is also a common fallacy, especially in our sanatoria, to consider an increase in weight a sign of improvement, whereas it is not difficult to fatten any patient who is not rapidly or at least progressively going down hill, by enforcing a quiet life and supplying an ample dietary. Nevertheless, we may regard a reasonable amount of adipose tissue as an indication of some individual resistance to the tubercle bacillus; children, especially, who suffer from what we call scrofulosis, that either is a marked susceptibility to tuberculosis or the presence of one of its chronic forms, regularly improve if we can make them gain in weight.

Our greatest difficulty is with children who suffer from anorexia, which may be a sign of tuberculosis already established or, on the other hand, merely the manifestation of a neurosis or a perverted metabolism, or due to vicious habits of eating or to dental caries. In these cases we must begin by recollecting any one or more of the latter conditions that may be present, paying particular attention to the candy and caffeine habits and to painful teeth. Neurotic children must not be permitted to associate with older or over-strenuous companions and should be guarded against nervous excitement; sound sleep should also be seen to. Overwork at school is uncommon nowadays, but too many children sit at home reading when they should be out of doors. An out-door life may sometimes be secured most readily by moving from the city to the suburbs, to a milder and sunnier climate, or to the more bracing conditions at the seaside or in the mountains: I shall discuss this more fully later on. The chronic constipation that regularly accompanies the anorexia of children is usually only concomitant, but may sometimes call for special treatment.

The diet of children should be as varied as possible, with the avoidance of high seasoning and stimulants of every kind, including tea and coffee. Eggs and cereals, bread, and plenty of good butter and milk should form the basis of the three or four daily meals; meat should be given only once a day to young children, not more than twice even at puberty. Treatment with fats, especially the distasteful cod-liver oil, is not regarded with so much reverence as formerly; I have already explained that mere fatness is not necessarily a sign of robustness. Nevertheless, cream and butter in moderate quantity are usually relished by children, though not liked by some; a few learn to enjoy a reasonable amount of pure olive oil. These fats are all

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relatively digestible and free from the disgusting odor and taste of cod-liver oil, which is also said to be becoming scarce and frequently substituted by other and still more unpleasant fish oils. In any case, we must remember that fats are useful, especially during the colder months, in furnishing caloric value in its most concentrated form. The carbohydrates may be given freely, and I do not share the common prejudice against sugar, which is, after all, but the equivalent of an equal weight of starch. The only objection to large amounts of cane sugar is that they spoil the child, leading it to desire all its food highly sweetened and develop the candy habit, pernicious chiefly because of the inferior quality of sweets usually purchased, but also because of the secondary development of the chocolate habit, which is merely a variation of the reliance on coffee or tea as a stimulant. Excessive fondness for sugar must be combated by withholding that article of food until the child learns to do without it, or by narrowly restricting its quantity. I must not forget to mention that the oxybutyric acidosis, so often observed in children, is probably not caused by the excessive ingestion of carbohydrates. Since we know that this intoxication, in diabetics, is due to a too strict withdrawal of carbohydrates and an excess of fat and albumin in the diet, we may safely conclude that in children, also, this affection is the result of an excess of fatty or proteid, not carbohydrate food.

Nothing is so useful to stimulate the appetite of children as exercise, if care be taken not to push it to exhaustion in which the digestive apparatus will inevitably share. Exercise, including systematic gymnastics, is also in high repute as a prophylactic against tuberculosis, but it is as well to subject this purely empirical view to scientific revision. There is, of course, no doubt that good muscular development is a useful personal asset to one whose vocation in later life calls for great physical strength. Otherwise the assiduous cultivation of gigantic muscles, which is quite possible to every one of us under scientific management, has little permanent value; the painfully acquired hypertrophy disappears rapidly from disuse, when heavy work is discontinued. I do not think that I am going too far when I call this sort of gymnastics a sheer waste of time, and I may go even further, pointing to the circumstance that physical overexertion, especially if long continued, is one of the immediate causes of premature arteriosclerosis, and likely to be associated with at least periodic albuminuria. It might be argued that this phase of the subject hardly concerns us here. What is more to the point is that careful observation seems to show an increased susceptibility to tuberculosis among record holding school and college athletes[1]; it is evident that the exhaustion following their strenuous competitions favors the invasion of disease; athletics of this type should absolutely be forbidden to school children. It is therefore to be regretted that efforts are now actively under way to foster interscholastic contests; they are unquestionably harmful physically, and seem to be even more pernicious morally, if we may judge by recent developments in so-called amateur sporting circles. It seems to me that our higher institutions are acting wisely in trying to limit the field of competitive athletics; it is a pity that the secondary schools are endeavoring to extend it.

Personally, I have no hesitation in declaring that I see no value in athletics save for the outdoor life they involve; from this point of view the less strenuous games, especially those in which the vain desire to break records plays no part, are to be preferred to mere feats of strength, speed, and endurance. We can safely favor such sports as tennis and baseball, which train the eye and brain as well as the muscles, which may be discontinued when the child feels tired, and whose rules set a time limit of a few hours. Indoor games and gymnastics are far inferior, and only to be resorted to for special purposes, when bad weather interferes with life out of doors; in winter snow and ice afford opportunities for wholesome sport that cannot be replaced by the best gymnastic apparatus. In orthopedic practice it is regularly found that gymnastic exercises are most needed by such children as have lived too much indoors; those who have led an active outdoor life have no occasion to resort to dumbbells or Indian clubs.

I may be criticized for having treated exercise merely as a means of hardening, and accept the criticism cheerfully. For me the sound body is merely the abode of the sound mind, physical prowess alone being of little moment in our day and steadily growing less. If we fortify the physique against that arch enemy of early life, tuberculosis, we give the brain a chance to win for its owner a position in the world to which mere muscle will hardly serve to raise him.

Having brought up the term "hardening," it will be worth while to discuss this form of training a little more fully. It has long been, and still is, regarded as our mainstay in combating a tendency to tuberculous infection, or as an aid in resisting the further inroads of an infection already acquired, but for the time being latent or quiescent. It is much to be regretted that the recent brilliant investigations bearing on the doctrine of immunity, with all their absorbing interest and eventual possibilities, as yet throw no light on the merits of hardening as a therapeutic method. Nevertheless, its value in the treatment of established and evident tuberculosis has been placed beyond question, and, despite its empirical status, it will remain for the present also our most valuable prophylactic agent.

To attempt an exact definition of hardening merely begs the question. The degree of hardening sought has hitherto varied according to the mental attitude of the individual clinician, for the physiological data that should aid us in reducing this procedure to some sort of system are lamentably incomplete. The theory of catching cold is one of the most actively mooted points of pathology, even if we define a cold as an acute infection of the respiratory tract. Many utterly deny that a sudden chilling of the body can cause a cold; only a few accept the exposure etiology *in toto;* most of us handle it with reservation as not proven. Though an advocate of this view, I admit that the evidence in its favor is very inconclusive. Furthermore, the question whether a cold predisposes to tuberculous infection is quite unsettled, but I believe that the invasion of the tubercle bacillus is undoubtedly favored by a previous infection of the respiratory tract, as happens, for example, after an attack of measles. Thirdly, the amount of protection that hardening affords against acute respiratory disease is still in dispute, and the same may be said concerning the degree of hardening that should yield the best results. Hecker,[2] in an interesting article, has indeed proved that excessive hardening predisposes to colds, but no one has furnished really satisfactory evidence that moderate hardening assists the organ-

ism in acquiring even relative immunity. As to this last point, we are still on an entirely empirical basis; all that we know is that experience shows moderate hardening to be a means of defence against tuberculosis, and excessive hardening, so called, to be no hardening at all, but a most effective method of lowering the general resistance to infection of the respiratory tract with the organisms that cause acute inflammation and probably tuberculosis as well.

It is evident that we cannot draw the line between reasonable and excessive measures of hardening arbitrarily, nor can any sweeping rule be laid down to guide us, unless we take our departure from the standpoint of conservatism. Our idea should be to start with a minimum, and to work up to a higher degree gradually, taking care to keep within the range of tolerance of the particular individual before us. We may, however, regard two points as settled: First, that the patient most urgently requiring hardening should be handled with especial gentleness at the outset; secondly, that hardening should be less and less strenuous as we depart from the age of thirty or forty years, in either direction, so that infancy and old age should be subjected to the mildest measures only. These two principles depend on the well-known physiological fact that the efficiency of the thermoregulatory apparatus of the body varies according to age and individual robustness; to reduce them to a practical basis it will be necessary to adopt the working formula which, on a previous occasion,[3] I have elaborated as the theory of the indifferent temperature. As this designation may still be somewhat unfamiliar, I may be pardoned for dwelling on it again in detail.

By the term "indifferent temperature" we may designate that atmospheric warmth at which the thermoregulatory apparatus of the body is at rest, the animal heat being maintained by the minimum normal respiratory activity alone. Both heat and cold act as stimulants, though in different ways. Heat can be counteracted only by the vasodilator apparatus; this naturally becomes exhausted in the course of time, producing the condition called enervation. Cold may be combated either through the vasoconstrictor mechanism or through muscular exertion, of which the latter may be controlled voluntarily; in addition, we have the auxiliary means of clothing and artificial heat, so that our physiological resources need not be overtaxed. To demonstrate that, properly regulated, either heat or cold may be employed as a tonic, I need only refer to the Japanese custom of hot bathing; it seems, indeed, as if their method were preferable in some ways to our cold baths, for it involves no risk of chilling the overheated body surface. As to the ultimate hardening result, the Japanese laborer certainly leaves nothing to be desired in that respect.

The hot bath is, however, the only means of employing heat as a hardening method that can be regulated for general use; the employment of cold is far more available, since our climate supplies sufficiently cool air during the greater part of the year, so that mere life out of doors may be effectively utilized. Cold water is quite readily obtainable at all seasons. It is for these reasons, perhaps, that European and American methods of hardening resort to the application of cold exclusively.

We are now fortunately, as I think, entering on a period of reaction from the mania for violent hardening of a few years ago, when the most popular measures amounted to positive cruelty. I need only recall that young children, even infants, preferably those that appeared delicate, were plunged into cold water two or three times a day, and that nudity to the limit of the law was regarded with favor. Going about barefoot indoors at all seasons, and as little clothing on the extremities as possible out of doors in summer, are still widely advocated, the great object evidently being to keep the child uncomfortably cold all the time. In spite of the absurd extremes mentioned, however, the general principles of hardening still hold good, provided the measures applied are kept within rational bounds; I may, therefore, at this point give a brief outline of such methods as seem to me reasonable and adequate, neither pampering and enervating the children, nor on the other hand, exposing them to unnecessary discomfort and risk.

Children should, of course, be out of doors as much as possible; this sounds axiomatic, but is not so easy to carry out in the more congested city wards, especially among the poor, where the mother's manifold household duties keep her and her family at home nearly all day. Thus I see many instances where promising infants gradually fall below par, merely because they are taken out only once or twice a week even in pleasant weather. In this connection we may note with interest the observations of Hansemann[4], which I have been abundantly able to verify. Without ignoring the harmful effects of artificial feeding, he attributes rickets chiefly to what he aptly calls imperfect domestication; in other words, he considers man still imperfectly adapted to an indoor life, and regards that form of malnutrition which we call rhachitis as due to insufficient fresh air and sunlight. I might add that many obscure forms of anemia are also unquestionably caused by living in the semi-darkness of many of our city rooms; similar conditions once were common in prisons, and may still be observed in miners. It seems that children, as well as plants and most of the lower animals, thrive to perfection only out of doors. It also seems that the rhachitic and anemic children are more subject to tuberculosis than such as are more robust; it is certain that many of them acquire a chronic or latent tuberculous infection in very early life, as we cannot otherwise account for the relative frequency of glandular enlargements in this group.

During the first month of infancy the thermoregulatory apparatus of the body still functionates very imperfectly, so that exposure to cold easily reduces the temperature below normal; this condition has been shown by experience even more than experiment to favor the development of acute respiratory or gastrointestinal disease. Newborn infants must, therefore, be kept indoors, save that an outing may be permitted in the third or fourth week in midsummer weather. After the first month of life the baby's first outing depends on the season of the year; it is well to remember that the first airing requires a temperature of at least 70° F. (21° C.), with calm and sunny weather. Later on, of course, a lower temperature will suffice, but it is evident that a baby born at the beginning of the winter may have to be kept indoors for months, if its native climate be cold or damp. Toward the end of the first year low temperatures may be largely disregarded; our very cold days—I am speaking of the middle Atlantic coast—are nearly always sunny, though sometimes windy, so that the infant may be stationed on the sunlit eastern or southern side of a building during the forenoon, thereby being sheltered from our keen northwest winds. Under these con-

ditions a temperature well below the freezing point is easily borne. I have seen infants in their second half year, well bundled up, basking in the sun on some of our most severe days, in evident comfort. The rule, occasionally laid down, to keep infants indoors when the temperature falls below 20° F. (—7° C.), need not be so strictly adhered to; it involves practically imprisonment far northward, but exposure to relatively severe cold in the South. We must not forget that 40° F. (4° C.) seem as cold at New Orleans as zero (—18° C.) at Montreal, because the normal winter temperatures are, respectively, 15° (8° C.) higher; sensitiveness to cold is largely a relative matter, depending on what we have become habituated to. It is a case where sound judgment will be a better guide than any formulated rule.

After the age of two years mere cold may be disregarded altogether, whereas dampness and high winds are still harmful; toward the school age children should be kept at home only when it rains, a dry and cold snowstorm being relatively unobjectionable.

I must not fail, in this connection, to animadvert briefly on the so-called house airing, frequently recommended to timid parents as a substitute for outdoor life; as a matter of fact, it is not even a poor imitation thereof, but, on the contrary, a measure replete with danger. I need only recall that the child is exposed to a cold draught at every inadvertent opening of the door; conditions are entirely different on a veranda or in an open tent, where there are no considerable contrasts of temperature and the air currents are diffused. I shall also add a few words of condemnation for the solarium, referring only to its close resemblance to the gardener's hothouse; hardening may often become irrationally excessive, but hothouse treatment is absolutely indefensible in dealing with healthy children.

When the child's native climate, in combination with individual lack of robustness, prevents the enjoyment of any great measure of outdoor life, a change of air is indicated. As we rarely need to resort to climatic hardening in the first few months of life, the very warm resorts do not greatly concern us. Infants past the age of three months do not require an afternoon temperature averaging more than 65° F. (18° C.), corresponding to that of Boston or New York in May; this figure may be obtained in midwinter in Northern Florida, Southern California, the lowlands of Arizona, and Egypt. Children who are beginning to run about do better at a temperature some ten degrees (6° C.) lower, for there is no method of hardening that can compare to exposure to a moderately bracing climate. The conditions just stated are obtainable in winter in the Carolina lowlands, Northern Georgia, Middle California, Southern Italy, and the Riviera. All these regions afford ideal conditions for young infants in early spring, for it is inadvisable to take a baby that has wintered in the South to such a climate as Cincinnati or Philadelphia before mid-April, or to Chicago or Boston before May; the change from warm sunshine to chilly dampness involves great risk. All the districts so far mentioned have from 50 to 70 per cent. of sunshine during the Winter months, much irregularity of temperature in the Southeastern States, a great difference between day and night temperatures in Arizona and Egypt, but remarkably even thermometric conditions in California and Southern Europe.

Similar temperatures would be desirable in summer, but there are no really bracing conditions, readily accessible, on our side of the Atlantic, except on the north Pacific coast, where fogs and very high and damp winds prevail, and in the Canadian Rocky Mountains. For very young infants, the Middle Atlantic coast, the lowlands of interior New York and New England, the lake region, and the South California coast are sufficiently cool; after the first summer the New England coast, the Northern Alleghanies, the cooler Rocky Mountain points, and the most northerly stations on the Great Lakes are far preferable. Really cool summer days, averaging well below 70° (21° C.) in the afternoon, must be sought in the mountains of Central Europe and on the British Isles; the American continent has nothing in this line to offer, save what has been mentioned at the commencement of this paragraph.

At the risk of becoming wearisome, I must repeat that we have been very remiss in not paying more attention to the value of change of climate as a means of hardening young children; exposure to a moderately low, and therefore bracing, temperature is probably the best tonic at our disposal. It will be observed that I am saying nothing about the subarctic winter climate of the Adirondack Mountains and similar regions; I omit them because I am convinced that such extreme methods are certainly not required for prophylaxis against tuberculosis, though occasionally useful in the treatment of this disease in older children. In these very severe climates young children are kept indoors too much of the time by intense cold and heavy snowstorms, and, unless assiduous care be taken, or even in spite of it, the continuous battle with very low temperatures does young subjects more harm than good. At these early ages better results are undoubtedly to be obtained in such regions as North Carolina, Colorado, or New Mexico.

The second method of hardening children, usually but undeservedly regarded as the best, is the bath in its various forms. I regard bathing as somewhat inferior to climatic hardening in that its applicability is more limited and because its proper management requires far more skill and care. However, its usefulness cannot very well be disputed. We are passing the period when cold bathing was advocated for all ages, including infancy; nevertheless, I think that this form of hardening, like that of exposure to the weather, may be inaugurated at quite an early period, if a modicum of common sense and caution be employed.

Hardening by means of the daily bath may be achieved somewhat as follows: The temperature of the water, 100° F. (38° C.) during the first few months, may gradually be lowered to 95° (35° C.) by the sixth month, and 92° (33° C.) at the end of the first year. In the course of the second year the immersion at the last mentioned temperature may be followed by a brief sponging with cooler water, slowly going downward from 86° to 77° (30° to 25° C.). After the age of two years resort may be had to daily cool sponging, to be carried out in the following manner: The bathroom should have a temperature of 70° to 72° (21° to 22° C.), and the child should stand in water of about 92° (33° C.); it should then be sponged off rapidly with water, at the same temperature to begin with, lowering it to about 77° (25° C.) in the course of a minute or two, the sponging to be followed promptly by thorough drying with a rough and preferably warmed towel that envelopes the whole body. Within a year or so the temperature of the sponging water may

be reduced to 68° (20° C.) without harm, but lower temperatures are contraindicated, for they often seem to be injurious even to adults. Cold immersion should be resorted to with caution, as it presupposes considerable robustness; I would strongly advise against it before the sixth year, and then begin with moderately high temperatures, reserving those near 68° (20° C.) for puberty and beyond.

It is not easily explained, but may be verified by anybody on his own person, that cold sea or river bathing is more easily borne than cold tubbing. The probable reason is that the former is combined with a certain amount of muscular exercise, as in swimming. I must not fail to mention that the test of reaction, namely, a cutaneous hyperemia setting in after a minute or so, is as valuable a test of the wholesomeness of cool bathing in children as in adults. In infancy and the earlier years of childhood the reaction is not obtained as readily as later; its absence is an infallible sign that the bath, as given, is doing harm, and higher temperatures should be resorted to at once.

Sea bathing is an invaluable means of hardening children, but can hardly be resorted to before the fourth or fifth year, partly owing to the child's dread of the surf, partly on account of actual danger on coasts subject to strong breakers and currents. Another difficulty lies in the circumstance that the sea is rather cold at such resorts as have a bracing climate; regions like Long Island and New Jersey, where the temperature of the ocean is just right, are a little too enervating for robust children beyond the age of six or eight years. Fortunately, such relatively delicate children as call for care in the administration of sea baths also require a slightly warmer air temperature; the best way to surmount the difficulty mentioned is to take the child to a rather cool climate and shorten the bath, in extreme cases substituting indoor sea water baths for the more strenuous dips in the ocean.

Where the ocean temperature is about 60° (16° C.), as off Southern Maine, Middle California, the coasts of Germany, and the English Channel, the bath should last only a minute or two. A temperature of 65° (18° C.), as off Massachusetts, Southern California, and in the Bay of Biscay, permits an immersion of from three to five minutes; Long Island and New Jersey afford water temperatures near 70° (21° C.), and allow a ten-minute bath under these conditions; in the still warmer waters of the Mediterranean and Chesapeake Bay, where, however, the summer climate is far too warm even for delicate infants, the bath may last still longer. The common American custom of permitting children to stay in the water until cyanosis is developed is highly reprehensible, and one of the most objectionable methods of hardening known.

Still water baths require slightly higher temperatures, as is also true of fresh water; in the former case the massage of the breakers is absent, and we know that friction is almost a necessary adjunct to cold bathing. As to the latter, any one can try for himself that a salt bath feels warmer than one in pure water at the same temperature; the saline content of sea water and its stimulation of the skin is the determining factor.

Passing on to the subject of clothing, I can sum up quite briefly, for our knowledge of its hygiene is still imperfect. Some years ago wool next to the skin was deemed indispensable; at present a good many pediatricians regard it as altogether too pampering, preferring loosely woven cotton goods like Jaeger flannel and stockinet. It is well to note that some children, especially infants, have a skin so tender as to be greatly irritated by the jagged fibers of wool; the weaves of cotton just mentioned are almost as poor conductors of heat, and do not cause chafing. With the customary overheating of American houses rather light weights of clothing should be worn indoors, with heavy wraps for outdoor use in the cold months. The popular fad of semi-nudity for young children in summer calls for the sternest condemnation. It is hard to see why it has been applied to the very early years alone, the very age at which the body is less sensitive to high temperatures than later on, and is most likely to suffer from exposure to low temperatures. Holt[5] very properly says that permitting children to run about with bare arms and legs in midsummer is of questionable advantage even in our middle States, where although the day temperatures are rather high, considerable coolness may often occur in the early morning, and, especially at the seashore, toward evening also. My opinion is that this return to the costume of barbarism has no value except to facilitate the work of biting insects. Still more absurd is the idea of permitting children to run about barefoot; the only tangible result of this practice is to expose the child to the risks of traumatism in this age of nails and broken glass; furthermore, as the conventions of our civilization call for a return to shoes and stockings in later years, the final utility of learning to go barefoot is not obvious. Habits that must eventually be abandoned are hardly worth inculcating, the more so when their acquisition involves risk to health and a good deal of discomfort.

The respective tests of excess or insufficiency of clothing are simple—sensible perspiration in the former case, cold hands and feet in the latter. If a child suffers from coldness of the extremities, the only thing to do is to increase the amount of clothing or supply artificial heat; it is a great mistake to expect the child to harden itself by fighting off chilliness through metabolic stimulation alone. Much harm may be done in this way, for prolonged exposure to low temperatures invariably results in depression of the vital functions, and the child finally becomes what we call delicate. We must, of course, take care not to go to the opposite extreme and dress children too warmly or overheat their apartments, as enervation is quite certain to follow. Errors in both directions are committed continually nowadays, so that we are sometimes led to wonder if parents exercise any judgment at all in this important matter; it is at any rate the duty of the family physician to inform himself about this matter in the case of every child under his care. He will find the golden mean is kept in few families.

If this brief paper does not cover the entire field of personal and climatic hygiene in its relation to the prevention of tuberculosis in children it will, as I trust, at least have given an outline of a rational regimen. The more minute details will always have to be left to the individual attendant; general principles can, after all, inculcate little more than the maxim of *non nocere*.

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111 West Eighty-fifth Street.

BLOCKING STONES IN THE LOWER END OF THE URETER.*

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It is my purpose to-day to present to your attention some practical considerations regarding the lodgment of stones in the ureter, with special reference to the diagnosis of this condition from attacks of acute appendicitis.

The ureter is not a tube with uniform diameter, but in the normal subject is found to have three points of narrowing; one at a position of one and one-half to two and one-half inches from the renal pelvis, at which point the diameter in the adult is usually about one-seventh of an inch. The second point of constriction is at the position where the ureter crosses the iliac artery at the brim of the pelvis; and at that location the diameter of the constriction is one-fourth of an inch. The third point of constriction is within an inch of the entrance of the ureter into the bladder, and at this position the constriction measures only about one-tenth of an inch. From these measurements, you will readily see that a stone of even very inconsiderable size may block the ureter and give thereby all the symptoms of nephritic colic.

The diameter of the lowest constriction being so small as one-tenth of an inch, it is at once evident that the gravity of the condition present is not to be measured by the size of the stone, but by the amount of impediment it offers to the passage of urine. Even a small stone may give rise to complete obstruction, whereas a larger stone may allow the urine to pass alongside of it. This apparent discrepancy in results is easily explained, when we consider that in almost all cases the pressure of urine behind the stone causes a dilatation of the ureter above, throughout part or all of its course to the kidney, and that this dilatation, which sometimes reaches the size of the index finger, may allow a stone not tightly impacted and of considerable size, to be so placed that some urine may constantly trickle past; whereas, a smaller stone may be so firmly impacted in the funnel-shaped end of the dilated portion that not a bit of urine may pass it. Small stones, therefore, may be just as serious threats to the patient as large ones.

Corresponding to the narrow places which I have mentioned, are the usual stopping places of stones, and we therefore find them just below the kidney, at the brim of the pelvis, or at the base of the bladder. The symptoms to which they give rise vary somewhat, according to the location of the stone. Stones blocking the ureter near the kidney or at the brim of the pelvis, give rise to symptoms which cannot be differentiated from stones in the kidney pelvis itself. These symptoms in brief, are lumbar pain of a colicky nature or of a dull character, radiating into the inguinal region, to the inside of the thighs, or into the testicle; retraction of the latter organ, blood in the urine, sometimes found only in microscopical amounts, at other times in considerable amounts, depending somewhat on the amount of roughening of the surface of the stone. By these symptoms alone, a diagnosis of stone in the upper ureter from stone in the kidney pelvis could not be made; but if the position of the stone is accessible to palpation, a tenderness may be found, and this is especially true if the stone is impacted at the brim of the pelvis. If the stone is impacted near the bladder, additional symptoms arise, connected with the act of micturition. There is a constant desire to urinate, the urine is passed frequently and in small amounts, and there may be even tenesmus of the bladder

The lower end of the ureter is accessible to indirect palpation through the vagina or the rectum, and in some cases, in addition to the tenderness displayed at this point, the stone itself may be felt with the examining finger. Pain also at the end of the penis is a characteristic of stone impacted in the lower end of the ureter, and the symptoms of this impaction are closely allied, therefore, to those of stone in the bladder. The important symptoms, therefore, of stone at the lower part of the ureter, are pain, bloody urine, tenderness, and frequency of urination. All of these symptoms, however, as I shall have occasion to prove to you by the cases which I shall relate, may be absent, except the pain and local tenderness.

When the impaction of the stone occurs suddenly, and is complete, the kidney may go on excreting urine, its pelvis may dilate until a hydronephrosis results, giving a tumor of greater or less extent. If it should be the right ureter that is involved, and the colicky pain should be of sudden access, and the tenderness be marked at the point where the right ureter passes over the pelvic brim, the diagnosis from an acute appendicitis becomes quickly an important one.

In these days, when we believe it to be so extremely important that every case of acute appendicitis should be operated on within the first twenty-four hours of its access, it can easily be seen that a condition which simulates it so closely may lead us into an operation under a mistake in diagnosis. We may have here a very violent attack of colicky pain in the right side, extending downward toward Poupart's ligament, with tenderness precisely at McBurney's point, and so severe as to indicate a case of great urgency. As I have said, this may occur without urinary symptoms, without blood in the urine, without frequency of urination, and with nothing to inform us for a certainty of the nature of the case. These cases are too urgent to permit of delay, till the patient shall have been transported to the *x*-ray machine, and they will not permit of delay until satisfactory pictures shall have been secured and repeated urinary examinations shall have shown the presence of minute quantities of blood, if it exist in the urine. They must be diagnosed by the clinical symptoms, and the decision must be arrived at by the probabilities presented to us by these symptoms. If these symptoms are solely those of violent pain and tenderness, then we must not risk the delay of operating on a probable acute case of appendicitis. The presence or absence of a leucocytosis would have a strong bearing on the diagnosis, but this sign is not of such an infallible nature that we would like to rest our diagnosis upon it alone. We are thrown back, then, upon the inevitable conclusion that, when a case of this nature arises and we are unable to say absolutely which condition is present, we must take the thing that is most likely, which is appendicitis, and the one which most urgently demands an operation, which is appendicitis, and the one which will not be harmed by an operation, which is appendicitis; and

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we shall, therefore, in these doubtful cases, remove the appendix without delay.

I hope I may not be accused of advocating an operation which is unnecessary, or of laxness in making every effort to make a proper diagnosis before operation; but what I am now trying to state is, that there are cases in which a diagnosis cannot be made without delay, and that, rather than risk delay, I would prefer to do a simple appendectomy, even at the risk of having made a mistake; a mistake however which is never injurious to the patient.

That this error in diagnosis has been made by others than myself, is a well-known fact; for I have myself removed a stone from the right ureter of a patient whose appendix had been removed in a previous attack by a surgeon of eminence in New York, and a man who knew appendicitis thoroughly. Dr. George E. Brewer of New York has published a case in which he had removed the appendix in a case of stone in the ureter. Dr. Lilienthal, also of New York, has expressed his opinion that in some instances it is a practical impossibility to differentiate these conditions. The difficulty of making this diagnosis has been emphasized by cases recently reported by Dr. John H. Gibbon,[1] Dr. John F. Erdman,[2] Dr. Albert A. Berg,[3] and others. Two of the cases which I shall report were sent to the hospital for immediate operation for appendicitis, and one for appendectomy for recurrent attacks.

The prognosis of impaction of stone in the ureter is difficult to give. It may be stated, however, that a rapid destruction of the kidney function may arise from complete impaction and hydronephrosis; and on the other hand, many cases have been reported which have existed for terms of seven, fourteen, twenty-one, twenty-five, and even twenty-eight years. It behooves us to inquire—"What are the probabilities of the spontaneous expulsion of a stone from the ureter, when the symptoms clearly point to its presence in that tube?" I presume it is within the knowledge of every experienced and observant physician, to have had patients who suffered from the symptoms of renal colic, subsequently had bladder symptoms, and finally expelled a calculus, the symptoms having been so clearly consecutive that the passage of the stone could be traced from the kidney to the external world. These are stones, however, which have passed through the ureter without stoppage, and those to which I am now directing your attention are the ones that have met with an obstruction that has caused the stoppage of the urinary flow. When we have the symptoms of an obstructing ureteral calculus, the question arises: "Will this stone pass, or will it be detained sufficiently long to cause injury or destruction of the kidney?" This brings us at once to the question of the treatment of such cases. There is hardly a natural mineral water, whose proprietors do not claim for it the ability to wash stones from the kidney, ureter, and bladder, but I think that not one of us believes that any water, natural or artificial, has yet been discovered which has the property of dissolving a stone in the urinary tract. At the same time we all have known cases where patients with undoubtedly impacted stones have, by the drinking of large amounts of water, either at springs or at their homes, passed their stones, and remained thereafter well; and it would therefore seem to be the part of wisdom to advise all patients in whom the diagnosis is made, and whose condition is not too urgent to permit of delay, to drink large quantities of water either at their homes or at springs, so that the stone may be washed downward by the large amount of urine that is secreted.

In this connection, I might mention a patient, an attorney, who was sent to me about two years ago by Dr. C. Emmerling. This gentleman had been seen in an attack of colic by a prominent surgeon in an eastern city. He was urged to have his appendix removed, the attack being thought to be appendicitis. When I saw him, I was unable to find any evidences that this condition existed, and within a few weeks thereafter, he had another violent attack in which he passed large quantities of blood. An *x*-ray picture was then taken by Dr. Boggs, and the stone demonstrated in the lower end of the ureter. This patient went shortly afterwards to drink the waters at Cambridge, and the result was that he passed the stone and has since been well. We must, therefore, decide that every patient whose condition is not too urgent, should be allowed first to wash out his own stone by drinking either distilled water or the water from an appropriate spring. If this treatment should fail, we turn to the operative treatment, for the relief of the patient.

Up to this time I have said almost nothing about the diagnosis of this condition by the *x*-ray. I may say, however, that the diagnosis of the presence and position of a stone in the urinary tract, can be made with the greatest precision by the *x*-ray, and that the three cases which I will to-day report fully carried out the expectations that arose from an examination of the *x*-ray pictures made by Dr. R. H. Boggs. This is the greatest advance which has yet been made in this diagnosis, and while errors may be made by the examination of plates alone, the combination of knowledge from the plate and the clinical history will settle the diagnosis in most cases, although repeated sets of plates may be required.

Operative treatment for the removal of stones from the ureter has been undertaken in a very great variety of ways. Stones have been removed from the ureter by opening the kidney and passing forceps down the dilated ureter for the extraction of the stone. The kidney has been removed, to stop its secretion, and even the ureter has been removed with the kidney in a number of cases to do away entirely with the urinary secretion on that side and to remove the foreign body. The kidney has been opened and the stone pushed into the bladder by sounds passed through the dilated ureter. The ureter has been opened through a suprapubic cystotomy, an incision being made also through the base of the bladder, when the stone was impacted at the very end of the ureter. The ureter has been opened through the peritoneal cavity, by making an abdominal section. Stones have been removed from the vesical end of the ureter by exposing the ureteral orifice, through the cystoscope, dilating the orifice, and extracting the stone. The ureter has been opened for the extraction of a stone, by a vaginal incision, by rectal incision, and by a parasacral incision. Exposure of the ureter by opening the peritoneal cavity and cutting into the ureter through the peritoneum is generally considered to be a dangerous operation, because there is a very large probability of leakage of urine through the opening left by the extraction of the stone, and this extravasation of urine, if it passes into the peritoneal cavity, may result in fatal peritonitis.

We come now to what is considered the operation of choice, and this is the extraperitoneal ureterolithotomy. This operation is made by carrying the incision parallel with the fibers of the external oblique muscle, from a position somewhat internal to the anterior superior spinous process, extending it upward or downward, according to the location of the stone, carrying this incision through the muscular tissues, until the peritoneum is reached, lifting the peritoneum from the structures posteriorly, until the vessels and ureter are reached. The ureter follows the peritoneum, being more intimately attached to it than to the fascia behind, and when the stone is identified it is an easy matter to follow the ureter to the point of constriction and impaction of the stone. The stone is then coaxed upwards from its bed into the dilated ureter, if it is possible so to do. An incision into the ureter is then made and the stone is removed. A ureteral bougie is then passed downward into the bladder through this incision to make sure that the passage is now entirely free. Ureteral sutures of the finest silk or, preferably, of fine catgut are then introduced, a drainage tube is inserted, and the incision is closed. Even if a large amount of urine is extravasated, it is always external to the peritoneal cavity, and it escapes harmlessly and soon ceases to be discharged.

Case I.—The first patient whose case I report to you to-day, was a girl of sixteen, who applied to me on February 8, 1907, with a history of repeated attacks of cramps in the right side of the abdomen. The pain was so severe that morphine was required. Vomiting occurred during these attacks and feelings of discomfort between the attacks. Tenderness existed over the region of the appendix, and no history of blood in the urine could be elicited. The urine, however, contained albumin and casts. There was some doubt of the diagnosis and she was kept in the hospital five days before operation. Through a McBurney incision her appendix was removed. It was slightly adherent and decidedly thickened at the tip. The operation was short, without complications, and the patient returned to her home nine days later, feeling well and without discomfort. She shortly returned, however, complaining of pains of a similar nature, and it became at once evident that a new diagnosis had to be made. Blood in her urine was noted, and extremely frequent urination. She was sent to Dr. Boggs for *x*-ray examination and a positive diagnosis was made. She was urged at once to have the stone removed for it showed clearly on the plate. She and her parents, however, feared the operation very much, and owing to their delay it was not performed until August 29, 1907, a period of more than six months since the primary appendectomy. The incision just described was made and the stone removed from the very lower end of the ureter, not more than one inch from the bladder. A soft catheter was passed into the bladder through the ureter to make sure of its patency. Catgut sutures united the opening in the ureter and the patient was returned to bed. The stone was the size of a grain of coffee, with a conical tip, faceted at one end. After some leakage of urine from the wound, the wound healed kindly and the patient returned to her home. She was readmitted, however, a little over a month from the operation, with symptoms of advanced Bright's disease, almost complete suppression of urine, and dropsy, and died ten days later. Autopsy was refused.

Case II.—The second patient is a man, forty-one years of age, who had attacks of colic fourteen years ago, during which he passed calculi as large as the end of the finger. He had no attacks for seven and one-half years, until one year ago, when he had eight or ten attacks in four months which lasted about eight hours. This patient was sent by his physician to the Columbia Hospital as a case of appendicitis; but the history at once raised the question of an ureteral stone, and he was taken to Dr. Boggs, who made the diagnosis with a satisfactory *x*-ray plate. The extraperitoneal incision was made, and the stone, which was expected to be at the brim of the pelvis, could not be felt. The peritoneum was then incised and a finger passed down to the base of the bladder, and the stone located in that neighborhood. The peritoneum was then closed after the removal of a shrunken appendix, and the incision was extended downward to the base of the bladder and the stone removed, as in the previous case. The patient made an excellent recovery, after some leakage of urine, and left the hospital well.

Case III.—The third case was admitted to the Columbia Hospital on October 20, 1907, with a history of severe pain in the right side of the abdomen, with vomiting and marked tenderness over the region of the appendix. He was sent in as a case of acute appendicitis, and I saw him for the first time on the operating table. I removed his appendix through a McBurney incision. It was unusually long, measuring six and three-fourths inches, somewhat indurated, and covered with distended vessels. He made a normal recovery, as far as the wound was concerned, and went out, still having pain in the right lower quadrant of his abdomen. He was admitted again on November 15, not quite four weeks from the date of his operation, complaining of flatulence, vomiting, and pain of a colicky nature. No urinary symptoms. With the other patient in mind, a calculus was suspected. He was sent to Dr. Boggs, who made a plate giving a positive diagnosis. On November 23, a similar operation was performed and a mulberry calculus about six millimetres in diameter was removed from the very lower end of the ureter almost exactly at its entrance into the bladder. This patient also made a normal recovery, with some leakage of urine alongside the drain, and left the hospital on the seventeenth day, well and free from pain.

These three patients will serve to illustrate the points which I have endeavored to make in this paper:

1. The diagnosis between an acute attack of appendicitis and stone in the right ureter is sometimes impossible.

2. If the acuteness of the attack is such as to require an immediate operation, in case the condition should turn out to be an appendicitis, the immediate removal of the appendix is indicated, which being under these circumstances a harmless operation, removes the immediate danger.

3. The diagnosis by the *x*-ray, in competent hands, is accurate and satisfactory, and every doubtful case should be submitted to this test.

4. Every part of the ureter can be exposed by the extraperitoneal operation, which in a patient in an ordinary condition, seems to be practically free from danger.

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ROENTGEN DIAGNOSIS OF CALCULI.*

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The first essential in radiography of renal calculus is proper preparation of the patient. The intestines should be as empty as possible. There are two reasons for this:

(1) Fecal masses sometimes cause definite shadows, but usually do not present any difficulty in the way of diagnosis. I have seen cases in which there were shadows resembling calculi, which disappeared after a cathartic had been given. Drugs, such as bismuth, Blaud's pills, or any dense substance, will cast shadows on the plate, and would be at least confusing.

(2) By having the intestines empty there is not only less density, but the colon, as a rule, is filled with gas and greater differentiation of the abdominal contents is obtained.

All buttons and pins being removed, the patient is placed on the table, either in a dorsal or prone position, depending upon whether the tube is above or below the table. It is advisable to have all clothing removed between patient and plate, as occasionally the folds will show. The patient can be covered with a sheet, and this will not interfere in any way with the examination.

For the first exposure, I use two 14 x 17 plates, one on the top of the other. This will take in both kidneys, ureters, and bladder. The reason for using two plates is that occasionally imperfections occur in the emulsion, which may simulate a calculus, but will never occur on two plates in the same place. After these two plates are developed and studied, if there are any faint shadows, other plates are made using a small diaphragm and compression method; this takes smaller areas, but the plates are clearer and have greater differentiation and are extremely valuable in difficult cases.

For the first exposure, which includes both kidneys, ureters, and bladder, the tube is in the median line and focused directly over the umbilicus, at a distance of twenty-two inches from the plate. When using a small diaphragm, the tube, of course, is focused over the center of the area examined. When examining for calculus in the lower portion of the ureter, it is important to have not only one radiograph with the tube focused over the pubis in order to determine, as nearly as possible, the position of the calculus, but to make a radiogram with the tube placed over the umbilicus, focused so the rays will show the shadow of the stone in the soft parts of the pelvis, and not on the sacrum, as will be done in certain portions of the ureter if the tube is placed directly over the calculus. This is very important if the calculus is small and is composed of uric acid or its salts, as such stones do not show plainly. In several instances I have been unable to locate a calculus in this position until the radiogram was made at this angle.

The time of exposure has been so shortened that with the latest apparatus it is necessary to give only from five to ten minutes. Whenever possible the exposure should be made while the patient is holding his breath, in order that there be no movement to blur the shadows. It has been stated that the kidneys move in some cases as much as one and one-half inches during respiration.

*Read at a meeting of the Blair County (Pa.) Medical Society, November 17, 1908.

Again, in regard to the quality of the tube. A higher penetrating tube should never be used than is absolutely necessary. It is claimed by certain authorities that, with a very high penetrating tube, small calculi of low atomic weight, such as uric acid, may be overlooked.

A plate should reach a certain standard and show the articulations and spinous and transverse processes of the lumbar vertebræ, crest of the ilium, last two ribs, psoas muscles, and bony details of the pelvis, before any attempt is made to give a positive or negative diagnosis by the *x*-ray.

In 1898, Dr. Charles Lester Leonard pointed out that if a plate reaches the above standard, both positive and negative diagnoses could be made with fair degree of accuracy. He based his belief on the axiom, "that where shadows of tissue less dense than the least dense calculus are shown, no calculus should escape detection." Only in negatives that fulfil these requirements can an accurate negative or exclusive diagnosis be made, and time has shown that such negatives, given sufficient experience in reading them, prove this proposition to be correct.

The intensity of the shadow varies with the size and composition of the calculus, uric acid being the least opaque. Calculi are mostly composed of uric acid and its salts, calcium oxalate, calcic and ammonium phosphate. Occasionally other substances such as carbonates and cystin are found.

A Roentgen diagnosis means more than making beautiful plates. Interpretation of the plates requires as much care as in making the examination. A shadow on a plate means nothing unless the patient's symptoms coincide with the findings. All of the clinical symptoms should be taken into consideration, and a diagnosis should be made in conjunction with the other recognized methods. A hasty diagnosis, made oftentimes when the patient has been radiographed for fracture of the hip joint, etc., has brought the Roentgen method into disrepute.

I am under obligations to Dr. J. J. Buchanan for the valuable instruction he has given me in symptomatology during the past five or six years, and also for assisting in determining what caused some of the abnormal shadows seen on plates, in the region of the kidneys, ureters, and bladder.

The following may cause shadows, but there is usually a difference in the shape and density of the shadows produced by them from those cast by calculi: (1) Foreign substance in the intestines; (2) calcified glands—tuberculous, sarcomatous, carcinomatous; (3) phleboliths or calcareous deposits in atheromatous vessels; (4) sesamoid bones; (5) fibroid of ureter; (7) warts or moles on the skin next to the plate.

Calculi in the ureter are in the line of the ureter, and their shape is usually round or more or less oval. The ureter crosses the transverse processes of the vertebra and enters the pelvis a little to the inner side of the sacroiliac synchrodrosis. So if a shadow is seen on a radiogram, if it is cast by a stone in the ureter it must be in this line unless the tube was so placed as to distort the shadow or unless the ureter itself is in an abnormal position. In all doubtful cases a careful and thorough study of the symptomatology and history in connection with the plate will show whether a diagnosis of stone is justified.

[illegible] Ewing Building.

MEDICAL AND SANITARY INSPECTION OF SCHOOLS.*

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Medical inspection of German schools was begun in Dresden in 1867, when three physicians, formerly teachers of physical training, were appointed to examine children suffering from a contagious disease of the eyes. Not until twenty-two years later, however, was a genuine system of medical inspection of schools inaugurated in that country. In 1898, this system was made general throughout the empire, and after its introduction an entirely new phase of the work of the school inspectors was developed.

The chief characteristic of this method is the great importance which attaches to the hygiene of the scholar without in any way disregarding the hygiene of the school building. The medical inspection in the German schools which had begun to relax in its efficiency, has since the introduction of the new plan gained rapidly. Wiesbaden was the first German city to make a test examination of all pupils, whereby an unusually high percentage of defects was revealed, of which the pupil, the teacher, and the parents were wholly ignorant. The Wiesbaden school authorities soon realized that a complete physical examination of all the children entering the schools was of the utmost importance, and the following plan was adopted:

Systematic examinations are made of the heart, lungs, throat, spine, skin, and the higher sense organs (and in the case of boys there is an examination for hernia also). The findings are entered on a report blank, which accompanies the child from grade to grade in his school life. Twice a year the teacher records the weight and height of individual pupils. Whenever it is deemed necessary, the school physician takes chest measurements. The records of children who seem to require the regular care of a physician are marked accordingly, and such children show themselves at stated intervals to the school physician. A careful re-examination of all pupils must be made in their third, fifth, and eighth school years. It is also the duty of the school physician to give advice to the teachers in regard to the children, and when defects requiring special medical attention are discovered, the parents are notified. It is not expected that the school physicians will give medical treatment to the scholars.

In the United States, Boston seems to be entitled to the credit of establishing the first regular system of medical inspection of schools, which was done in 1894. Although two years before this the sanitary inspector of New York City had appointed a Medical Inspector of Schools, who was probably the first medical officer of the public schools appointed in this country. In 1894 50 physicians were selected by the Board of Health to inspect the public schools of Boston. In 1895 nine such inspectors were appointed in Chicago. In 1897 the Board of Health of New York City appointed one hundred and thirty-four medical inspectors for the public schools, with a chief at a salary of $2,500 per annum. In 1898 the Bureau of Health in Philadelphia passed a resolution directing that each one of the fifteen assistant medical inspectors shall visit one public school in his district each day, inspecting it according to the methods employed in Boston, New York, and Chicago. Since 1894 medical inspection of schools has been largely adopted throughout the United States, and in some States has developed from mere inspection for detecting contagious diseases to systems calling for the most thorough physical examinations. Only four general state laws providing for or allowing medical inspections of schools have been passed. They are as follows: In Connecticut, in 1899, the legislature passed a law providing for the testing of eyesight in all the public schools of the State. New Jersey has a law, which went into effect in 1903, authorizing boards of education to employ physicians, or medical inspectors of schools, and defining their duties. Vermont followed in 1904 with a law requiring an annual examination of the eyes, ears, and throats of school children. In 1906 Massachusetts passed a law which is comprehensive in its provisions and mandatory throughout the State.[1] It requires every town and city to establish and maintain a system of medical inspection by competent physicians for the detection of contagious diseases in the schools. Examinations must also be made annually, by the inspectors, of all the scholars for non-contagious physical defects, and their eyesight and hearing must be tested every year by the teachers.

Without authoritative and specific enactment, the State Boards of Health of New York, Utah, and California, have caused examinations of the eyesight and hearing of school children to be made. There is, so far as can be ascertained, some form of medical inspection of schools in vogue at present in seventy cities in the United States, outside of Massachusetts.[2]

From the data given we can see that the United States are behind Germany and, for that matter, a number of foreign countries in this important movement, but we also see from the rapidity with which the movement has spread in this country and the great and increasing interest which it has excited, that its benefits have been widely recognized, and that with intelligent supervision and careful study a complete and efficient system, not only of medical and sanitary inspection of schools, but of physical education of all school children both in public and private schools, will in a few more years be inaugurated in America. A number of questions must be settled before this great advance can become general.

We see very plainly that medical inspection of schools is as yet in its infancy in the United States. I am aware of only one town in America where this inspection is carried out with considerable thoroughness, and that is Brookline, Mass. The ordinary method of school inspection in the United States consists chiefly in the visits of a physician to a school twice a week (or when summoned) to examine certain scholars already selected for inspection by a teacher in order to ascertain whether they may have a contagious disease and may thereby be dangerous to their fellows. This is a most excellent measure, so far as the prevention of epidemics is concerned, yet it can have little influence on the physical education of the child or the sanitation of the school buildings. The examinations for physical defects of one sort or another, which are carried

*A part of the report of the committee on this subject, made to the New Jersey State Sanitary Association at Lakewood, December 5, 1908.

[1] This is the only mandatory State law so far enacted.

[2] Most of the data heretofore quoted can be found in the recent work on School Hygiene by Drs. Gulick and Ayres.

out annually as a rule in New York and other cities, reveal an astonishingly large percentage of such defects, and these results are in accord with the reports of similar examinations which have been made abroad. Without stopping to quote figures, it would seem that fully two-thirds of all children in the primary grades of the public schools are suffering from physical defects more or less pronounced.

In Germany, Cohn found that myopia increased from 1.4 per cent. in the free village schools to 19.7 per cent. in two realschulen and 26.2 per cent. in two gymnasia, reaching the astonishing figure of 59.5 per cent. in the university. As Risley points out, this increase in myopia has gone steadily on in Germany in spite of the improved hygienic surroundings in the schools. That this defect has any such alarming increase in the schools of the United States is not likely. However, this question, as well as many others, requires careful study, and will no doubt be vigorously pursued by the school inspectors of the future.

The teeth of school children would seem also to have received far more careful attention in Germany than in this country. A dental clinic has been established in Strasburg where the cost of taking care of the teeth of the public school children has been found to be 25 cents a year for each child, with a resulting great diminution in absences, not only from toothache, but from other diseases, including infections. In Chicopee, Mass., out of five hundred children, who were tested as to their physical condition, 499 of them had defective teeth, and the 500th child, whose teeth were perfect, had spinal trouble, giving a hundred percentum of defectives in the 500 examined. A series of elaborate examinations of the eyes, ears, teeth, weight, height, heart, and lungs, and in fact entire physique of the children in the public schools of Brookline, Mass., were made last year, and the interesting results were published and furnished food for serious study.

The question is constantly staring us in the face, whether great and permanent injury to our children's health is not being done in the public schools. Certainly all the experimental work that has so far been carried out goes to prove that our schools are needlessly expensive, and in many cases do irreparable damage to the health of our children. Those who have attended school for half time, or who have not begun school life until eight or nine years of age, have so frequently surpassed those beginning much earlier and spending more hours in the schoolroom, that we may well pause and inquire whether the seeds of most of the nervous breakdowns in our feeble young Americans are not sown in the early years of school life; and whether our methods of public instruction for the young are not unduly extravagant and wasteful, not alone because we try to teach them the "forty frills," as well as the "three R's," but because we insist on their beginning school at least two years too early, when they should be playing in the fields,—and by our tedious school hours, ill-ventilated rooms, superheated and steam-dried air, we cause much of the bronchitis and pneumonia, not to mention the contagious diseases, which we pay the medical inspectors to detect.

Some better systems of heating school rooms must replace the steam-dried air now in use, which is a chief cause of bronchial sickness and colds, not to mention the lassitude, headaches, and lack of the power of concentration noted among our school children through so much of the cold weather. A so-called "hospital system" of heating has been introduced in some buildings, by which a large quantity of fresh air is sucked into an air chamber by a large fan, through muslin screens, passing over a large steam coil which heats it, and then over a tank in which steam is generated, which introduces the necessary moisture into the current of air to replace that which has been dried out by the steam.

Naturally in connection with heating, we must consider also ventilation, which is generally speaking the *bête noir* of all public buildings. At the last meeting of the American School Hygiene Association, the experts present declared that no really satisfactory system of ventilation has as yet been devised for public schools, and that no matter how elaborate or expensive a ventilating plant may have been installed in a school building, pure fresh air for all the scholars in all the rooms is only obtainable in many instances by opening the windows —a maneuver which the inventors of ventilating systems especially deprecate.

There is no question of the advantage which has invariably followed the appointment of the school nurse. There should be one of these important functionaries, if possible, in every school building. At least there should be, as Dr. Cronin of the New York Board of Health recommends, one nurse and one medical inspector for every 2,000 school children. There is absolutely no difference of opinion as to the school nurse's usefulness in every place where she has been installed. She instructs and helps the ignorant and wins their confidence and good will to an extraordinary degree. In New York City she receives $75 per month during the school year, and is said to save the city much more than the cost of her salary every year by the prevention of the spread of contagion. She visits and instructs the families of pupils who are sent home from school because of sickness. She ascertains whether the pupil's disability arises from anything in his home, and whether he may get such care at home as to render him fit to attend school again. He indeed may be suffering from trachoma or some other contagion which he has contracted from the members of his own family. She also prevents an almost incalculable loss of school time by cleaning the pediculous heads, administering the necessary baths, etc., to the pupils without sending them home, where, very likely, these useful functions will not be performed from want of facility, or knowledge, or lack of the disposition to do the proper thing. The school nurse also soon becomes quite an expert in the detection of infectious diseases, as well as malingering among the scholars, and she should be a most efficient aid to the sanitary officer in regulating the heating, ventilating, etc., of the buildings.

A most important question has arisen in various localities in regard to the control of the medical inspection. In some places this is vested in the board of health, and in others in the board of education, consequently at times some friction has arisen by reason of uncertainty in regard to the status and the duties of the inspectors. The matter can be easily arranged if it is clearly understood that the inspection for the detection of contagious diseases is a part of the duty of the health board. Whereas the detection and correction of non-contagious diseases and defects is, strictly speaking, a function of the physical education of children, and, as such,

should come under the supervision of the board of education. Of course the two boards should work in harmony, in fact, in my opinion, they will be eventually consolidated. The day of the elective school board is fortunately passing away. Prosperous merchants and aspiring politicians have got themselves elected to school boards by unsuspecting citizens for many years. They have rivaled each other in their complacency and in the easy view which they have taken of their duties.

If there is one sign of the times more pronounced than another, it is that the public school, if it is to survive, must prove to the people that the education it provides is efficient and solid, and that the health of the scholar shall be in every conceivable way protected and enhanced during his school life. These are the days of efficiency and of simple and direct methods of activity. Hence, the large elective school board is passing away, the smaller and more efficient appointive board is taking its place.

Perhaps the greatest need in the educational world at present is for medical men, sanitarians, and architects on the boards of education, men who, if not themselves experts, are competent to select experts and to judge of their work. The plan now in vogue in Boston of hiring the best available architect, engineer, etc., in the city to supervise and construct all the school buildings, should be adopted in every city and should be extended to the employment of at least one thoroughly competent chief medical and sanitary inspector. This man should be responsible to the board of education, by whom he should be hired and discharged, and should have complete control of the sanitation and hygiene of the school buildings and of all the scholars. In the matter of ventilation, heating, drainage, playground space, control of athletic sports, hiring and discharge of physical and gymnasium directors and teachers, he should be subordinate only to the superintendent of schools and the board of education. In other words, this matter of physical education and sanitation of schools and scholars can scarcely be on a satisfactory and efficient basis in any community until it is placed under a responsible and competent head.

The present so-called medical inspection of schools is only a detail of the scheme just outlined and might be left in the hands of the board of health, or taken over by the board of education as circumstances and economy should dictate in each particular case. Every town having 2,000 or more school children should employ a chief medical officer of instruction, at a yearly salary of not less than $3,500, who should give his entire time to the schools during the school year, and should supervise the playgrounds, and the out-of-door physical instruction during the summer. He should be allowed to employ as many nurses as might be needed at a compensation of $75 a month, and as many physical instructors, both male and female, as might be required. He should have charge of all the records and statistics bearing upon the physical condition of the children and of the sanitation of the buildings. He should cause to be kept a card catalogue containing the physical history of each scholar, so that he could make a report on any one child, on any one thousand children, whenever he might be called upon to do so. He should also have charge of the instruction of the teachers in hygiene and physical education, should deliver lectures himself, and be empowered to hire what help he might need in this department.

As Dr. Greenwood has ably demonstrated, in his admirable reports of school inspection in Blackburn, England, the teachers are "our first line of defense" against contagious disease, against overwork, impure air, and all the deterrent influences which are injuring our children in school. That American teachers are as yet for the most part in abyssmal darkness as regards these important matters, is a lamentable, but not irremediable state of affairs.

Dr. Greenwood, with comparatively little trouble, having the support and cooperation of the school authorities, has succeeded in a short time in enlisting the interest and sympathy of the teachers in the Blackburn Schools in the health movement, and a number of them have prepared themselves and passed creditably examinations in hygiene and sanitation, thereby not alone obtaining more responsible positions and earning better salaries, but greatly improving and broadening their views of a teacher's duties and responsibilities, and strongly enhancing the pleasure and interest of their work.

Watching the human plant unfold and develop in a favorable environment, and careful study of the means of improving and enlarging that environment until the plant shall more and more nearly approach the perfection which the Great Author of our being intended us all to reach, is the great privilege of the teacher of children. Viewed from this standpoint, the teacher's calling is the noblest in the world.

Shall we not as parents and good citizens do our part to render the teacher's work effective and satisfactory?

PURPURA HÆMORRHAGICA; IS IT CAUSED BY THE COLON BACILLUS?*

By STEPHEN J. MAHER, M.D.,

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"Doctor, what are these two red sores?" asked a laughing, plump, twenty-five-year-old school teacher in my office on the evening of December 4. She pointed to two small bloody blebs, one on the ring finger of her left hand, and the other on the cutaneous margin of her under lip. Before I answered her question I found that there was another bleb on the middle of her tongue, and that there were a score of flat purple or red spots on her arms and chest.

The next day she had a sharp nosebleed. The next day she vomited blood. That night she had blanching hemorrhages from nose and stomach and bowels and bladder. The fourth day she improved considerably. The fifth day she had a recurrence of the terrible hemorrhages from all the mucous surfaces. The sixth day she had more hemorrhages and died. The treatment consisted of the calcium salts, lactic acid, quinine, adrenalin, and cardiac stimulants.

The patient came of an unusually healthy family. She herself had had no sickness for years except two attacks, a year apart, of a skin disease that I had diagnosed as ivy poisoning. During the past autumn she had had some bother with constipation and had frequently felt unaccountably sleepy on coming home from school. She was careful about her diet but ate plentifully and was especially fond

*Read before the New Haven Medical Association, January 6, 1909.

of fruit. She ate no shell fish and very few sweets.

For a number of years she had been annoyed with what she called "gas spells." About once a week and usually without warning, she would be conscious of great distress in the upper abdomen and would be obliged to strain violently in efforts to eruct gas. These attacks generally ended in vomiting.

On the evening of Friday, November 27, she felt chilly and took a few grains of quinine and went to bed. During the night she had a very severe "gas spell." The next day she was tired and sore and remained in bed most of the day. The next day she was entirely well and in the afternoon went to the theater. She taught school the following week and seemed as well as usual until the evening of Thursday, December 3. Then she had another chill and again took four grains of quinine and went to bed. She complained a great deal of the intense cold that she felt. Again during the night she had to get out of bed because of stomach distress. She vomited so long and with such painful labor that her family, accustomed though they were to her "gas spells," became alarmed and were about to send for a physician, but suddenly the attack was over and she went back to bed. She slept until noon the next day, and when she arose her sister noticed the red blisters on her finger and lip. The patient laughed at them and said they were probably due to the quinine. She taught school in the afternoon and called at my office in the evening.

All through the few days of her fatal illness I was interested in the fact that various cervical glands would swell to the size of a pea, become very painful, and then after a few hours return to the normal state in size and sensation. When the blebs on the lip and tongue fell off, as they did toward the end, they left deep, circular pits. Her temperature never went over 100 degrees, and was usually 99 degrees. She retained consciousness almost to the last.

Much as I wanted to draw off some of her blood, I didn't feel that under the circumstances such a procedure would be justified. However, I supplied the nurse with a wide-mouthed one ounce sterile bottle, and instructed her to secure for me the cleanest possible specimen of blood.

On the afternoon of the fifth day the patient had in quick succession two hemorrhages of nearly a quart each from the bladder. The nurse filled my bottle from the second hemorrhage. Smears of this blood, stained with Wright, Gram and Gabbett, showed that many of the leucocytes contained clumps of a small coccobacillus non-acid-fast and usually gram negative. There were a few extracellular clumps of this bacillus in the smears, but they were usually near to burst or torn white cells. There were no free individual bacilli in the blood.

Cultures from the blood on various media gave pure growths of this same organism. It curdled and reddened litmus milk, caused effervescence in sugar bouillon, produced gas and yellowed neutral red in the fermentation tubes, and, in a word, responded to the ordinary tests for the *Bacillus coli communis*. Smears from glycerin agar and from hard serum still showed some individuals that were distinctly gram positive, and some of the negative bacilli contained gram positive polar beads.

On December 10, I injected intraperitoneally the growths on Loeffler's serum and sugar bouillon into a guinea-pig, and that from sugar bouillon alone into a white rat. The rat was very sick for 36 hours, but recovered. The guinea-pig died in 12 hours. Autopsy of the pig showed tremendous inflammation of all the serous surfaces, a large black spleen, a distention of all the blood-vessels in the body, and beautiful purpuric patches throughout the wall of the large intestine. These are still well shown in Specimen No. 1, preserved since in Pick-Kaiserling solution.

Plants from the heart's blood, from the peritoneal exudate, and from the spleen, gave prompt growths of the organism injected.

To learn whether this spectacular find was accidental or not, I injected on December 16 three other guinea-pigs. Pig A, with the organism recovered from the heart's blood of the guinea-pig just described, B, with the cultures of the organism isolated the day before from the patient's blood, and C, with cultures of the organism first isolated from the patient's blood, and which had been in the incubator for eight days. All three guinea-pigs died within 12 hours, and all but C, showed the same purpuric lesions in the bowel wall and the same evidences of intense serous inflammation. Pig C had very little peritoneal exudate, but a pronounced pleuritis and pericarditis. The heart's blood of all three pigs gave identical cultures of the organism isolated originally from the blood of the patient.

Later injections of this organism into pigs of the third and fourth series gave the same pictures of purpuric spots in the wall of the intestines.

On December 21, I gave to the white rat that had recovered from the first injection, another intraperitoneal injection, this time of the cultures of the organism recovered from the purpuric pig in the second series. Again the rat was very sick for a couple of days, then slowly recovered its agility, and after a week seemed quite well, but on the eighth day died. Autopsy showed only some red and blackish not well-defined areas in the bowel walls. There was no sign of serous inflammation, and there were no distinctly purple spots. The blood contained no bacterial forms and gave no growths on culture; but the spleen, dropped into a tube of sugar bouillon, gave a pure culture of an organism apparently identical with the one injected. It curdled and reddened milk more slowly than did the original, and more slowly than the colon bacillus ordinarily does.

A guinea-pig injected January 2 with cultures of the bacillus recovered from the spleen of the rat, was dead and stiff within 19 hours. Autopsy revealed the usual pictures of serous inflammation, but there were no satisfactory purpuric spots in the bowel wall; but there were cheesy flakes in the exudate and many small soft cheesy spots in the liver. The general picture suggested that found in the first days of that very fatal and infectious disease of guinea-pigs called pseudotuberculosis. A repetition of this experiment and an injection of another pig with the organism recovered from the one last described, showed that the organism after its passage through the rat had lost none of its power to produce purpuric patches. The specimens in the dish show purpuric patches in bowel wall and stomach wall of the two pigs injected with the bacillus that had been through the rat. The loss of power to produce the purpuric lesions was only temporary.

Smears made January 1 from the original blood of the patient, which, by the way, had been kept at room temperature ever since it was brought to the

laboratory on December 8, and in which there was no clotting, showed short chains of rods, half gram positive and half gram negative. There were no intact white cells, but the red cells were as round and fresh in appearance as if they had just come from the living vein.

Cultures from this blood made January 1, gave in 24 hours apparently pure cultures of the injected organisms, except that on all the media there was a larger proportion of the gram positive individuals than appeared in the cultures made 24 days before.

A guinea-pig injected January 5, with cultures made January 1 from this old blood died within 12 hours, and showed the same purpuric spots in stomach wall and bowel wall, and the same black spleen and congested lungs as were seen in the first guinea-pig injected from cultures from that same blood four weeks before.

In Osler's "Practice," the author does not attempt to discuss the cause of purpura hæmorrhagica. He says merely of purpura in general that, "In the present state of our knowledge, a satisfactory classification cannot be made."

In Allbutt's "System of Medicine," Stephen Mackenzie dismisses the suggestion that purpura may have a bacterial origin, in this wise: "In recent years great attention has been devoted to the search for microorganisms in the blood-vessels, and in the tissues. Various bacteria have been found by different observers in some cases, but in other cases the same observers have failed to discover them. The presence of microorganisms in the blood-vessels, even in large numbers, as in diphtheria or anthrax, does not necessarily give rise to hemorrhage; moreover, apart from the negative results of the search for bacteria, the circumstances in some cases in which it occurs make it unlikely that the causes are of this kind."

Thompson's "Practice of Medicine" says that purpura hæmorrhagic "is of unknown origin. Some acute cases suggest its infectious nature. It occurs in children and also in young adults, especially females debilitated with disease."

So far as this case may provide a basis for a satisfactory answer to the question asked in the title of my paper, it is important to remember the following points:

1. The recently extravasated blood of this case of malignant purpura hæmorrhagica contained clumped in its leucocytes bacilli having the cultural and other characters usually ascribed to the colon bacillus.

2. The bacilli isolated either from the fresh or from the old blood had the power on intraperitoneal injected into guinea-pigs, not only to kill the animals in a few hours, but to produce on the wall of the animal's intestines and stomach purpuric patches identical in appearance with those that characterized the disease in the human body.

3. This power to produce purpuric patches on the walls of the intestines of the injected animal was striking and constant even after the bacillus had passed through four series of guinea-pigs.

4. This power was diminished in the cultures that had been kept for eight days or more in the incubator, although the keeping of the cultures fourteen days in the incubator did not lessen the pathogenicity of the bacillus.

5. The white rat, though more resistant to the first cultures of this bacillus, succumbed in exactly the same way as the guinea-pig when injected with the bacillus that had been through four guinea-pigs.

6. The colon bacillus, although usually fatal to injected guinea-pigs, does not kill so quickly and does not cause the appearance of purpuric patches on the intestinal and stomach walls of the injected animals.

I wish to thank Dr. Bartlett and Dr. Blumer, who was the consultant in the case, for their interest and help.

212 Orange Street.

Our Actual Knowledge of Radium.—Crescenzo Esedra limits himself to the therapeutic affects of radium. He states that the radium rays render the soil on which bacteria grow unfavorable to their growth, as well as to their action. Canine rabies, both in the test-tube and in the individual, is destroyed by the action of radium. Malignant tumors have not been cured by the use of radium, but in cases of tumors that do not grow too rapidly radium is a valuable adjunct to other methods of treatment, a useful means of relieving pain and hemorrhage, and when the tumor causes stenosis it may be used to obtain a permanent dilatation. Encouraging results have been obtained in several other diseased conditions. It produces perfect cosmetic results in cutaneous cancer; recurrence is rare, and cure is easy. All the benign tumors of the skin and muscles are benefited by radium. Angiomata, especially of young children, are benefited, the treatment being easy and painless. It may be used in any part of the body, and leaves no trace of its action. It cures lupus, and benefits all the chronic skin diseases. It is valuable in neuralgia and painful joint conditions. In anatomopathology it is found to produce an action of destruction on lymphoid tissues, obliterates the blood-vessels and muscular fibers undergo granular degenerations, as do the hepatic cells.—*Annali di Elettricita Medica e Terapia Fisica.*

Fleas and Plague in the Old Testament.—Sir Havelock Charles contributed recently to a contemporary an ingenious speculation concerning an incident recorded in the Book of Samuel which has given rise to much discussion on the part of commentators. It will be remembered that when in the warfare between the Israelites and the Philistines the ark of God fell into the hands of the latter it was followed in its travels by "a very great destruction," the men of the cities of the Philistines where the ark rested being smitten with "emerods in their secret parts." Eventually the ark was restored to Israel, only to cause a worse destruction, fifty thousand and three score and ten among those who pried into it being smitten. It is recorded also that mice marred the land of the Philistines at that period, and they must have been supposed by the Philistines to have some relation to the prevailing epidemic, since images, not only of emerods, but of mice, were made to allay the anger of God. Sir Havelock Charles suggests that in the story we have an account of an epidemic of plague. The ark, he says, during its stay in the temple of Dagon, infested, like all Eastern temples, with rats, became infected by plague-laden fleas, to which its covering of badger skins gave safe harbor. During its subsequent travels, even till it came to the prying Israelites of Beth-shemesh, it distributed plague. When the ark became safe from further inquisitive meddling, its power of propagating disease disappeared.—*Medical Press.*

Medullary Anesthesia.—Giuliano Gerundo has had very favorable experiences with the use of stovaine by lumbar puncture in surgical operations. It produces a mixed sensory and motor paralysis without bad effects of any kind. Its upper limit is the lower border of the ribs, and the anesthesia is perfect in the external genitals, perineum, and legs. With a dose of four centigrams we obtain a complete paralysis of the legs lasting a variable time. The action is superior to that of cocaine in its rapid diffusibility and lack of poisonous effects. It has no toxic action on the heart, being a heart stimulant. It regulates the pulse and slows it. The author has used this anesthetic in 125 cases, with only four failures. The confidence of the patient in the drug is of great assistance in getting the desired effect. Anesthesia began in two to five minutes after the injection. Five centigrams produce an action for forty to fifty minutes, while six or seven centigrams give anesthesia lasting one hour, and ten centigrams two hours. The author considers this method of practical value, superior to any other, and of great value in military surgery on account of its rapid action. Made with rigid asepsis, there is no danger from the injections. When acidulated with lactic acid the effect of the solution is better.—*Giornale di Medicina Militare.*

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ALIMENTARY FEVER.

FEVER and infection are terms that are nowadays thought of almost at the same time. The moment a rise of temperature occurs in a patient the observer seeks for some focus of microparasitic activity, since this it is which exerts a greater influence upon the temperature than any other phenomenon of disease. Our predecessors, however, who lived in the days before the general acceptance of the germ theory of disease, did not think of fever in this connection only, but considered that various other circumstances could produce a similar effect upon the temperature of the body. Nutrition was the most important process, the derangements of which could be held responsible for the phenomena of fever, and in the *Deutsche medizinische Wochenschrift* for February 4, 1909, a very modern representative of the science of nutrition, Finkelstein, argues that the older physicians were not quite so wrong in their views as we have been wont to think. To him the fever accompanying the many states of poor nutrition in infants is not always to be traced to infection from the gastrointestinal canal or even to the absorption of toxins produced in that tract by abnormal changes in the foodstuffs introduced. The best proof of the "alimentary" character of such fever may be had in the marked influence exercised upon its course by withholding of all food from such patients for one or more days. The fall in the fever is so rapid that the close connection of some metabolic processes with the rise of temperature can hardly be doubted; indeed, it requires but little carelessness or undue haste in the resumption of food to bring back the whole symptom-complex characterized by fever, prostration, vomiting, etc., etc.

Of course, infants present the best examples of such alimentary fever simply because their reactions to disturbances of metabolism are much more acute than those of adults. Finkelstein claims further that these reactions are almost specific, the carbohydrates of the infant's food being the most frequent causes of these disturbances of health characterized by fever. That Biedert's views of the all importance of proteids in the production of abnormal states in childhood have been disproved seems almost sure. Finkelstein, for instance, mentions the very striking experiment in which he gave casein mixtures to a child suffering from a metabolic disturbance characterized by fever. Such food had the same effect as the more usual administration of water would have had; the temperature of the children always fell, thus apparently proving that the caseins were as easily borne as water. The relation of sugars to the fever could be experimentally shown in a great number of instances, mere injection of sugar solutions per rectum leading to renewal of the toxic conditions in infants. Indeed, so rapid was such action that Finkelstein sees the effect of the sugar not in the products resulting from its digestion but merely in its physical effects on the organism of an infant badly adapted to bear this element of its food. Its action could be best compared to that of salt, the introduction of which into the organism of infants was likewise followed by serious constitutional symptoms accompanied by fever. The one thing impressed on the reader by Finkelstein's stimulating paper is the all-importance of preventing any disturbances of the gastrointestinal tract in children and of treating any occurring disturbance as a serious condition. An infant with a normal gastrointestinal mucosa does not react with any phenomena of disease to the introduction of salts or sugars into its digestive canal, though these substances injected subcutaneously are followed by untoward results. The cells of the mucosa, therefore, have some obscure property of preventing the harmful influence of sugars and salts upon the metabolism of the organism. What this action really is has not been discovered as yet; its prevention, however, lies in the conservation of the integrity of the lining of the gastrointestinal canal of infants, so that alimentary fever may not arise from the mere presence of carbohydrates in the food.

THE ANTIVIVISECTION CRUSADE.

WE note in two current publications some sensible words to which the attention of both the profession and laity may well be directed. The first is the *Journal of Outdoor Life* in which Dr. E. L. Trudeau writes on Animal Experimentation and Tuberculosis. It is due to vivisection, so-called, that we know that the disease is not inherited, but communicable, and, therefore, preventable. "Animal experimentation has taught us already much as to the different types of the tubercle bacillus, its virulence, the poisons it produces, and the manner in which it invades the living organism and destroys it. Slowly but steadily animal experimentation is teaching us the avenues of infection whereby the germ gains access to the organs of its living host; what are the defensive resources of the living organism; and the delicate mechanism whereby it combats the poison of the germ, tries to localize the bacilli, to limit their spread, and ultimately to destroy them. Animal experimentation is teaching us daily more of the complex and delicate processes which bring about acquired and artificial immunity, and through which the living organism wins the victory over the invading parasite. In the thorough knowledge and further study of these vital processes by animal experimentation, lies the hope of applying to the protection of healthy human beings and the cure of disease, the knowledge won by science in studying nature's methods

of cure through long years of tireless and painstaking observations on animals."

The other article appears as an editorial utterance in the *Outlook* of March 6, and is entitled "The Child or the Guinea-pig." This journal says: "It is as impossile for a legislature to prescribe rules for scientific experiments on animals as it would be to prescribe rules for scientific experiments in physics or botany. The laws of natural science do not adjust themselves to the provisions of a statute. The attempt of people to make laws on the subject is in effect an attempt to prevent such experiments. The state of affairs should be squarely faced. . . . The *Outlook* believes in the scriptural truth. 'Ye are of more value than many sparrows,' and believes that the children who have been saved from suffocation by diphtheria are worth thousands of times over all the animals which have served to bring to men the knowledge of antitoxin. The law now confines the right to animal experimentation to those who are competent, as it confines the right of practising medicine to those who are competent. It likewise penalizes the infliction of needless pain on animals, as it penalizes the infliction of needless pain on human beings. If there is ground for complaint against a scientist for the infliction of needless pain in a laboratory, he can be proceeded against under the same laws under which a man may be proceeded against for the needless infliction of pain upon his household pet. There is no reason for singling out the scientific investigator as a subject for class legislation. There are some people who are more concerned for the comfort of a guinea-pig than for the life of a child." Such people, it adds, are beyond the reach of argument. Advocates of new legislation have yet to show that the firm administration of existing laws will not meet every possible emergency. .

THE MODERN HIPPOCRATES.

It is a pleasant custom of many medical societies to invite one of their members or a guest to deliver an address on some general subject at the annual meeting. These addresses, together with the address of the president, serve to relieve the monotony of the purely scientific and casuistic papers, and also, if the orator is fertile in ideas, to interest the members and supply pabulum for thought. Such an address was the one which those present at the annual meeting of the New York State Society in Albany, in January of the present year, were privileged to hear from the lips of Dr. A. Jacobi of this city. In this address, entitled "The Modern Hippocrates" (*New York State Journal of Medicine*, March, 1909), the orator succeeded in presenting a wide survey of the field of medicine, especially of its diagnostic and prognostic divisions, and gave his hearers not only a summing up of the knowledge of the past, but also an optimistic prophetic outlook toward the future, most encouraging as coming from one who has so deep a knowledge of the subject and so wide an experience as a basis for his prognostication.

Space forbids a review of the address, and indeed no review could do it justice, but we may quote the orator's characterization of the modern Hippocrates, who, he says, is to be found in many places throughout the world, for as medicine has grown and widened, so have her followers, practitioners, and teachers. The modern Hippocrates, Dr. Jacobi says, "amasses learning and delights in science; is equally patient and painstaking in study, on the platform, and at the bedside; and scrutinizes the patient both for what the sick may add to his knowledge and what he may add to the comfort and welfare of the sufferer. While being searching and exact, he is conscientious and full of pity. He is equally joyful over restored health and over a new fact revealed by investigation guided by erudition and genius. That he will gladly publish; but he is seldom a text-book writer. He enjoys new truths discovered by himself or others; he is no priority hunter and is anxious to give credit. His character is full of simplicity, fidelity and loyalty; loyalty to his duties toward the individual, the hosptal, and his pupils. He is the revered teacher of young and old, and a friend to the young colleagues in whom he honors the future of medicine. That is why they feel at home with him though, or because, he is a celebrity on both sides of the ocean. Gossip and low strifes do not reach him. His prototype, old Hippocrates, told him that 'disputes among doctors cause disrespect of the whole art among the people, so that they begin to doubt the reality of medical art.' In his practical work he is nobody's antagonist. His competition is judicious and gracious and guided by the unwritten code of ethics inscribed in his soul. That of the just he invites, that of the unjust he endures with forbearance. Still greater than as a physician he is as a man and a citizen. His eminent place in science and the community he utilizes in the service of the commonwealth. He is its adviser as a sanitarian, who augments for the millions both health and wealth. In that sense, as our modern requirements and responsibilities have grown and persist in growing, his opportunities and labors and his results exceed those of his older brother, Hippocrates of Hellas."

LENGTH OF STAY IN BED AFTER LABOR.

It has been the general agreement among obstetricians that patients should stay in bed from seven to ten days after parturition, so that the uterus may have time to reassume partly at least its usual condition and the small injuries occasioned by the act of labor may have a chance to heal. But just as a number of other seemingly well-founded customs have been attacked of late, so this universal custom of keeping parturient women in bed for a certain length of time has found a number of opposers. Küstner proposed several years ago to allow women to leave their beds a day or two after parturition, but at that time he was overwhelmed with the condemnation of all experienced obstetricians. Gradually, however, a number of men began to follow the suggestions made by Küstner, and in the *Münchener medizinische Wochenschrift* for February 9, 1909, Karl Mayer tells the results observed with this

method at the Marburg Clinic for Women. He did not insist upon any hard-and-fast rule compelling the women to leave the bed a stated number of days after labor, but simply allowed the patients to get up as soon as they expressed a willingness to do so. His experience was that all the patients preferred to remain in bed the first two days, resting from the physical and psychic strain of parturition. Four women left their beds on the third day, ten times as many on the fourth day, while over a hundred arose on the fifth day. The usual examination at the time of discharge showed no unusual results so far as the position and size of the uterus were concerned, about the same number of displacements and subinvolutions being found as when the custom was to insist upon a week or ten days' stay in bed. A few women suffered from retention of lochia, but simple remedies sufficed in all cases to do away with the unpleasant consequences of such retention, and, moreover, these accidents were quite frequently encountered in the case of women resting over ten days in bed. No more serious consequences than a slight fever were ever noted.

The most important effects of leaving the bed early were noted in the general condition of the patients, the morbidity among these women being lower by over 10 per cent. than in a similar number of previous cases. Mayer concludes in general that there is no reason for keeping women in bed after labor if they feel strong enough to sit in a chair or be up and about, but there is a good deal of danger in prescribing any stated number of days after which normal patients need no longer stay in bed. The cases must be individualized, the general condition of the patient being a good criterion for a decision in the matter. The one great advantage in allowing patients out of bed as early as possible consists in the fact that many of the women who are compelled to work almost as soon as they leave the institutions find themselves much stronger if they have been up and about for a few days before beginning such work. The old rule of ten days in bed and a discharge from the institution after one day out of bed left the women of the poor in no condition to work on reaching their homes. That contraindications exist to leaving the bed early is of course self-evident; among these Mayer mentions gonorrheal infection, important injuries to the birth canal, whether recent or old, and extreme youth of the mother.

Tuberculin in the Tuberculosis of Infants and Children.

It is probable that no remedy has had such an uneven history as Koch's tuberculin. Hailed at first as a specific for tuberculous infections of all kinds and in all individuals, it was soon dropped almost completely by the medical profession, after the early indiscriminate use of it showed no immediate curative effects and in many cases hastened the course of the disease. It then became quite popular as a diagnostic measure and only slowly the therapeutic use of the remedy reassumed its right of existence among the antituberculous remedies at our command. Lately the introduction of the cutaneous and conjunctival reactions has popularized tuberculin still further and it may be correctly said that tuberculin is now more frequently employed than at any time since its introduction. The therapeutic effects of the drug are quite generally granted; the indications for its use and the dosage to be employed are still a matter of dispute, and the only way to settle this is to study the results obtained by careful observers with various methods of applying tuberculin. In this connection a paper by the noted German pediatrician, Arthur Schlossmann, printed in the *Deutsche medizinische Wochenschrift* for February 18, 1909, is of great interest. Schlossmann shows in this paper that notwithstanding the very serious prognosis of tuberculous infection in early infancy, such infection need not necessarily be fatal if tuberculin is persistently used in doses sufficient to produce a moderate reaction characterized by fever. Under such treatment the affected children recovered their usual well-being, gained weight, successfully overcame local manifestations of infection, such as tuberculous disease of the phalanges and other bones of the extremities, and passed safely through the first ten to eighteen months of life. At the same time other children who received the same hygienic and dietetic treatment, but were not given tuberculin, succumbed to the disease very rapidly after the infection became manifest. The dosage used and the prolonged administration of the remedy are somewhat different from the manner of employing tuberculin in extremely minute amounts recommended by many authorities of late. The one point of importance is the fact that these very young children treated with tuberculin survived the infection; of course their future fate cannot be surmised, but the mere fact that they did not succumb in early infancy, but showed instead progressive and rapid amelioration of the symptoms of the disease and improvement in the general health is enough for calling attention to the results obtained by Schlossmann. Beyond the clinical evidence of success he was able to demonstrate that the formation of antibodies runs parallel with the administration of relatively large doses of tuberculin as soon as tolerance for the remedy has been established by the use of very small doses for a protracted period. The specific influence of tuberculin in such cases was therefore indubitably proved, and as the dosage adopted by Schlossmann led to good clinical results it may well be imitated by other physicians who are confronted with the difficult task of treating infants and children suffering from tuberculosis.

Pneumococcus Influenza.

Ever since the great pandemic of influenza in 1889 and 1890 the bacillus isolated by Pfeiffer from the nasal and bronchial secretion of patients has been looked upon as the true excitant of the disease in question. There occur, however, numerous cases quite apart from epidemics which clinically answer fully to true influenza, and yet the Pfeiffer organism seems to have nothing to do with the causation, being absent during the entire course of the affection. It would seem therefore that if the term influenza is to be retained for the disease caused by the influenza bacillus some other designation must be adopted for the disease of a similar clinical course that is not due to the bacillus in question. In the *Münchener medizinische Wochenschrift* for February 23, 1909, Curschmann of Leipzig describes a number of cases of grip that have occurred in Germany during the last two years run-

ning the typical course of the disease caused by the Pfeiffer bacillus. In the great majority of the cases, however, careful bacteriological examination of the sputum showed that the causative organism was the pneumococcus of Fraenkel-Weichselbaum, an organism which is usually looked upon as producing a typical lobar pneumonia when it infects the human body. Curschmann's patients complained of initial chilliness accompanied with headache and intense muscular pain; their appetite suffered from the onset of the disease; prostration was greatly marked when the short duration of the symptoms is considered; the pharynx usually showed slight inflammatory conditions accompanied by soreness, hoarseness, etc. In a word, there was no suggestion whatever of the clear-cut picture of lobar pneumonia with its intense initial chill, high fever, nervous symptoms, and the critical fall of temperature a few days after onset. The number of examinations was such that an incidental presence of the pneumococcus must be excluded and the conclusion of Curschmann declaring that a disease quite similar to the influenza caused by the Pfeiffer bacillus could be due to the pneumococcus must be accepted. His observations are of interest in explaining the etiology of the cases that often come to the hospital with suspected pneumonia, but run a clinical course of influenza-like character and show rapid subsidence of all symptoms. The difficulty with medical nomenclature is, likewise, brought out by his findings, for they show the fallacy of naming infectious diseases according to the exciting organism alone. The same organism may produce distinctly different clinical conditions, and two or more distinct organisms may produce diseases with practically identical clinical symptoms. In such cases one and the same name will not always convey a correct mental picture of the disease.

News of the Week.

Influenza Epidemic.—London reports a number of cases of influenza and pneumonia, accompanying the disagreeable raw weather which has been prevalent. For the week ending March 11, there were 66 deaths from the first-named disease, as against 36 for the previous week, while 314 deaths from pneumonia were reported, and 348 from bronchitis. Some of the large business firms report that 4 or 5 per cent. of their employees are ill. St. Petersburg has suffered severely and so has Berlin, so that it seems that a new and severe epidemic is about to visit the countries of the West.

Smallpox in Canada.—An outbreak of smallpox has been reported among the half-breeds in the Cypress Hills south of Medicine Hat, Alberta, but a few miles to the north of Montana.

Typhoid Fever in Spain.—Madrid has been visited by an epidemic of typhoid fever. Up to March 11, over three hundred cases had been removed to hospitals, and many deaths had occurred, though the exact number was not ascertainable.

Mills to Fight Tuberculosis.—The State Health Department having brought the matter to their attention, more than twenty manufacturing companies in Worcester, Mass., have enlisted the support of their twelve thousand employees in a campaign to stamp out tuberculosis in that city. Each firm has agreed to pay the expenses of three months' treatment at the Massachusetts State Sanatorium, at Rutland, of any employee who may be suffering from the disease in its early stages. The State health inspectors argue that it is the duty, from an economic as well as from a humane standpoint, of the manufacturing concerns to help in the movement, since the mills from the nature of the work and the confinement of the employees are sources of infection, and the illness of one of the employees not only lessens his productive capacity but also endangers the health of other workers.

New Tuberculosis Clinic.—The second tuberculosis clinic to be established in the Borough of Brooklyn was opened for inspection on Monday evening, March 8, at the Bay Ridge Hospital and Dispensary, Sixtieth street and Second avenue. The Department of Health maintains a similar clinic in the lower part of the city, but the new one is the first to be established by private means. The clinic has been fitted up by the New Utrecht Red Cross Society acting in conjunction with the Ladies' Auxiliary of the hospital. The visiting staff will be composed of Dr. Frank E. Stoney, Dr. Robert E. Coughlin, and Dr. Rollin Hills. Dr. S. Adolphus Knopf of New York was the guest of honor at the opening reception.

Texas State Sanatorium.—The Legislature of the State of Texas on March 11 passed a bill appropriating $200,000 for a State sanatorium for indigent patients suffering from tuberculosis. An effort will be made, it is said, to acquire title to Fort Clark, a military post in western Texas which is soon to be abandoned by the United States.

Site for State Colony.—A site for the Eastern New York Custodial Asylum, a new State colony for defectives, has been selected at Thiells, Rockland County, by the commissioners who were appointed for the purpose, in July, 1907. Title has been taken to much of the land, and a preliminary plan for the institution has been developed. The commission in its report to the Legislature recommends that the name Letchworth Village be given to the colony in recognition of the distinguished services of William Pryor Letchworth in behalf of the defective wards of the State.

American Hospital in Paris.—Through the interest of members of the American colony in Paris, funds have been collected with which two adjoining villas at Neuilly, a suburb of the city, have been purchased and transformed into a perfectly equipped hospital, containing two wards of seven beds each, eleven private rooms, and a consulting room. The institution which is designed for the use of all classes of the growing American colony, as well as for tourists, will be formally opened in May, and will fill a long felt want, because of the formalities which must be complied with before Americans can gain admission to the French hospitals.

St. Anthony's Hospital, Rockford, Illinois, elected the following staff of physicians at its organization meeting, held February 26: *President,* Dr. W. G. Hatch; *Vice-President,* Dr. Emil Lofgren, and *Secretary-Treasurer,* Dr. Geo. P. Gill.

Charitable Gifts.—Dr. Martin H. Boyé, whose death was noticed last week, bequeathed to the University of Pennsylvania, from which he was graduated in 1844, the sum of $12,000 to be used for the University hospital.

The Rhode Island Hospital at Providence, R. I., receives a bequest of $4,000 by the will of the late Mrs. John Carter Brown, for the endowment of a bed in memory of her sister.

The Foundling Hospital of New York will re-

ceive about $6,000 by the terms of the will of the late Mrs. L. T. Campbell who died recently in Denver.

Medical Department at the University of Wisconsin.—A bill to abolish the medical department in this University was recently voted down in the State Legislature. The University has at present a two-year course, the student going elsewhere for the other two years.

A Pekin Medical College.—The Chinese Emergency Appeal Committee, of which Sir Robert Hart, formerly Inspector General of Customs in China, is president, has issued an appeal for $500,000 for the purpose of developing a medical college at Pekin, and three medical schools elsewhere in the empire. The scheme is to provide a thorough medical training for the Chinese on modern lines, including the translating of the best Western text books into Chinese.

"American Journal of Surgery."—The Greater New York number of this journal, issued this month, is a noteworthy contribution to current medical literature. The entire subject matter of the number has been contributed by New York surgeons, and several new operations are described for the first time. Among the contributions are: "Intestinal Resection; a Preliminary Report of a Simplified Method," by Howard Lilienthal; "Sigmoiditis and Perisigmoiditis," by James P. Tuttle; "Sacral Suspension of the Uterus, a New Technic," by John Van Doren Young; "Cancer of the Breast," by Willy Meyer; "Surgery of Foreign Bodies, with Especial Reference to Those Occurring in the Skeletal Tissues," by Walter M. Brickner; "The Operation of Direct Blood Transfusion," by John A. Hartwell; "The Avoidance of Hemolysis in Transfusion," by Martin Rehling and Richard Weil; "Fibrosis Uteri and its Surgical Treatment by a New Method," by Samuel W. Bandler; "Dislocation of Cervical Vertebræ," by James P. Warbasse; "A Plastic Mastoid Operation," by Frank Tucker Hopkins; "A Modified Operation for Inguinal Hernia," by Albert E. Sellenings; "Surgery of the Pericardium and Heart," by H. Beeckman Delatour.

To Bar Japanese Doctors.—A bill has been introduced into the Territorial Assembly of Hawaii making it imperative that applicants for license to practise shall pass the examination given by the Territorial medical examiners in the English language. It is said that the Hawaiian Medical Society is back of the bill, which is aimed to prevent the admission of Japanese doctors.

Court Enjoins Physician.—A decision which had no precedent in the State of Massachusetts was handed down by Judge Morton in the Supreme Court of that State recently, when he issued a permanent injunction restraining one physician from practising in Brookline during the life time of another physician, unless he conformed to an agreement entered into by the two physicians in 1906. The agreement which was signed when the enjoined physician began his duties as assistant to the other, provided for the mutual benefits to be received under the contract, and also provided that in the event of the breaking of the agreement the assistant should not practise in the town during his employer's lifetime. A few months ago the agreement was broken and the assistant started in to practise for himself. Hence the enjoinment.

A Discussion on Ethics and Fees in Chicago.—At a meeting of the Physicians' Club of Chicago, held March 11, with Dr. Wm. T. Belfield in the chair, the following subjects were discussed, a good deal being said pro and con: Business Partnerships in the Medical Profession; the Question of the Division of Fees; Advantages and Disadvantages of Office Cooperation and Business Partnership among Medical Men; The Question of the Division of Fees from the Surgeon's Standpoint; An Equitable Arrangement of Fees from the Physician's Standpoint. The speakers were Drs. Casey A. Wood of Chicago, J. F. Percy of Galesburg, Ill., Wm. E. Quine, Henry F. Lewis, Charles L. Mix, John A Robison of Chicago, and J. W. Pettit of Ottawa, President of the Illinois State Medical Society.

Board of Health Demands.—To provide additional accommodations for tuberculosis patients in advanced stages, the New York Board of Health has asked for $500,000 from the Board of Estimate. It is planned to spend $100,000 of this in building four additional pavilions at the Riverside Hospital on North Brother Island, thus doubling the capacity of the institution, where about two hundred patients are already housed. A like sum will be used in the erection of four pavilions at Otisville, each accommodating sixty patients. Of the balance, $250,000 will be expended for a plant in Queens, which will include pavilions for the accommodation of several hundred patients, as well as an administration building and all the necessary equipment of a good hospital.

Memorials to the Late Dr. William T. Bull.—Already the friends and associates of Dr. Bull are planning for a fitting memorial to the great surgeon, and a meeting of some of them was held recently at the home of Dr. L. Bolton Bangs to discuss the form such a memorial might take. As a result of the meeting an executive committee has been appointed to take up the work immediately. The committee is at present composed of Mr. John E. Parsons, Hon. Joseph H. Choate, Mr. Austen G. Fox, Dr. Clement Cleveland, Dr. Virgil P. Gibney, Dr. Francis P. Kinnicutt, Dr. Nathaniel Bowditch Potter, Dr. John B. Walker, and Dr. L. Bolton Bangs. While definite plans have not yet been formulated, it is probable that the memorial will take the form of an institution for surgical research to be connected with the College of Physicians and Surgeons, New York, from which Dr. Bull was graduated in 1872, and where he served for many years as Professor of Surgery.

A despatch from Savannah reports that Mrs. Bull authorizes the statement that she intends to erect a hospital as a memorial to her late husband. The hospital will be for the treatment of tuberculosis and the study of the disease. It will be amply endowed and will be under the direction of tuberculosis specialist. The amount of the endowment, the location, and other details will be announced in a short time.

Dr. James C. Hepburn, the oldest living graduate of Princeton, and for many years a medical missionary in Japan, celebrated his ninety-fourth birthday on March 14, at his home in East Orange, New Jersey. Dr. Hepburn was graduated from Princeton in 1832, and from the medical department of the University of Pennsylvania in 1836. After a few years of practice in New York, he joined the medical staff of the Presbyterian Board of Foreign Missions and devoted himself to the work in Japan.

Testimonial to Dr. Charles K. Mills.—A banquet was tendered to Dr. Charles K. Mills, Profes-

sor of Neurology in the Medical Department of the University of Pennsylvania, on the evening of March 13, in celebration of the fortieth anniversary of his entrance on the practice of medicine, and he was presented with a silver loving cup. Dr. George E. de Schweinitz acted as toastmaster and toasts were responded to as follows: "Personal Recollections of a Friendship," by Dr. S. Weir Mitchell; "Doctor and Parson," by Rev. Arthur B. Conger; "Reminiscences of the American Neurological Association," by Dr. James J. Putnam; "The General Practitioner," by Dr. Abram Jacobi; "Relation of Neurology to Pathology," by Dr. Wm. H. Welch. The presentation of the loving cup was made by Dr. W. W. Keen, and Dr. Mills responded. The committee in charge of the banquet consisted of Drs. W. W. Keen, Wharton Sinkler, James Hendrie Lloyd, Francis X. Dercum, Wm. G. Spiller, and David Riesman.

Fees of the McKinley Surgeons.—The Treasury Department recently made public a statement covering all of the items of expenditure incident to the last illness of President McKinley, under the appropriation of $45,000 for this purpose, made by Congress on July 1, 1902. The payments to the physicians, as the records appear on the Treasury ledgers, follow: Dr. M. D. Mann, $10,000; Dr. H. Mynter, $6,000; Dr. C. McBurney, $5,000; Dr. Roswell Park, $5,000; Dr. C. G. Stockton, $1,500; Dr. E. G. Janeway, $1,500; Dr. H. G. Matzinger, $750; Drs. W. W. Johnston, E. W. Lee, and H. R. Gaylord, $500 each; Dr. N. W. Wilson, $250; Dr. G. McR. Hall and Dr. E. C. Mann, $200 each.

Silver Bow County (Mont.) Medical Society, at its annual meeting on February 24, elected the following officers for the ensuing year: *President,* Dr. John A. Donovan; *Vice-President,* Dr. Peter Potter; *Secretary,* Dr. Phoebe A. Ferris; *Treasurer,* Dr. T. E. Blackburn; *Delegates to the State Convention,* Drs. Pigot, Ferriss, Renwick, Kingsbury, Stokes, and Matthews.

The Outagamie County (Wis.) Medical Society, at its annual meeting on March 2, elected the following officers: *President,* Dr. J. H. Doyle of Little Chute; *Vice-President,* Dr. E. Bayer of Appleton; *Secretary-Treasurer,* Dr. M. J. Sandborn of Appleton; *Censor,* Dr. J. J. Laird of Black Creek.

The New Bedford (Mass.) Medical Society held its third annual dinner on March 1. Addresses were made by Dr. Henry A. Christian, Dean of the Harvard Medical School, whose subject was Modern Methods in Medicine as Illustrated by Recent Work on Nephritis; Dr. Maurice Richardson, who spoke on Early Diagnosis of Surgical Lesions; and Dr. Homer Gage, whose subject was the Negative Side of the Emmanuel Movement.

The Late Dr. A. J. McCosh.—At a regular meeting of the New York Surgical Society, held March 10, 1909, the following resolutions were unanimously adopted by the Society:

Whereas, Death removed from the roll of this Society, on December 2, 1908, our distinguished colleague, Dr. Andrew J. McCosh; and

Whereas, During the many years of his membership in this Association, Dr. McCosh has been an active worker, an ardent and enthusiastic supporter of the objects which called the Society into being; and

Whereas, By his formal communications and presentation of rare and interesting clinical cases, as well as by his illuminating discussions, he has added much to the interest of our meetings; and

Whereas, During the entire period of his professional activity, Dr. McCosh stood for the highest ideals, and has ever maintained the loftiest standards of professional ethics; be it

Resolved, That in the death of our honored colleague, the New York Surgical Society has lost one of its most valued fellows, who, by reason of his unusual ability, his extraordinary technical skill, his wise and conservative judgment, his untiring energy, and his devotion to his professional work, has made for himself a conspicuous position in the foremost ranks of the world's surgeons; and who, by his modesty, his professional integrity, his kindliness, and his generous treatment of the poor and unfortunate who came under his care, has endeared himself, not only to the medical profession, but to the entire community in which he lived; be it further

Resolved, That these resolutions be spread upon the minutes of this Society, and a copy be transmitted to the family of our deceased colleague and to the weekly medical journals of this city for publication.

George E. Brewer.
Ellsworth Eliot, Jr.
Clarence A. McWilliams,
Secretary.

The Late Dr. W. T. Bull.—At a regular meeting of the New York Surgical Society, held March 10, 1909, the following resolutions were unanimously adopted by the Society:

Whereas, William Tillinghast Bull, M.D., was removed by death from the roll of the Society on February 22, 1909;

Whereas, By his death not only the New York Surgical Society, but the community and the world at large have suffered a great loss; and

Whereas, The New York Surgical Society desires the opportunity to express its sorrow and its appreciation of his character and attainments; be it

Resolved, That the Society, collectively and individually, mourns the loss of one who, by his sympathy, geniality, gentle modesty, and untiring devotion, was endeared to all; and who, by his wisdom, judgment, and brilliant execution, occupied the foremost rank among the surgeons of the world; and further, be it

Resolved, That these resolutions be spread upon the records of this Society and a copy be forwarded to his bereaved family and to the medical journals.

George Woolsey.
George E. Brewer.
Samuel Alexander.
Joseph A. Blake.
Clarence A. McWilliams,
Secretary.

Physician, Soldier, Priest.—Brigadier-General William Adams Olmsted, who until recently was chaplain of St. Elizabeth's Hospital, New York, died on March 9, aged 74 years. General Olmsted was graduated in medicine from the Howard University of Washington, D. C., but in 1861 was made captain of the first company of volunteers raised in New York. He fought through the war with great distinction and on the disbandment of the army had reached the rank of brigadier-general. After serving for a number of years as a physician among the Indians, General Olmsted took holy orders at Notre Dame University, Indiana, about ten

years ago. He had acted as chaplain at St. Elizabeth's Hospital since that time until last January when he suffered a stroke of paralysis.

Mr. Thomas Wakley, editor of the *Lancet* and grandson of the founder of that journal, died in London, on March 5, at the age of 57 years. He was educated at Cambridge and was a Licentiate of the Royal College of Physicians.

Obituary Notes.—Dr. Charles F. Caverly of Boston, Mass., died at his home of Bright's disease on March 6. He was a graduate of the Phillips Exeter Academy, Harvard University, and the Dartmouth Medical School.

Dr. Edwin D. Wiley, one of the pioneer physicians of Des Moines, Iowa, died suddenly on February 27, while attending a patient. Dr. Wiley was born in Canada in 1846, and was graduated from the Bennett Medical College of Chicago in 1870. He was a member of the American Medical Association, and a prominent Mason.

Dr. Frank Jackson McNett of Traverse City, Mich., died at his home on February 28, of pneumonia, at the age of 38 years. Dr. McNett was graduated from the Bellevue Hospital Medical College, New York, in 1898, and had made a special study of diseases of the eye, ear, nose, and throat. He was a member of the American Medical Association.

Dr. William H. Sage of Woodbury, Conn., died at his home on March 10, aged 84 years. Dr. Sage was graduated from the Yale Medical School in 1849, and had practised in New Haven until his retirement a few years ago.

Elias C. Kitchin died at Brumfieldville, Pa., on March 13, at the age of 82 years. He was graduated from the Vermont Academy of Medicine in the class of 1850.

Obituary.

THADDEUS ASBURY REAMY, M.D.

CINCINNATI, OHIO.

Dr. Thaddeus Asbury Reamy of Cincinnati, Ohio, died at his home on March 11, in his eightieth year. Born in Virginia, in April, 1829, Dr. Reamy studied medicine at the Starling Medical College, at Columbus, Ohio, from which he was graduated in 1854. Five years later he was appointed professor of materia medica and therapeutics in the Cincinnati College of Medicine and Surgery, a position which he held for only two years, resigning in 1861 to enlist as a surgeon in the 122d Ohio Volunteer Infantry. In 1863 he was made professor of the diseases of women in the Starling Medical College, and, in 1871, professor of obstetrics and the diseases of women and children. In 1888 he became professor of gynecology in the Medical College of Ohio, now the Medical Department of the University of Cincinnati. Dr. Reamy had served since 1871 on the gynecological staff of the Good Samaritan Hospital of Cincinnati, and was on the staff of the Cincinnati Hospital from 1880 to 1898. He was a member of the Cincinnati Academy of Medicine, of which he was president in 1877, of the Ohio State Medical Society, of the American Medical Association, of the Cincinnati Obstetrical Society, of the American Gynecological Society, and of the Southern Surgical and Gynecological Society. He had written frequently for various journals on gynecological subjects, and was a contributor to Mann's American System of Gynecology.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE CARNEGIE TRUST, BIOLOGY—ROYAL COMMISSION ON THE UNIVERSITY—DISEASES OF STOMACH—CANCER RESEARCH AT THE MIDDLESEX AND CANCER HOSPITALS—OBITUARY

London, February 26, 1909.

The importance of original research has been brought prominently before the public by a speech by Mr. A. J. Balfour at the seventh annual meeting of the Carnegie trust for endowment of research in the Scottish universities. The meeting was held in London on Wednesday and the report reviewed the whole work of the trust during the seven years of its existence. The report of the work in the biological and medical sciences was presented by Dr. Dobbie of the Royal College of Physicians, Laboratory, and the reports of other departments were by those who had supervised them. Mr. Balfour referred chiefly to the encouragement of research and said there was no greater waste than the waste of brains, intellect, originality, and of the scientific imagination. They needed to catch the men possessed of these, and therefore of capacity for carrying on original investigations, to catch them before they got absorbed in professional life, in order to extract from them all they could in the way of invention and originality. There was also a rarer class of men, who seemed born for research, to whom the penetration into the secrets of nature was an absorbing passion from which they would not be diverted except by the absolute necessity of obtaining their daily bread. It was all important that those men—not for their own sake, but for the sake of the community—should have a chance of devoting their rare talents to the great work for which God undoubtedly intended them, and Mr. Carnegie's trust had aided many such to add to the knowledge which was the heritage of all civilized mankind. He therefore deserved the thanks of the whole civilized world.

Royal commissions offer to governments good opportunities of acquiring solid information on abstruse subjects. They are also useful to politicians as a means of shelving inconvenient questions. We have had a free recourse to them of late and some people are saying they do not want to be governed by them. The last was announced on Saturday and is a new one on the University of London. It had been expected for some time, a promise having been made when the Imperial College of Science was founded, that if after a time the Senate desired it such an inquiry should be made as to the incorporation of the college in the university. The Senate passed a resolution to that effect on December 2 last, whereupon the London medical schools united in representing to the Government that the medical department and medical education should also be considered. The new commission's reference includes this, and as the faculty of medicine has always overshadowed all others in importance—at any rate up to the last reorganization in 1900—we may hope that possibly London will at last possess a university which the profession can regard with satisfaction. Since 1900 it has been a teaching body (of a sort) and some departments may have made progress, but not the medical. The teaching seemed to consist for the most part in authorizing a number of peripatetic lecturers on various subjects and rather resembled the "extension scheme" of the older universities than any essential part of those bodies. Up to 1900—the so called London University was a mere examining body and endeavored to keep up its status by piling on the subjects and increasing the severity of its examinations. It failed egregiously to produce scholars, physicians, or surgeons. Not that such men did not pass the tests, but it is now recognized that they would have done very well without diplomas, which only signified ability to absorb knowledge and disgorge it with facility. To keep up the standard regulations were insisted on as to the particular order of study. No one, for example, could be admitted to any medical examination unless the whole of his curriculum was filled in after the matriculation. So a student who had been a session or more engaged in anatomy, chemistry, etc., must take that matriculation and attend again lectures on those subjects. Many a one did not know of such a rule. Many a parent hesitated at the extra expense of keeping his son an extra year in London and many a teacher advised him not to do so. You might see men who

declined to be thus driven holding classes for the higher examinations of the university, or rather examining board, whose lowest degrees were to them unattainable.

In his second Lettsomian lecture Dr. S. Martin dealt mostly with the motor power of the stomach, which is often affected in disease, especially in the direction of diminishing of that power which leads to dilatation. This is often the base of chronic dyspepsia resulting from irritation, insufficiency or obstruction to the expulsion of the contents. It plays so great a part as the main symptom that the diagnosis between functional dilatation and that due to organic disease is of the greatest importance. In hyperchlorhydria there may be no motor deficiency for months or years in some cases, but in others dilatation may occur early. It may be detected by the stomach tumor, the succussion splash and auscultatory percussion which will determine the area occupied by the organ. Inflation of the stomach would also serve as by letting the patient drink solution of bicarbonate of soda (30 grs. to 4 or 5 oz.) and a corresponding quantity of tartaric acid solution. A normal stomach would hold 35 oz. as an average, but there are considerable variations. The amount may be estimated by making the patient drink as much liquid as he can tolerate without distress and then seeing how much can be siphoned off. Signs of slight dilatation are common in functional disorders, particularly in gastric insufficiency and nervous dyspepsia. Some spoke of myasthenia, but the lecturer did not use that term when symptoms of dilatation coming on after meals disappeared in four or five hours, and so appeared to be temporary. But if the conditions continued it would become permanent. The lecturer was of opinion that even great dilatation might be the result of only functional disorder. This was important to remember, as operative measures might otherwise be suggested when milder means would suffice. Passing on to gastroptosis, he said it was sometimes associated with enteroptosis and movable kidneys as well as prolonged symptoms of dilatation, though the secretory activity might be normal. With regard to the causes of gastric irritation, the first place was assigned to imperfect mastication, bolting the food, and bad teeth. Then the food itself as to both quantity and quality had to be considered, the time of taking it too, irregular meals, the rush and worry of modern life and work immediately after eating, excitement, or, on the other hand, sedentary habits—all these combined to interfere with digestion, and proper regulations of remedying these things were the remedy for their consequence. Besides these, chronic bacterial sources of irritation were pyorrhea alveolaris, disease from the nasal passages and antra, and chronic tonsillitis, etc., the discharges passing into the stomach and poisoning the body. Intestinal infection was also to be admitted. There might also be deficient activity of all the organs of digestion. The lecturer then proceeded to consider nervous dyspepsia, a group difficult to deal with, as cases might closely resemble organic diesase, and when differentiated might resist treatment. The cases varied so much that at one end of the line signs of mental disease or profound neurasthenia with stomach symptoms were presented; at the other end the nervous symptoms almost replaced the functional indigestion first observed. But many cases which he wished to speak of next showed great exaggeration of one or other of the symptoms of functional disorder, as flatulence, eructation, hiccough, vomiting, pain, dilatation, emaciation—any one of these might be the most prominent, absorbing the attention, but with it reflex nervous symptoms, such as headache, palpitation, dyspnea and extreme lassitude, both mental and bodily. In the family history often migraine, epilepsy, asthma, nervous breakdown, or mental disease. Abrupt changes of these symptoms as to approach and cessation are very common. Some points respecting these may help. Flatulence was caused by any of the sources of irritation, was present in all cases of dilatation and in bacterial decomposition. But the flatulence in nervous dyspepsia differed very often in its explosive character, its sudden onset without apparent cause, and the great quantities of gas brought up. The lecturer attributed the accumulation of gas, apart from bacterial fermentation, to the air and saliva swallowed, to regurgitation of alkaline liquid from the intestine, and to the discharge of gas into the stomach from the blood. Any one or more of these causes might set up the flatulence of nervous dyspepsia. Eructation of liquids was frequent in these cases, but not in organic disease. Vomiting coming on frequently after meals, but not always without pain in the abdomen, was functional, though it might last for long periods and lead to great emaciation. Yet there might be no alteration of the secretory power. Pain was difficult to gauge. It might be localized in the epigastrium, suggesting organic disease, but perhaps shift to another spot quite suddenly and would disappear on the supervention of headache or neuralgia. Tenderness might also be present, adding to the difficulty of diagnosis. But several tender spots over the abdomen indicated a nervous and not an organic origin. The diagnosis from ulcer of the stomach when pain was severe could sometimes be made from the absence of vomiting, the shifting character of the pain, the presence of several tender spots on the interchange of the pain with pains in other parts; these were all symptoms of functional disorder and not of organic disease. Attention was then drawn to cases in which severe headache was a constant symptom of nervous disorder of the stomach. This headache must be regarded as a reflex nervous symptom, for, although the stomach symptoms might be slight and the intense headache the prominent feature, it was amenable to proper diet and rest, and sedatives were not necessary, and were to be avoided.

Yesterday at the annual meeting of the Middlesex Hospital Mr. Gould, senior surgeon, in the chair, a briel account was given of the work of the cancer laboratories by the director, Dr. Lazarus Barlow. They were opened in 1900, and he showed that really valuable work had been done in them; in fact, the annual reports prove that, although the impatience of some is a hindrance. The cancer question, he said, is bound up with the laws of growth, and though infants have grown into adults for untold years, practically nothing is known of the laws governing that growth. So it is with cancer. A ship would be a long time building if the workmen had had to quarry the ore for the iron and fell the trees. Some day the early steps in the investigation of cancer will have been finished and the cause discovered, and that will be the greatest step toward cure. Nothing would give the staff greater joy than that the Middlesex Hospital, which had led the way in research, should show the way to the discovery of a cure. Two thousand five hundred pounds sterling a year is little to keep 10 highly qualified scientists at the work to find a cure for a disease claiming 30,000 victims a year in England and Wales alone. It is unthinkable that this work should stop for want of money.

At the annual meeting of the Cancer Hospital, Mr. Jessett, replying to a vote of thanks to the staff, said that operations which 25 years ago were thought impossible were now done with a mortality of only a little more than 3 per cent., though many were very severe. But still the Registrar General's report showed an increase in the deaths from cancer. The board had not shrunk from spending money on the research department and had secured the services of the most able men to be obtained, with a result that there had been great strides. Of late there had been a great boom about radium treatment, but in that hospital they had been using radium for six or seven years. It was, however, too early to speak of results. They must wait to see if the disease recurred in patients who were apparently cured. But they all hoped much from radium.

Sir John Watt Reid, K.C.B., late Director-General of the Navy Medical Department, Honorary Physician to the King, died on Tuesday in his 86th year. He graduated at Edinburgh and entered the service in 1845. He served during the Russian War in the Black Sea in 1854-55 and received the Crimean and Turkish medals; later in the China War, 1857-59, received the medal with clasp, and in the Ashanti campaign, 1874, was mentioned in dispatches. Sir John was appointed Director-General in 1880 and Honorary Physician to Queen Victoria in 1881; made K.C.B. (military) in 1882, and retired, after 43 years' service, in 1888. His university made him LL.D. in 1884.

Dr. H. W. King, physician to the Chester General Infirmary, died yesterday, aged 53. He graduated M.D at Edinburgh in 1888, having taken the College of Surgeons' diploma in 1878. He held an excellent position among his brethren and was president of the Chester Medical Society. He was also Surgeon-Lieutenant-Colonel in the Volunteers.

Prof. David James Hamilton, F.R.S., who recently resigned the chair of pathology at Aberdeen, died on Friday, the 10th inst. He was educated at Edinburgh, where he graduated (1878) after taking the diplomas of the two colleges (1870), and made demonstrator of pathology. He also studied in Vienna and Strassburg,

and became assistant professor of pathology at Edinburgh University and pathologist to the Royal Infirmary. In 1882 he accepted the full chair at Aberdeen, where his memory will long be cherished for his great teaching power, as well as his original contributions to his favorite science. His textbook, too, will long be authoritative.

Dr. C. J. F. Routh, who long held a distinguished position among London gynecologists, died on the 19th inst. at the age of 87. He was a son of Sir Randolph Routh, K.C.B., and was educated in London, Paris, and Vienna. He took the M.R.C.S. in 1843, M.R.C.P. in 1859, was consulting physician to the North London Hospital, a corresponding fellow of the academies of Madrid and Pesth and of the Gynecological Society of Boston, U. S. A. He contributed many papers to the societies and journals.

Mr. George Edward Walker, F.R.C.S., of Liverpool, died on the 15th inst., aged 70. He was founder and surgeon of the Eye and Ear Hospital and a recognized authority in ophthalmic surgery. He had been a vice-president of the Liverpool Medical Institution and contributed various papers to the ophthalmological transactions and other journals.

Dr. Lindsay Steven of Glasgow died suddenly on the 14th inst. in his 51st year. He was physician to the Western Infirmary, and had held many other offices. He had been for a long time a favorite teacher of pathology. Indeed, from the time he took his degree (1884) he had devoted himself to that subject, and his writings stamped him as one of the foremost pathologists of the day. As a clinical physician he was also a great success. He had been a member of the General Medical Council. For 10 or 12 years he was one of the editors of the *Glasgow Medical Journal*.

Glasgow has lost another leader in Henry E. Clark, late surgeon to the Royal Infirmary and Professor of Anatomy in St. Mary's College. He edited "Wilson's Anatomy" and for some years the *Glasgow Medical Journal*. He was president of the Faculty of Physicians and Surgeons from 1903 to 1905, and had served as president to all the Glasgow medical societies. He took charge of the Scottish Red Cross Hospital in the South African War, and was made a C.M.G.

DANGERS ASSOCIATED WITH REMOVAL OF THE TONSILS AND ADENOID GROWTHS.

To the Editor of the Medical Record:

Sir:—I have read the article by Dr. F. C. Ard in your issue of March 6 and wish to refute some of his statements and correct one of his quotations, with the hope that I may provoke a discussion of this matter, in which I have been very much interested for some years. Dr. Ard's article states, "The ease with which chloroform is administered." Chloroform is not properly administered with any greater ease than ether, but it is much easier to smother and kill a patient with chloroform than with ether. He says: "Careful investigation proves that many deaths have resulted from its administration." Careful investigation also proves that many deaths have resulted from the administration of ether. He states: "It is now becoming generally recognized that children have the status lymphaticus." I believe that there are cases of status lymphaticus among children and adults, but I am surprised to hear that *all* children suffer from this condition. I have never had any "narrow escapes" in my own practice under the use of pure and fresh chloroform, therefore I do not have to endure "the inconveniences of ether" for myself nor worry about the secondary dangers of its administration to my patients who are nephritic and have a tendency to secondary hemorrhage. He states: "Hemorrhage calling for immediate interference may be immediate, belated, or secondary." Immediate hemorrhage can always be controlled by the same surgical measures that are necessary in other parts of the body. Secondary hemorrhage in the case of adenoids almost always is caused by their incomplete removal; in the case of faucial tonsils for the same reason from the use of the tonsillotome or tonsil punch. I have repeatedly operated for the relief of secondary hemorrhage following incompetent operations in other hands for adenoids, by their complete removal with entire satisfaction. For secondary tonsil hemorrhage, three interrupted sutures coapting the faucial pillars have always been successful in controlling hemorrhage in this situation without the interposition of any gauze pad or other foreign body.

In quoting Dr. Ballenger, Dr. Ard says: "In young children tonsillotomy is not necessarily a hospital operation." I desire to do Dr. Ballenger the justice to correct the quotation. Dr. Ballenger says: "I can refer to a large number of cases in which I did an incomplete operation, or what is known as clipping the tonsils, with a Mathieu or other tonsillotome, which were followed by unfavorable results," etc. It seems, therefore, that the time has come when a textbook should clearly recommend that the complete operation upon tonsils is the one that should be used (*i.e.* tonsillectomy). Later, on page 414 of his work, Dr. Ballenger says: "In young children tonsillectomy is not necessarily a hospital operation, as it is very rarely followed by hemorrhage or sepsis." I have myself administered ether, ethyl chloride, nitrous oxide, and chloroform for this work, and I have had pure and fresh chloroform administered for me in my practice for a sufficient number of years and to a sufficient number of patients to prove to my satisfaction that it is the safest of all anesthetics, when properly administered by a careful and competent anesthetist and under my personal observation. I have also proved to my own satisfaction that tonsillotomy is rarely, if ever, a satisfactory operation, and that tonsillectomy in competent hands is always satisfactory in its immediate results and rarely followed by any disturbances, with regard either to hemorrhage or to sepsis.

Passaic, N. J. Fred. F. C Demarest

Progress of Medical Science.

Boston Medical and Surgical Journal, March 4, 1909.

Some Observations on Renal Diagnosis.—C. H. Chetwood makes some observations on functional kidney tests, noting that a diseased kidney has a more uniform function than a healthy organ, that its function varies less from one time to another the more extensively its parenchyma is destroyed, and that if one kidney is diseased, or is the more diseased of the two, when the urinary function becomes disturbed, it modifies its function less than the other. He discusses the value of the phloridzin and indigo-carmine tests and gives the clinical histories of several cases. He says that it is by judicious selection and combination of the various available tests that the best results are obtained and the most satisfactory preliminary diagnosis accomplished in surgical lesions of the kidneys. All tests need not be resorted to in every case. We should ascertain which organ is diseased and especially the condition of the other organ when a nephrectomy is still possible. Simple cystoscopy may determine the exact location of the lesion and the two tests, named above, accompanied by segregation or catheterization of one ureter, will usually furnish the desired information. If the ureter of the unsuspected kidney appears normal and its secretion also normal in quantity and quality and if the evidence afforded by the above tests is positive there need be no indecision. If the results with cystoscopy are uncertain and the test uncertain with a possibly unfavorable discrimination as regards one kidney, diagnosis is more difficult, and we must resort to all varieties of test before coming to our conclusion. In reaching a decision in obscure cases it should be remembered that a diseased kidney may exert restraint upon the functional capacity of the opposite kidney, especially in the case of phloridzin glycosuria, when by means of other differential tests a sufficiently definite net result must be sought to justify a satisfactory diagnosis preparatory to operation. Inasmuch as the progressive development of cystoscopic and functional diagnosis represents so important an element in urological technique, the skillful routine employment of these means is essential to the supremacy of the genito-urinary surgeon in this field of surgery.

The Principles of Mechanotherapy, with Special Reference to Orthopedic Cases.—C. H. Buelolz considers this question under the headings of prophylaxis, preparatory treatment, as the main treatment, and after-treatment. Mechanotherapy must be considered as an essential factor in the treatment of many orthopedic conditions. The result obtained from it will depend in a great measure on the correct use of the methods and the experience of the surgeon and his assistants. The treatment must be elaborated for each single case according to the anatomical, physiological, and pathological conditions. The most important instrument in mechanotherapy is the hand of the surgeon, but for several conditions apparatus is required. For a hospital with a large out-patient service it is a preeminent advantage to have at hand a medicomechanical department such as Zander's, where the treatment singly or in classes and under expert direction may be carried on in a varied way.

New York Medical Journal, March 6, 1909.

A Clinical Note on Alimentary Albuminuria.—A. C. Croftan has found that the disorders in which this form of albuminuria is most apt to occur are (1) motor insufficiency of the stomach of advanced degree, particularly if combined with secretory depression (hypochlorhydria and hypochylia). In achylia gastrica combined with motor insufficiency, this form of albuminuria is particularly common. (2) In diarrheic disorders of all kinds and particularly in cases of pancreatic debility with accompanying intestinal dystrypsia. (3) In hepatic insufficiency of various origin. (4) After the ingestion of abnormally large quantities of albumin (noted especially in diabetics on a meat-fat diet) and in cases in which large quantities of albuminous food, particularly egg albumen, are injected into the rectum in the form of nutritive clysmata. The treatment consists essentially in the removal of the causative factors. In cases of motor insufficiency with hypochlorhydria or achylia gastrica, the supplying of a sufficient quantity of hydrochloric acid and all measures directed toward overcoming stagnation of stomach contents, as a rule, promptly cause a disappearance of the albumin from the urine. Attention directed toward the correction of intestinal dystrypsia is particularly useful in removing this particular form of albuminuria, and here the administration of large quantities of an alkali with pancreatic extracts frequently leads to the goal. In the case of alimentary albuminuria following rectal feeding with large quantities of eggs, the addition to the nutritive enemata of considerable quantities of alkali and pancreas again generally causes the disappearance of the albumin from the urine. While small amounts of albumin in the urine may not be in themselves dangerous, yet the circulation in the system of foreign or toxic albumin irritates the renal epithelium in the convoluted tubes and so may lead up to kidney disease. It is essential, then, to recognize that there is a form of albuminuria of rather favorable prognosis that is not primarily due to renal debility, nor to nephritis, nor to circulatory disturbances in the kidneys as a part phenomenon of general cardiovascular disease (Bright's disease, arteriosclerosis), but that is enterogenous in type and primarily and exclusively a gastrointestinal and hepatic disorder.

Alcohol: Physiological Action and Therapeutic Indications.—E. R. Zemp presents a parallel exhibit of the respective effects of food and alcohol on the body. Alcohol is not a stimulant in the true sense of the word or a food. It is a useful drug when properly "used," but it has been terribly abused. Its use requires as much intelligence and judgment as does the use of any other drug. It is not an antidote to carbolic acid. It is a source, in proper amounts, of easily assimilated energy and in small quantities it aids certain forms of indigestion. Locally it possesses values often overlooked. The odor of alcohol on the breath is no criterion as to whether the patient is getting too much or not. In the usual manner of administration it does more harm than good, and the subjective symptoms of the patient under the influence of alcohol no more indicate his true condition than do those from morphine. The drinking of whiskey to keep from "catching cold," or to prevent serious results from snake bites, is a delusion and a snare. When sufficient food is lacking, alcohol in small amounts will prevent body waste, by conserving the tissues. The drinking of whiskey in health is a pleasant, but entirely unnecessary and wasteful, form of amusement, while the habit fixing propensity of alcohol should always be kept in mind by those who prescribe it.

Attempt at Conservatism in Abdominal Surgery.—J. W. Kennedy declares that the laboratory worker has no right to dictate to the surgical veteran who has become skilled in physical diagnosis, although there should be no conflict between the two. The student needs to be taught not less in the laboratory but more from personal contact with the patient. Hence the country practitioner is often the best diagnostician. The author says that we are not using the knowledge acquired through the thirty years just closing. The student is being taught that it is dangerous to open the abdomen in acute peritonitis from most any cause, and even ectopic gestation fares well to be placed on the waiting list. Fortunately, the author says, we have not been asked to wait in strangulated hernia. He has been for some years an assistant in the Price clinic in Philadelphia, and bases his ideas on the results there achieved. They are positively opposed to those who counsel delay in appendicular inflammation, pyosalpinx, or ectopic pregnancy. The rule there is first-hour operations and completed toilets at any stage in peritonitis. The selection of cases in the lesions mentioned is beyond human skill. The author says that in many cases of the retrocecal type of appendix inflammation is rupture of an appendix already gangrenous. As to ectopic gestation, he has collected statistics from twenty prominent clinics with a mortality of eight per cent. in two thousand cases. In the Price clinic one patient has died in one hundred and sixty-five operations. These include eight suppurative cases, and the fatal case was one of suppuration of five months' standing. The operation has been done in every case the first hour the patient has been seen regardless of hemorrhage or shock. Attempts at conservatism for incipient cystic conditions of the ovaries or unilateral removal of uterine appendages for infectious conditions certainly has been anything but brilliant. Some few patients have conceived after conservative work on the uterine appendages, but if one will review his work in those cases where he has made some attempt to save ovaries and tube, and considers the morbidity of such patients, and the very great number who return for second or third operations, he will find that his effort has been a miserable failure. At the Price clinic it is felt that one is never justified in removing one pus tube and permitting the supposed good side to remain. The primary source of infection remains, the remaining tube and ovary are probably already infected, and the patient will return for a second operation at an early date.

Journal of the American Medical Association, March 6, 1909.

Laboratory and Bedside Diagnosis.—W. W. Grant thinks that the criticism of a British observer, Dr. Roleston, that there is too much dependence on laboratory diagnosis in this country and too little on bedside observation and experience, is a just one to a certain extent. There is too much reliance, he says, even when not necessarily exclusive, on instruments of scientific precision and laboratory diagnoses, and too little on the training and discipline of one's own faculties in one's accustomed work. The result is a few expert diagnosticians in certain departments and a general decadence in diagnostic skill and acumen. With our better facilities for teaching and improved advantages generally we ought to have more instead of fewer diagnosticians. The surgeon has magnified aseptic and operative technique, leaving the rest largely to the laboratory, and Grant cites several instances in which exploratory operations and laboratory methods were called in to the patient's disadvantage. In some diseases when a fine differentiation is made, the knowledge of the internist is as essential as the skill of the surgeon or the laboratory expert and the results obtained by instruments of scientific precision are not always accurate and reliable. so much depends on the "man behind the gun." Grant disclaims any intention to depreciate laboratory methods, but he wishes to have clinical expertness better appreciated.

Vaccine Treatment of Erysipelas.—The results of the use of a vaccine prepared from Fehleisen's *Streptococcus erysipelatos* are reported and discussed by G. W. Ross and W. J. Johnson. They employed the vaccine in fifty cases, and from this experience they firmly believe that when properly administered it exercises a specific and controlling influence on the course of the disease—preventing its spread, lessening its severity, and hastening recovery. In the first sixteen cases they followed the method of opsonic therapy, but the results were so satisfactory that in the remainder they felt justified in omitting the usual opsonic blood examinations and had equal success in the remaining cases, many of which were severe. They admit, however, that in certain severe cases the usual thorough blood examination may be required. It is unnecessary, they say, to prepare a vaccine for each case, but it is advisable to have a composite stock of vaccine from several different strains and as many different cases and it is probable they think that the more virulent the case of erysipelas the more valuable will its streptococcus be as a vaccine. Their method has been in almost every case to inoculate with 10,000,000 dead streptococci on the first visit if the case is a severe one and with 20,000,000 if the case is less severe. On the second, in a severe case the patient gets 10,000,000 if there be signs of improvement. The most important of these signs is a certain clearing of the intellect and the next are the lessened tenderness and pain. The temperature is not so valuable, though a fall of two or three degrees on the morning following the injection is a valuable indication for a second inoculation. If, however, no evidence of improvement follows in the severe case and it is impossible to determine the opsonic power of the blood, then 5,000,000 only should be given on the second day. In less severe cases improvement is almost always manifest on the day after inoculation and the patient should receive but half the first dose; that is, 10,000,000.

They then inoculate with 5,000,000, 10,000,000, or 20,000,000 of streptococci on every second day until a week after temperature has reached normal and the erythema has subsided. They are guided as to the dose in each case (when opsonic investigations are impossible or unnecessary) by its severity and the unsatisfactory results as shown by clinical observation. The rule is "The more severe the case and the less satisfactory the clinical response the smaller the dose." The site of inoculation has always been chosen away from the involved area. They have been so successful they have not felt it necessary to attempt inoculation near the site of infection. Nineteen cases observed by them in 1907 which were treated in the ordinary way are tabulated and compared with an equal number treated in 1908 by inoculation and the advantages of the later method in the way of shortening the duration of the disease, avoidance of complication, etc., are very manifest.

Blood Staining Methods.—The chemistry of the methyl alcohol stains for blood is discussed by A. R. Peebles and W. P. Harlow, in an article the conclusions of which are substantially as follows: The changes seen in old methylene blue and eosin staining mixtures are due to a change in the reaction of the methyl alcohol. A too acid staining fluid will stain too red. The neutrophilic granules of the polymorphonuclear leucocytes and the nuclei do not stain well. A too alkaline staining fluid will stain blue, the nuclear elements stain well and sometimes also the neurophilic granules, but the red cells do not color properly. All staining fluids made up with methyl alcohol should be kept in clean dark bottles and kept tightly corked. A good cork is better than a glass stopper, and a bottle that has been coated with asphaltum paint is best. If it has been thoroughly steamed and dried out before using much of the difficulty can be avoided. By titrating with potassium hydrate or glacial acetic acid in methyl alcohol the stain can be brought up to the desired standard or reaction at any time, for any blood. No water should be used in the procedure, as it insures the instability of the stain. This procedure works equally well with Wright's, Hastings', or Harlow's stains, but in working the latter change the reaction of the methylene blue only. Use the neutrophilic granules as the criterion in judging the stained smear. If these do not stain well something is wrong with the staining solution or the technique.

The Lancet, February 27, 1909.

Addisonism as a Family Disease.—D. H. Croom comments on the rarity of this affection in children, and gives the histories of three children in the same family, aged nine, six, and three and one-half years respectively. The series presented, in addition to relationship and age, the feature of a common low blood pressure. Case 1 presented pigmentary changes, asthenic and prostration, and low blood pressure, while in Cases 2 and 3 the pigmentary changes were not so marked, but the pressure was low. The author suggests that in Case 1 both cortex and medulla of the adrenals were affected, while in the other two cases the medulla was primarily affected and the cortex only slightly so, thus supporting the theory previously advanced by Gibson. He adds that it would be interesting to know in which part of the adrenals the lesion begins in Addison's disease, and whether the course of the symptoms is affected according to the initial location of the lesion. Postmortem information shows disease of the whole gland, and consequently we have no definite information on the point indicated. Further studies on blood pressure states in the disease may lead to a further differentiation of types of the malady.

Pancreatic Secretion in the Treatment of Diabetes. After a discussion of the physiology of the carbohydrates and of the pathology of the malady named, W. M. Crofton gives the history of a girl of thirteen years whose symptoms had existed three months, ravenous hunger and a daily excretion of 15 pints of urine being the most prominent features. No alteration was made in the diet, but the child was given four capsules daily of holadin, with a marked diminution of daily urinary excretion. After some seven months one grain of secretion was added daily after meals, but it caused, after a few days of apparent success in diminishing the quantity of urine and sugar output, sore throat and epigastric pain, and was stopped, the holadin being continued. A second addition of secretin was followed by the same sequel. The child was for awhile given more potatoes and less bread, but no change was caused thereby in the urinary conditions. A notable fact for which the author cannot account was that, although less urine was excreted, the sugar percentage remained the same under the holadin, but fell when the additional secretin was given. At the time the case was deported the patient had gained greatly in weight, and was in excellent condition.

A Case of Hepatic Abscess Treated by a Vaccine; Recovery.—The patient of J. H. E. Brock was a man of 37 years. The three specially interesting features of the case were as follows: (1) The position of the abscess. It had burst into the right lung two months before the patient was seen by the author. It may have been a post-dysenteric tropical abscess far back in the right lobe, or may have been a direct result of a preceding appendicitis and sub-diaphragmatic. (2) The existing cause. No liver cells or bile appeared in the expectoration, and the lung did not appear to suffer from the passage of the pus through it. Nor did the sputum show the ameba coli or the tubercle bacillus. The cause appeared to be a special streptococcus which doubtless began the appendix trouble and was responsible for the sequelæ. (3) The treatment. The vaccine in appropriate doses, made from the sputum was injected into the patient's flank after examination of the opsonic index of the blood to the particular streptococcus inoculated. The patient recovered, the liver being dragged upward by the shrinkage of the abscess cavity.

"Starvation Cure" in a Case of Diabetes Mellitus.—F. C. Doble records the case of a man of 56 years, a sufferer for a long time, and with constant glycosuria. He had had a cerebral hemorrhage a year before, one sequel of which was a delusion that he and his family were in a state of poverty and that his wife and children were starving. Although he was very hungry he absolutely refused all food, and only enough milk, beef tea, and eggs could be fed to him, forcibly, to keep him alive. After three months of this diet he began to eat one average meal a day, the forcible feeding being continued. He lost in three months 84 pounds, but every symptom of diabetes disappeared, and when the case was reported the patient had recovered 21 pounds of the lost weight on two meals daily, one of meat and green vegetables and the other of milk and eggs. Except for potatoes and bread, his range of diet was unlimited.

British Medical Journal, February 27, 1909.

The Extirpation of Cancer with Formalin.—T. H. Moorhead gives his experience with this remedy in the case of an elderly woman with a small scirrhus of the right breast. Conditions were favorable for an immediate operation, and this was urged, but refused. When the woman was seen nine months later there was a large sloughing mass with a profuse hemorrhage from the apex. The author plugged the hole with wool dipped in equal parts of formalin and water. When the plug was removed several days later there was a large area quite dry and of cheesy consistency. This was cut away until red showed in the black mass, and the plugging was renewed. This procedure was continued ten weeks without pain, and finally a free, clean granulating surface was left, free from any disease. Unfortunately, the patient died of internal metastasis. The author criticises his course to the extent of saying that the caustic action was carried too deep over the center of the tumor, so that the ribs were exposed. There were some enlarged axillary glands, but the formalin they shrunk until they could no longer be felt. He says that the difficulties in limiting the destructive action of the formalin are too great to make the method one of general application.

On Sleep and Want of Sleep.—R. Farquharson refers to the habits in regard to sleep of some famous men, and discusses some of the causes of insomnia. One of these is an overtaxed brain. Some people can sleep after hot drinks, some after smoking a pipe, some after taking easily digested food after they are in bed. The temperature of the room should be regulated, the bed properly placed, and bed-warming devices employed. Heavy suppers and especially champagne should be avoided. Noises should be suppressed. The author has never seen any one who would acknowledge benefit from such popular devices as counting up to a certain number, etc. In many instances narcotics are necessary. They are often avoided by some physicians who fear habit formation, but, as Brunton once said, "insomnia is a bad habit, and may become permanent if we do not break it." Idiosyncrasies must be borne in mind in prescribing this class of remedies. The author says that morphine is the best remedy, being not hypnotic, but also a good tonic and heart stimulant. Chloral must be used with caution. A series of cases has been recorded in which symptoms arose akin to sepsis with purpuric and scorbutic eruptions, ending fatally. Sleep is produced by brain anemia, and therefore the circulatory disturbance produced by arteriosclerosis, pregnancy, alcoholism, Bright's, glycosuria, all modify the effects of sleep producing remedies.

Arterial Blood Pressure Records Before and After Muscular Exercise.—O. K. Williamson has made a se-

ries of observations on some of the participants in the recent Marathon races, and presents his results in tabulated form. His results point to a rise of from 20 to 40 mm. Hg., corresponding to a height perhaps of 160 to 170 mm. as the measurement which is probably near the limit of reserve power of the normal heart. Consequently these observations throw at least doubt upon the idea that readings obtained in the neighborhood of 300 mm. really represent true blood pressure.

The Treatment of Chronic Gonorrhea by Antigonococcal Vaccines.—Clinical histories of three cases are given by A. Loxton, who believes that this method of treatment will prove of marked service. The gonococcus should be demonstrated in the discharge, the patient's general health brought to the best possible condition before beginning the treatment, and the dosage carried out systematically. He begins with forty or fifty millions of sterile gonococci. Appropriate dosage gives rise only to slight headache and malaise some hours after injections. The latter should be made preferably late in the afternoon.

Münchener medizinische Wochenschrift, February 23, 1909.

Clinical Test for Occult Blood in Feces.—Messerschmidt says that the usual guaiac test for occult blood is frequently negative in cases in which blood is surely present. He has therefore studied the various other reactions proposed for the examination of feces and has decided that the so-called benzidin test is the most trustworthy when modified according to his method. The technique is as follows: A little benzidin is dissolved in two c.c. of glacial acetic acid, fresh solution being made for each test. A small portion of the stool is rubbed up in two c.c. of water, to which a few drops of glacial acetic acid have been added. To three drops of this second solution there are added one to one and a half c.c. of three per cent. watery solution of hydrogen peroxide. Then one or two c.c. of the above benzidin solution is added to the mixture and the whole gently shaken. The presence of blood or of blood derivatives is shown by the appearance of a coloration which differs from green to dark blue, the reaction occurring within a few seconds after the addition of the benzidin solution. The author thinks that in this modification the benzidin test seems to be a positive test for the smallest traces of occult blood in the feces or any other mixture.

Ectopic Pregnancy.—Weisswange says that the mortality of extrauterine pregnanscy can be much diminished if more care is taken in diagnosing the affection and if operation is undertaken as soon as possible at the home of the patient so that the delay and the danger of transporting her are avoided. The ovum in extrauterine pregnancy acts as a destructive neoplasm. The causes of the failure of ovum to reach the uterus must be sought in the changes produced in the tubal mucosa by preceding inflammations; the presence of scar tissue or the mere loss of ciliated epithelium is enough to interfere with the progress of the ovum. Usually ectopic pregnancies end in the first two months of their existence, and only seldom further development of the embryo takes place. Three possibilities exist in this connection: the ovum may die and be absorbed, the tube may rupture, or the ovum may be separated from the mucosa and escape the general peritoneal cavity through the open end of the tube. It is clear that early diagnosis of such pregnancy is as important as early recognition of uterine cancer. The physician must always keep in mind the possibility of ectopic pregnancy in all women, and must obtain a full history of the sexual life of the patient, if possible. History of gonorrhea, of complete or temporary sterility, the history of frequent pain over the tubes and ovaries are important in showing the presence of conditions predisposing to ectopic pregnancy. Sudden, sharp, colicky pain is the important direct symptom of extrauterine pregnancy; it may appear in attacks and may be accompanied by marked tenderness on pressure and rigidity of the overlying muscles. Irregularity of menstruation when other causes are excluded must be taken as another important symptom. The temperature usually remains normal. There may appear the early signs and symptoms of pregnancy, but they are seldom as prominent as in uterine gestation. The most important sign of ectopic pregnancy is the presence of a palpable tumor, accompanying the above indefinite symptoms; vaginal examinations as well as external palpation must be executed very gently, so as not to rupture the sac. The prognosis of extrauterine is always uncertain, but it has been very much bettered lately by the readiness of physicians to operate or advise operation without delay. The only therapy consists in such operative removal of the pregnancy sac, for the growing ovum must be regarded as a malignant neoplasm under these circumstances. The operation of choice should be a laparotomy, with removal of the tube of one side. The prophylaxis should consist in the avoidance of all causes of inflammation of the uterine adnexa, and especially of the most frequent cause, namely, gonorrhea.

Deutsche medizinische Wochenschrift, February 18, 1909.

Treatment of Alcoholism.—Weber says that the great progress in our attitude toward alcoholism is shown by the widespread readiness to look upon this condition as a disease that is to be treated by medical measures. Still more important is the recognition of the importance of prophylaxis of alcoholism, which may be carried out among all young individuals, among such as are congenitally predisposed to the habit and among those who are "driven to drink" by extraneous circumstances. Enough of the physiology of alcohol is known nowadays to state positively that the use of alcohol can have only deleterious effect upon a growing organism; it is therefore the duty of the family physician to warn the parents of the danger of giving alcoholic drinks to children of such occasions as parties, birthdays, etc., as the habit may be very easily engendered. There is likewise no valid reason for prescribing various wines as tonics in the anemic conditions of childhood. In general the therapeutic indications for the use of alcohol at any time should be carefully considered so that the slight stimulation it might produce should not be bought at the price of establishing a habit; in this connection the use of alcohol in anemias of young girls, in the period of lactation, etc., is to be limited as much as possible. The treatment of alcoholism must have two ends in view: The habitual drunkard must be trained to become abstinent and to stay so of his own free will, and the physical and psychic injury caused to the organism by the use of alcohol must be repaired as much as possible. There is no question that both these ends may be attained but only if the treatment is carried out in a properly fitted institution. The stage when an institutional treatment becomes necessary is marked by the development of psychic changes in the alcoholic characterized by weakening of the intellectual powers and of the will of the patient. Once in an institution the first step toward curing alcoholism should consist in discontinuing all alcoholic beverages, which can be safely done in most cases if the heart, the kidneys and the mental condition of the patient are continually watched. The consequences of sudden abstinence from alcohol are never as serious as in the case of opium habit, for instance, if the physical condition of the patient is well taken care of in the beginning of treatment. The usual administration of strychnine and atrophine in the beginning of the cure is not necessary and for the most part useless. Even in cases of delirium tremens alcohol may be stopped at once unless there is an accompanying disease with much fever; in the latter case only gradual diminution in the daily amount of alcohol should be attempted. The motor unrest of delirium is best treated by light restraint, the patient being constantly watched; in case the latter is impossible drugs may be used, paraldehyde, veronal and chloroformamid being safer than trional, sulphonal and chloral hydrate. As much water as possible should be given so that the excretions may be freely diluted. To prevent weakness of the heart it is best to avoid as much as possible the narcotic drugs that affect that organ; infusion of digitalis in moderate dosage may be used as a prophylactic of the condition and after it has fully developed. After the delirium stage is passed the real treatment of alcoholism begins and consists simply in accustoming the patient to abstinence, the examples of the physicians and the attendants in the institution as well as its general atmosphere being very powerful factors in this direction. Such abstinence should be enforced for at least three quarters of a year in most cases before the patient may be trusted to abstain from alcohol if allowed to leave the institution. During that time all possible general and special measures should be taken to strengthen the physical condition of the patient and to repair the harm done by the use of alcohol in the past. The patient must be put in such a state of physical strength that he no longer feels the need of a temporary stimulant. The cure of alcoholism is real only if the patient is able to abstain completely from drink; there can be no moderate drinking after excesses for the latter are reneated in such a case very soon after the restraining influences are removed. The discharged patients should be encouraged to join the various temperance societies after their treatment is completed so as to stay under the influence of abstainers as long as possible.

Book Reviews.

Selections from the Writings, Medical and Neurological, of Sir William Broadbent, Bart., K.C.V.O., Commander of the Legion of Honor, M.D., F.R.C.P., F.R.S., D.Sc., Leeds, LL.D., Edinburgh, St. Andrews, and Toronto. Late Physician in Ordinary to His Majesty the King, and to His Royal Highness the Prince of Wales, and Physician Extraordinary to Her Majesty Queen Victoria, etc. Edited by Walter Broadbent, M.D., M.R.C.P. London: Henry Frowde and Hodder & Stoughton, 1908.

This volume of the Oxford Medical Publications contains a judicious gleaning from the writings of one whose literary activity extended over nearly half a century. During this period there were only two years in which Sir William Broadbent did not publish some paper. The bibliography at the end of this volume gives a list of over 200 papers, etc., from the pen of the author; and of this number 45 are here reprinted. In a brief introduction the editor tells us that the papers here presented have been chosen for various reasons, some for their historic interest, some to illustrate the variety of the author's early work, but most of them for the material of interest which they contain for the medical man of to-day. The selection has been well made, and there is not a paper but has some decided value; many of them are of surpassing interest, and not a few give marked evidence of the sound learning and wide clinical experience of their distinguished author. Among the more recent of the papers are those on: The Conduct of the Heart in the Face of Difficulties; Sleeplessness; Pneumonia; Renal Disease and the Circulation; Epilepsy; Interlobar Empyema; Clinical Significance and Therapeutic Indications of Variations of the Blood Pressure; The Examination of the Heart, and Remarks on Some Affections of Speech. Physicians would do well to read these contributions and to think over them. The volume should have an extensive circulation.

On Infantilism from Chronic Intestinal Infection. Characterized by the Overgrowth and Persistence of Flora of the Nursling Period. A Study of the Clinical Course, Bacteriology, Chemistry, and Therapeutics of Arrested Development in Infancy. By C. A. Herter, M.D., Professor of Pharmacology and Therapeutics, Columbia University. New York: The Macmillan Company, 1908.

This little book gives the results of several years' study by the author in conjunction with Dr. Holt with reference to the causes and management of a hitherto unexplained arrest in the development of children. The evidence rests on a very complete investigation of five frank cases and an equal number of incomplete ones. An enormous amount of work on this complex bacteriological question which necessitated many months' study of the individual cases has brought forth explanations and solutions heretofore not in possession of the profession.

The author gives a complete picture of the clinical signs of this affection, with its strong tendency toward arrest of growth of the physical but not mental attributes of the child, the anemia, exhaustion, and abdominal symptoms. He then considers the bacteria as causative factors and such evidence as the urine may afford in sustaining the diagnosis. He describes the predisposing infections, the sequels and outcome which are apt to follow. The sections on treatment are extremely valuable, although a speedy relief and rapid cure are not as yet obtainable. In fact, a reestablishment of perfect growth and physical development in a well defined case is not to be expected. A perfect mental condition is, however, the usual result even in these cases.

American Practice of Surgery. A Complete System by Representative Surgeons of the United States and Canada. Edited by Joseph Decatur Bryant, M.D., and Albert Henry Buck, M.D. To be published in Eight Royal Octavo Volumes. Volume V., 973 pages, illustrated by 452 line and half-tone engravings in the text and by eight full-page plates by chromolithography and other processes. New York: Wm. Wood & Co., 1908.

With volume V. the second half of this now well-known surgical treatise begins, and with it the work enters into the domain of regional surgery. The first chapter, a very comprehensive one of 378 pages, is on the "Surgical Affections and Wounds of the Head," by Dr. Edward Archibald of Montreal. This is followed by a chapter on the "Surgery of the Cranial Nerves," by Charles H. Frazier of Philadelphia. The "Surgical Diseases, Certain Abnormities, and Wounds of the Face" is the title of a very concise and well written chapter by Dr. Charles G. B. de Nancrede of Ann Arbor. Dr. James S. Stone of Boston writes of "Hairlip and Cleft Palate," and Dr. George C. Harlan of Philadelphia of "Diseases and Wounds of the Eye," including the eyelids. Dr. Robert Lewis, Jr., of New York contributes a very complete chapter on "Surgical Diseases and Wounds of the Ear," supplemented by articles on "Sinus Thrombosis of Otitic Origin; and Suppurative Diseases of the Labyrinth" from the pen of Dr John D. Richards of New York, and on "Pyogenic Diseases of the Brain of Otitic Origin" by Dr. Henry Ottridge of Baltimore, Md. These complete the diseases and injuries of the head. The "Surgical Diseases and Wounds of the Pharynx" receive very adequate treatment by Dr. Charles H. Knight of New York, and Dr. James E. Newcomb of New York writes lucidly on the "Surgical Diseases and Wounds of the Larynx and Trachea," while the volume closes with a short chapter on "Laryngectomy," by Dr Frank Hartley of New York.

This is perhaps the best of the volumes of the series that has yet appeared, at least it is one of the most interesting, dealing as it does with practical subjects which meet the surgeon in his daily work. The chapters on mastoid diseases and brain abscesses of otitic origin are especially timely, these affections being just now a favorite topic of discussion at joint meetings of neurologists and otologists. The standard of excellence established in the first volume of this system of surgery has been well maintained thus far, and in none of the volumes is it higher than in this.

Mental Deficiency (Amentia). By A. F. Tredgold, L.R.C.P. Lond., M.R.C.S. Eng.; Consulting Physician to the National Association for the Feeble-Minded, and to the Littleton Home for Defective Children; Medical Expert to the Royal Commission on the Feeble-Minded; Formerly Research Scholar in Insanity and Neuropathology of the London County Council and Assistant in the Claybury Pathological Laboratory; Late Resident Clinical Assistant in the Northumberland County Asylum, etc. New York: William Wood & Company, 1908.

Since the classic work of the Elder Séguin, on Idiocy, there has been almost a dearth of scientific writings on the subject, excepting those of Bourneville. This is probably on account of the apparently hopeless outlook for treatment which cases of mental defect seem to present Yet this very fact should stimulate scientific research along these lines; and it is gratifying to note that the present work is a laudable effort in the right direction. The book contains a number of tables, charts and excellent illustrations, and presents an attractive appearance. The descriptions are clear and drawn from observations of many cases. The subject of mental deficiency is being brought more and more to public attention by philanthropists, educators, and social writers, as well as by medical men, so that the need for correct diagnosis, treatment, and training of these children, and their proper certification as to fitness for the ungraded classes in the schools, or for special schools, or for training in homes, or asylums, etc. is a question of considerable importance. The author gives an account of the incidence, causation, pathology, mental and physical characteristics, social relationship, diagnosis, prognosis, and treatment of persons suffering from mental deficiency. We do not like the term "amentia," as employed by the author, to include all grades of idiocy, imbecility, and feeble-mindedness. In this country we seldom use the word, and when we do, we restrict it to include only the lowest types of idiocy.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M.D., Assistant Physician in the Out-Patient Medical Department of the Jefferson Medical College Hospital. Philadelphia and New York: Lea & Febiger, December 1, 1908.

The current number of Progressive Medicine is on the same lines as heretofore. It contains contributions on Diseases of the digestive tract and allied organs, the liver and pancreas, by D. L. Edsall; Diseases of the kidneys, by J. R. Bradford; Surgery of the extremities, tumors, surgery of joints, shock, anesthesia and infections, by J. C. Bloodgood; Genitourinary diseases, by W. T. Belfield; and Practical therapeutic referendum, by H. R. M. Landis. We would draw special attention to Bloodgood's article, which is particularly valuable; Landis' paper contains a timely *résumé* of psychotherapy; and the whole number is a strong one.

Life Insurance and General Practice. By E. M. Brockbank, M.D. (Vict.), F.R.C.P.; Honorary Assistant Physician, Royal Infirmary, Manchester; Lecturer in Materia Medica and Therapeutics, Victoria University of Manchester. London: Henry Frowde, Hodder and Staughton, 1908.

The first part of this work considers in some detail the routine of making medical examinations for life insurance. It is well written, and contains much that will be of value to medical examiners; at the same time it is not to be confounded with books bearing a similar title which are really nothing more than works on general or physical diagnosis. The second part bears the general heading "Impaired Lives," and contains chapters on: Heredity; height and weight; tuberculosis; gout, arthritis deformans, and chronic rheumatism; syphilis; alcohol; insanity, suicide, and epilepsy; malignant disease; female lives; skin; respiratory system; cardiovascular disease; blood; alimentary system; hernia; urinary organs; albuminuria; diabetes mellitus and glycosuria; nervous system; ear; deformities and abnormalities; thyroid gland; sea and war risks; and tropics. The volume as a whole contains a considerable amount of information, much of it of real worth; and the book will undoubtedly be found useful by all who are called upon to make examinations for life insurance companies.

The Rat Problem. By W. R. Boelter. London: John Bale, Sons & Danielson, 1909.

This little work contains much that is of interest, as well to the intelligent layman as to the physician. It begins with a chapter on the natural history of the rat, with an account of the invasion by the "brown" or "Norwegian" rat of all parts of the civilized world. The second chapter treats of the economic loss caused by rats, dating back to 3,000 years ago in Egypt. It is stated that the annual loss in Great Britain traceable to rats is at least $40,000,000 (£15,000,000). Chapter three deals with the rat in the dissemination of disease. Chapter four is on the means for the extermination of rats. Chapter five is a summary or conclusion, and strongly advocates the passage of a rat law similar to that in force for some years past in Denmark. An appendix gives the rat laws of several colonies and states which have adopted such, followed by a three-page bibliography of works referring to the rat. The book is excellently illustrated.

The National Standard Dispensatory. Containing the National History, Chemistry, Pharmacy, Actions and Uses of Medicines, including those recognized in the Pharmacopœias of the United States, Great Britain, and Germany, with many references to other foreign pharmacopœias. In accordance with the Eighth Decennial Revision of the U. S. Pharmacopœia, by authorization of the Convention. By Hobart Amory Hare, B.Sc., M.D., Professor of Therapeutics and Materia Medica in Jefferson Medical College, Philadelphia; Charles Caspari, Jr., Ph.G., Phar.D., Professor of Theoretical and Applied Pharmacy in the Maryland College of Pharmacy, Baltimore; and Henry H. Rusby, M.D., Professor of Botany and Materia Medica in the College of Pharmacy of the City of New York; Expert in Drug Products, Bureau of Chemistry, Department of Agriculture, Washington, D. C.; Member of the Committee of Revision of the U. S. P.; Joseph F. Geisler Ph.C., Chemist, New York State Department of Agriculture; Edward Kremers, Ph.D., Professor of Chemistry, University of Wisconsin; Daniel Base, Ph.D., Professor of Inorganic and Analytical Chemistry, University of Maryland. New (2d) edition, thoroughly revised. Magnificent imperial octavo, 2,050 pages, with 478 engravings. Philadelphia and New York: Lea & Febiger, 1909.

The plan of this work is to give under each article (noting first whether or not it is contained in the U. S. and British Pharmacopœias, one or both) the synonyms and the equivalents in French and German, and sometimes Italian, Spanish, and Portuguese. Then follow the chemical description, the origin and preparation of the drug, its properties and the tests of its purity, substitutes, pharmaceutical preparations, and a section on its action and uses with its dose expressed in values of the apothecaries' and metric systems. Finally follows a section on special preparations of the substance under discussion and on allied drugs. Of the value of a dispensatory to everyone who has to do with drugs, whether physician or pharmacist, there can be no question; it takes the place of, and supplements, the Pharmacopœia and the National Formulary as well as, to a great extent, many of the treatises on materia medica. The new edition of this work contains a great deal of new matter (200 new articles, the preface states), as well as much that has been revised. A very useful addition is the text of the Pure Food and Drugs Act and Regulations. There are also abstracts of the National Formulary preparations and a number of unofficial formulas, including those dropped from the U. S. Pharmacopœia in the decennial revisions of 1890 and 1900. There are two large and apparently very complete indexes—one general index, with the names of the drugs entered under their Latin and English names, as well as, in many instances, the French, German, Italian, Spanish, and sometimes Portuguese equivalents; the other is a therapeutic index.

Pathogenic Microorganisms, Including Bacteria and Protozoa. A Periodical Manual for Students, Physicians, and Health Officers. By William Hallock Park, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, and Director of the Research Laboratory of the Department of Health, New York City; Assisted by Anna W. Williams, M.D., Assistant Director of the Research Laboratory; Pathologist to the New York Infirmary for Women and Children. Third edition, enlarged and thoroughly revised, with 176 engravings and 5 full-page plates. New York and Philadelphia: Lea & Febiger, 1908.

We find in this edition a number of changes and additions, necessitated by the rapid progress in microparasitology made during the three years which have passed since the second edition was issued. Thus the book contains 90 more pages than its predecessor, 50 of which are taken up by the increase in the section on protozoa. Several subjects which in the former edition were treated of in the appendix, either because they were new or because they were not deemed of great importance, have now been transformd to the body of the work and discussed at considerable length; among these are "aggressins," "ultramicroscopic examinations," and the relation of *Stegomyia* to yellow fever. The opsonic theory is fully discussed, in general with approbation, though Park does not regard the opsonic index as a very trustworthy guide on account of the extreme variation in the findings by different observers and at different determinations. A brief but useful glossary of some of the newest technical terms has been added. All these changes and additions are in the line of improvement and help to keep for the work the place which it took on its first appearance among the best of the books on pathogenic microparasitology.

Applied Physiology. A Handbook for Students of Medicine. By Robert Hutchison, M.D., F.R.C.P., Physician to the London Hospital; Assistant Physician to the Hospital for Sick Children, Great Ormond Street; Late Chemical Assistant to the Professor of Physiology, University of Edinburgh, and Demonstrator of Physiology, London Hospital Medical College. Author of "Food and the Principles of Dietetics," "Lectures on Diseases of Children"; joint author of "Clinical Methods," and joint editor of "An Index of Treatment." New York: Longmans, Green & Co.; London: Edward Arnold, 1908.

This is a book of an unusual type. In the first place it is an attempt to apply a knowledge of the facts of physiology to the study of medicine in the same way as anatomy has been applied to the study of surgery. Further, it is the first book of this kind that we have seen. Since it is not intended as a substitute for text-books of physiology, but as a companion and supplement to them, only the *facts* of physiology are dealt with; hence the book is not a large one. The author treats the subject in eight chapters, dealing respectively with the applied physiology of: Metabolism, body heat, the blood and blood-making organs, the heart, the circulation, the respiration, digestion, and excretion. It will be noted that there is nothing on the muscular or nervous systems, or on the special senses; the author being convinced "that most of the nerve muscle physiology as ordinarily taught to students, is perfectly useless to the physician, and as regards the nervous system and special senses, the time is not yet ripe for writing their applied physiology—clinically, one can as yet hardly make use of more than their applied anatomy." The book is written in Dr. Hutchison's well known lucid style; and each chapter contains a valuable application of present-day physiological knowledge to the needs of the clinician. With its absence of theory and descriptions of methods, this is just the book for the practitioner; and its size and typography make it easy to hold and pleasant to read.

A Common-Sense View of the Mind-Cure. By Laura M. Westall. New York and London: Funk & Wagnalls Company, 1908.

This is a primer-like book, written by a layman for lay readers. It is intended to explain the workings of the "will power" in the treatment of the common functional disorders. It is lacking in scientific application.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Section on Medicine.

Stated Meeting, Held January 19, 1909.

Dr. F. P. Solley in the Chair.

A Case of Leprosy.—Dr. Max G. Schlapp presented a woman who was admitted to the hospital because she had burned herself. She said she felt no pain. There were disturbances in the temperature, pain, and tactile senses. He jumped at the conclusion that this was a case of syringomyelia. While entering more fully into her history she called attention to the fact that she had had a spot on her leg which had existed for a long time. He found five on the left leg and one on the right. Her mother was alive and well, and had separated from her father. The patient had not seen her father since she was two years old. The father went to London and she learned from her sister that he had died there of leprosy. The father had leprosy for a long time. She had two brothers who were perfectly well. When she was ten years old she noticed a spot on her leg about the size of a dime. When bathing she noticed that the spot was lighter in color than the rest of her skin. This spot soon reached the diameter of three or four inches, and this was five years ago. Four years ago other spots appeared on her leg. Since 1904 she had noticed areas of analgesia. One and a half years ago she burned herself and immediately after her finger swelled and had remained swollen. Besides the skin lesion, she was hypersensitive all over her body. The tendon reflexes were exaggerated and the plantar reflex was present. There was practically nothing else present except the spots on the skin and the hypersensitive condition of the whole of the body. Unless care was used he thought one might make a diagnosis of syringomyelia, as he did when he first saw the patient.

Two Cases of Leprosy.—Dr. E. B. Bronson presented these cases:

Case I. The patient was a Russian sailor, twenty-six years old. His family history was negative. He had no knowledge of any exposure to leprosy. As a sailor, however, he had spent time in the ports of Norway, Sweden, and Spain. Between two and three years ago he first noticed some little dark spots with elevations on the legs which slowly increased in size and number. About one year later similar spots appeared on the arms. These were slightly elevated, but after a time would become flat and leave only a dusky stain of the skin. There were no constitutional disturbances. The appetite was good and there was no loss of weight. There was some anesthesia of the legs and arms. Alopecia of the eyebrows was present.

Case II. This patient was a male, thirty-three years old, born in California. From his early childhood until he was sixteen years of age he lived in the West Indies. Neither of his parents nor any of his relatives were ever leprous. Since the age of sixteen he had lived in New York. The first symptoms of the disease were noticed about fourteen years ago in the form of discolored lesions on the legs. A few years later there appeared nodules or tubercles in and about the mouth and also on the ears. For the past six years he had been conscious of the loss of tactile sense, as well as numbness in various parts of the body. When he first entered the City Hospital in 1905, the following symptoms were noted: There were elevated nodules on the chin and ears of a pinkish yellow color and soft to the touch. The forehead was comparatively free from these, but the eyelashes and eyebrows were absent. In the roof of the mouth was a large white scar. At a subsequent examination a year or so later, well marked tubercles were found on the epiglottis, arytenoids, and vocal cords. Corneal ulcers with opacities were present, and there were signs of an old iritis in both eyes. The pupils were irregular, with posterior synechias. There was photophobia without especial pain. There was also a perforation of the nasal septum. At his admission to the hospital the legs showed numerous more or less discolored cicatrices. Beneath the left foot was a small ulcer. There were ulcerous lesions also affecting the bed of the nail in several of the toes, and also of the fingers. It was noted that the sole of the affected foot was decidedly analgesic. There was an evening rise of temperature. Since the patient had been in the hospital many of the cutaneous lesions had healed, but the perforating ulcer on the ball of the foot had persisted and had slowly increased in depth. Another ulcer had formed beneath the heel of the same foot. The analgesia or anesthesia had gradually extended. The patient occasionally complained of flashes of heat, and more especially between the ankles and the knees on the inside.

Dr. Prince A. Morrow said that where there was absolute loss of the sense of pain, and more or less disturbance of the tactile sense, one would suppose that the nerve was entirely destroyed; but in these cases the nerve was not dead, and it was quite possible with a strong electric current to cause a return of the sensation. In these cases the majority of the doctors were very much puzzled in making their diagnosis. Leprosy was exceedingly benign in its earliest manifestations. He had seen patients with colored spots about the ankles and legs persisting for five, ten, and even fifteen years, with absolutely no other signs of the disease. It was very difficult to make a diagnosis of leprosy before there were disturbances of nerve sensation. In the first patient presented pressure upon the ulnar nerve elicited no pain, and this was characteristic of the disease, that nerve would not transmit sensation. In some cases with complete analgesia of the entire foot, it was possible to pierce it with a knife or needle and the patient not feel it. In tubercular leprosy the anesthesia was only temporary. The tubercles upon the arms and legs of the patient presented by Dr. Bronson were quite characteristic.

Demonstration of the Bacillus and Lesions of Leprosy.—Dr. Charles Norris demonstrated the bacillus and lesions of leprosy under the microscope.

Photographs of Lepers.—Dr. C. N. B. Camac presented some photographs of lepers.

Leprosy in Norway.—Dr. Henry L. Shively said that leprosy in the Scandinavian Peninsula was certainly known to exist in the time of the Vikings and was probably introduced by them on their return from voyages to countries bordering on the Mediterranean, possibly from Egypt and Syria. Possibly the first allusion to leprosy in Scandinavian literature occurs in two ancient books of law, relating to statutes of Norway dating back to the eleventh century. The first mention of hospital care for lepers was contained in the will of King Haakon, which was executed in 1257. In this instrument it was decreed that the St. Catherine Hospital in Bergen should admit only lepers. This was the oldest of existing institutions for the care of lepers in the whole of Europe and was the scene of the early clinical labors of Danielssen and Boeck who, in 1840, began their pioneer studies in the first truly scientific investigation of the disease. They made a census of the leper population in 1845 which showed a total of 1,112 cases. Other institutions were soon opened. Dr. Shively gave the histories of other institutions for the care of lepers in Norway. St. Jörgens possessed great interest for the medical antiquarian, as in its present form it was said to reproduce faithfully the original buildings destroyed in the fire of 1702. The wealth of this institution to-day was estimated to be

least one and a half million kroner, or $400,000. There were now but 32 lepers in St. Jörgens Hospital. Upon the deaths of its present occupants this hospital would be discontinued as a leper hospital. A portion of the endowment fund was now being expended in the campaign against tuberculosis. Pleiestiftelsen, which was founded in 1857, was the largest of the hospitals in Norway for the care of lepers, accommodating 270, but at present containing only 92 cases. The physician in charge, Dr. H. P. Lie, welcomed the visitors from abroad every morning, and they accompanied him through the wards. The cases were in general classified as lepra tuberosa, lepra maculoanesthetica, and lepra tuberosa anesthetica. The greater number were from the peasant classes. One was struck by the number of lepers who attained advanced age. These advanced cases resembled blanched mummies with their white, atrophic, tightly drawn, parchment-like skins, as thin and as translucent as cigarette paper through which the underlying blood vessels, and even the bones, were plainly visible. Fingers and toes frequently underwent spontaneous amputation from necrosis and absorption of the small bones. Twenty-five per cent. of all the cases were blind, and ectropion was a common eye condition with loss of the brows and eyelashes. Tuberculosis was a frequent complication, and nephritis was usually present. Inhalation pneumonia, erysipelas, septicemia, laryngeal stenosis, organic heart disease, and amyloid degeneration of the viscera were the common causes of death. The liver and spleen were usually enlarged. In Norway the nodular was more than twice as frequent as the anesthetic form. Apparently so far as any real or permanent effect upon the disease was concerned, no treatment had been of much value. The difficulty in the treatment of leprosy, as pointed out by Lie, was the failure of reaction of the tissues, a factor that was also present in and made so discouraging the treatment of malignant disease otherwise than by surgery. At St. Jörgens Hospital some of the attendants had lived more than thirty years in intimate contact with lepers and no trace of the disease had appeared in them. From 1857 to 1900, according to the official statistics of Hansen, 307 lepers were known to have emigrated from Norway, and probably with few exceptions had been domiciled in the United States. It was certainly known that 180 lepers, of whom Hansen had definite records, had emigrated to this country. Of this very considerable emigration of lepers practically all had eluded the vigilance of the immigration inspectors. It would appear that the liberal immigration policy of this country had been quite as much a factor in diminishing the leper population of Norway as her measures of segregation and the notable improvement in living conditions which had taken place in that country during the last quarter century. Norwegian leprologists were all contagionists agreeing that the disease required a long and intimate exposure in order to be communicated. Leprosy might be regarded in a sense as the national disease of Norway. Hansen had predicted that the disease would be extinguished in Norway in 1920 if the present rate of decrease continued. To the attainment of this desirable condition for Norway the United States might justly feel that she had contributed in no small degree by the generous reception accorded leper immigrants from that country. The time might come when leprosaria would be established in this country and the unenviable distinction of being a center for the study of leprosy pass from Norway to the United States.

State Cure of Leprosy as It Affects the United States.—Dr. Albert S. Ashmead said that in his investigation of Scandinavian leprosy in the United States 316 lepers, known to the authorities of Norway to be lepers, had been allowed to emigrate to this country and 175,000 leper families, in each of whom one or more lepers had been found, had been shipped as emigrants to America. Many, if not most, of these families carried the latent germs. Facultative isolation was responsible for all this emigration evil of leprosy to the United States. One-half the population of Norway had been permitted to come here while Hansen was being glorified for the gradual eradication of leprosy from his country. And now, in his honor, a second conference on leprosy had been called to meet at Bergen next August. It was of supreme moment to the United States to learn whether this transference of 900,000 Scandinavians to this country had not been the main factor by which Hansen had almost completely conquered the Norwegian evil. Hansen had said, "In 1920 there will be no more lepers in my country." He also had said, "If you seek my monument, look about you." By that time all his lepers would be dead and the suspicious ones transported to the United States. The people of this country, therefore, must study two questions pertaining to leprosy, the contagiousness of the disease and its epidemiology. Leprologists believed, first, that the disease respected neither sex, age, nor social condition, and most naturally affected those individuals of any race who were of delicate organization, or debilitated by wretchedness, privations, excesses, or previous disease; second, that leprosy spread itself in all latitudes and that New York could be no exception to the contagion, no matter what the eminent advisers of the Board of Health foolishly claimed to the contrary, and no matter how prominent and distinguished those dermatologists were in their own specialty, they were not epidemiologists. Leprosy was a science in itself. The one thing that conduced most to the prevalent error about leprosy was that the duration of the latent period was totally undetermined. Leprologists believed that the disease was naturally infectious, either by direct or indirect methods of contact. The theory of heredity had been rejected. The contagiousness of leprosy was greater or less, in accordance with the form by which the disease revealed itself, and the period of its unfolding. The mutilating form was most virulently contagious. There were but three methods known to science to free a country of epidemic leprosy: (1) Destruction of all lepers by death, or their outcasting absolutely from families; (2) obligatory segregation, *i.e.* taking the lepers away from their families; (3) deportation of all lepers. The present situation of matters in this country was as follows: The number of lepers in the United States, of all nationalities, was far in excess of the number, 278, reported by the Marine Hospital Congressional Investigation Committee. Dr. Ashmead estimated the whole number to be really about 3,000. Of this number 400 were Scandinavians. It had been estimated that there were at least 300 Chinese lepers in the United States, most of them employed in washing the linen of Americans and so hidden in the laundries. There had been introduced into Congress four leper bills. The Platt-Wanger Leper Bill provided for a National Leprosarium, to be in the center of Yellowstone Park, 29 miles from the circumference, a site of perfect isolation. The bill was killed in committee. Congress having failed to help the situation, Dr. Ashmead had made an appeal for funds to establish a philanthropic National Leper Asylum, and had suggested that the Adirondacks be selected as its site.

Dr. John A. Fordyce said it had been his pleasure, while traveling through Norway in 1905, to visit the Leper Hospital in Bergen, and through the kindness of Dr. H. P. Lie, who was the medical director of the hospital, to inspect the building and see the patients. At that time Dr. Lie said there were in all Norway about 350 lepers, and that the number of cases was diminishing while tuberculosis was increasing. This was not altogether attributed to segregation, for the patients were permitted to remain at home if quarantine could be enforced there.

but, owing to the poverty of the people, this was more or less imperfect. The manner in which infection took place was no nearer solution here than in other leprous districts, as no initial lesion had been demonstrated and the incubation period was such a long one. In all countries where leprosy was endemic there was much negative evidence on the subject of the infectiousness of the malady, but in the face of occasional positive evidence this negative evidence was not of much value in controverting the theory of infectiousness. In his histological studies, Dr. Lie demonstrated that in the macular lesions of the anæsthetic type the bacilli were first present in the finer cutaneous nerves and then invaded the larger nerve trunks, the organisms rapidly disappearing from the skin lesions. While a secondary implication of the nerves was possible, an ascending neuritis was the usual course of the infection. Dr. Fordyce said cases demonstrating the long duration of the disease were shown him, among them a woman of 74 who had been afflicted for thirty-nine years. The characteristic yellowish conjunctival discoloration of early eye leprosy and other ocular lesions were exhibited, as well as nasal lesions very like lupus vulgaris and serpiginous lesions which simulated syphilis. He also saw an unusual case of unilateral cyanosis and edema of the hand. This condition usually affected both hands, and had been noted by Dr. Fordyce in patients under his observation at the City Hospital. He thought it was probably an angioneurotic condition as a result of the neuritis. In Dr. Fordyce's opinion the diminution in the number of cases of leprosy in Norway was due to the improved hygienic conditions of the people. In speaking of the spontaneous cure of anesthetic leprosy, he said this was not unusual, but as a rule took place after there had been marked trophic and other changes. Mild cases of the anesthetic type had been reported which did not progress beyond a perceptible neuritis and macular lesions in the skin. Abraham had seen such cases from India in which spontaneous cure took place and the patients remained well. This fortunate termination was seldom encountered in the tubercular or nodular variety. At the Sixth International Dermatological Congress Dr. Campana of Rome made an interesting observation regarding the contagiousness of leprosy. He stated that as the bacilli were more easily demonstrable in the initial period of tubercular leprosy than in the advanced stages or during the period of resolution, the disease after it became well-defined ceased to be contagious, the contagion being present only during the developmental stage. This observation, while worthy of attention, was not accepted by leprologists in general. At the City Hospital, where there were always one or more cases of leprosy, Dr. Fordyce said no attempt was made to isolate them and only the usual precautions in connection with the transmission of venereal diseases were taken. No case of contagion had been observed. Owing to the close similarity between the various forms of infectious granulomata it was not surprising that occasional mistakes in diagnosis occurred. Dr. Fordyce showed the photograph of a case in which, on account of the general appearance and distribution of the lesions, a diagnosis of idiopathic multiple hemorrhagic sarcoma had been made. Some of the tissue stained for lepra bacilli, however, demonstrated the organisms in enormous numbers. Confusion might also arise on account of its resemblance to syphilitic lesions, and Dr. Fordyce cited a case from his experience in a South American with a generalized brownish-red eruption. He gave a history of syphilis and an eruption which had disappeared under mixed treatment. The following year he had another generalized eruption for which he was admitted to the hospital. The lesions were described as elevated, hard, and hypersensitive, and as they disappeared under injections of mercury his physician was convinced of their syphilitic nature. When seen by Dr. Fordyce, in addition to the brownish-red eruption the patient exhibited a thickening and sensibility of both ulnar nerves and atrophy of the muscles of the ball of the left thumb. The diagnosis was confirmed by the presence of bacilli in the tissues. White and Richardson of Boston recently reported a case in which a mistaken diagnosis of syphilis was made by some of the most eminent dermatologists who were then visiting the International Dermatological Congress. The patient was a young woman of nineteen years from the Province of Courland. Although a microscopical examination demonstrated the bacilli in the tissues, no one, owing to the unusual clinical features of the case, was willing to accept the diagnosis of leprosy. The influence of intramuscular injections of mercury on the involution of lepromata Dr. Fordyce said had been noted by Crocker and others. Eye lesions were seen in most of the cases at the City Hospital, sometimes as sharply defined nodes at the scleroconjunctival junction followed by complete destruction of the organ. A panophthalmitis was observed a few years ago in a negro from Central America, in whom few other lesions were present aside from destruction of the eye. Dr. Fordyce showed a number of photographs of cases of leprosy which had been under his care, and also photographs sent to him by Dr. Echevarria of Costa Rica and Dr. Alderson of San Francisco, illustrating the nodular and maculoanesthetic types of the disease.

Dr. Prince A. Morrow said that in his opinion there could be no possible question of the contagiousness of leprosy, although it was undoubtedly modified by climatic and other conditions, such as unhygienic surroundings and modes of living. For example, the facts of its development and spread in the Hawaiian Islands furnished conclusive proofs of its marked contagiousness, whereas in the United States observation showed that its contagious activity was materially modified. It was very difficult to speak positively regarding the communication of this disease from one individual to another when the incubation was so prolonged, extending, as it often did, over a period of many years. In the leper settlement of Molokai there had been repeated cases of women who washed the clothes of lepers and remained exempt from any manifestations of the disease for ten, fifteen, or even twenty years, and yet later developed undoubted evidences of leprosy. He might refer to the case of the successor of Father Damien at Molokai who had always lived in the United States and had never been exposed to the contagion until he came to the Leper Settlement, yet when Dr. Morrow examined him three or four years later he discovered unmistakable signs of leprosy. At that time there were no manifestations upon the skin, only implication of the ulnar and other nerves, but other confirmatory evidences were soon presented. For twenty years or more this gentleman has led an active life and accomplished an enormous amount of work, without serious crippling from his disease. In this connection Dr. Morrow would say that there was no other constitutional disease so severe in its later manifestations and so progressively fatal in character which granted its victims so long a lease of active and useful life as anesthetic leprosy. Of interest in relation to the contagiousness of leprosy was the source of the contagion and the port of entry of the bacilli into the system. Dr. Morrow thought that its communicative mode was like that of tuberculosis—that the bacilli gained entrance into the organism through the air passages in the immense majority of cases. While he did not deny that leprosy might be exceptionally conveyed by mosquitos or other insects directly through the integument, there had been furnished no positive evidence of it. His theory of the entry of the germs via the nasal passages, announced nearly twenty years ago, was based upon the observed clinical fact that

changes in the mucous surfaces of the upper air passages were among the most common, and certainly the most precocious symptoms of leprosy. This theory has been confirmed by the bacteriological demonstration of leprous bacilli in the nasal passages in the large proportion of lepers, even before there were active manifestations of the disease elsewhere. When Dr. Morrow visited the Molokai settlement in 1889 he was much interested in the investigation of certain moot points about leprosy—such, for example, as the mode of invasion of the bacilli, the arrest of development of the disease, its spontaneous cure, and the effects of treatment upon the limitation or cure of the disease. He asked the gentlemen in charge of the settlement to make observations upon these points, and his report showed that while the native Hawaiian is not subject to catarrh, every leper has nasal catarrh, that two-thirds of them or more have ulceration or perforation of the septum, that cases of arrest of the disease, continuing for years, are not uncommon, that either with or without treatment there are not a few cases which appear to be cured. Dr. Morrow reported a case of anesthetic leprosy under his care for five years in which the disease had been completely cured, and had remained absolutely free from any and all manifestations for ten years past. He thought that one could not too strongly exphasize the fact of the curability of leprosy. He did not share the views of Dr. Ashmead in his apprehension of an epidemic of leprosy in this country. At any rate, an effective quarantine could not be fully established in this country without the cooperation of other governments. He had seen and had examined over 200 lepers in this city; most of these were the advanced cases. Very little could be done in the exclusion of leprosy from this country by quarantine except through international cooperation.

Dr. Henry W. Berg said that years ago, at the Riverside Hospital, the use of injections of the mixed toxins of the bacillus prodigiosus and that of erysipelas in these cases of leprosy had been tried, but without successful results. It was tried in three cases, and although a marked reaction followed in each case, the disease seemed to progress more rapidly than before. An attempt had been made to found a leprosarium in this city at that time, but the colony had to be abandoned for various reasons.

GENITOURINARY SECTION.

Stated Meeting, January 20, 1909

Dr. Martin W. Ware, Chairman

Nephrectomy for Calculous Pyelonephritis.—Presented by Dr. Charles Goodman. The patient was a boy, nineteen years old, who was referred to the speaker on July 19, 1908, by Dr. M. Rosenthal, with a history of occasional slight pain in the lumbar region. Ten days prior to his admission to the Sydenham Hospital he began to suffer acute pain in the left side; he became prostrated and his bowels could not be moved for about five days. There was no difficulty in micturition, but he had noted at times that his urine was very turbid. There was no venereal history. The blood showed a leucocyte count of 15,400; polynuclears, 79 per cent. The urine contained large quantities of pus. In the left lumbar region, and extending into the abdomen, was a large, semifluctuating mass; this was readily palpated, and seemed to occupy almost the entire abdominal cavity on that side. A radiograph was taken, which proved unsatisfactory. The cystoscope showed comparatively clear fluid coming from the right ureter, while that from the left contained thick, stringy masses of purulent material. On July 20, 1908, Dr. Goodman exposed the left kidney through a lumbar oblique incision, and after incising the upper pole and evacuating a large quantity of fetid purulent urine, he removed a marble-shaped calculus. The lower pole was similarly incised, and a second round calculus removed from a large abscess cavity. The combined quantities of material evacuated from the two cavities measured at least three pints. The kidney seemed almost entirely disintegrated and the indications for its removal were imperative, but on account of the poor condition of the patient, nephrectomy was not done until three weeks later. During the first twenty-four hours after the operation the patient passed twelve ounces of urine; at the end of ten days the quantity had increased to forty ounces. Pathologically, the removed kidney showed a suppurative pyelonephritis, nephrolithiasis being the inciting cause.

Foreign Body Calculus from a Female Bladder.—Dr. Goodman showed the specimen in this case, which was removed from the bladder of a middle-aged widow last November through a suprapubic opening. She had been treated for some time for supposed kidney trouble before consulting Dr. R. Kunitzer, who recognized that there was a foreign body in the bladder. This was confirmed with the Thompson searcher and the cystoscope. On November 30, 1908, the bladder was opened by Dr. Goodman, who did a suprapubic cystotomy, and removed a fragment of a bougie, covered by phosphatic deposits and tipped with an olive-shaped calculus. The bladder, which was completely closed, was drained through the urethra for three days. The patient was out of bed on the sixth day with her wound practically healed, and entirely relieved of the frequency and tenesmus from which she had suffered before the operation. She confessed that eight months prior to that time the bougie had been inserted by a midwife.

Hematuria Following Nephrectomy for Tuberculosis.—Dr. F. Tilden Brown reported two cases. Both of these patients were young people in whom hematuria of a moderate grade developed after the removal of a tuberculous kidney; in one on the sixth day after the operation; in the other, on the tenth day. Dr. Brown said that while he was not able to state positively where the blood originated, he thought it fair to presume that an ulcerative lesion at the mouth of the corresponding ureter was its most probable site, but why such a lesion should take on this form of activity while the patient was at rest in bed, and why it should occur after a nephrectomy in cases where there was no previous history of bleeding, was peculiar. Another theory was that the hemorrhage came from the opposite kidney, either as the result of hyperemia from the extra work thrown upon it, or the possible presence of a tuberculous focus which had hitherto remained dormant, because up to the time of the nephrectomy the urine from the kidney on the opposite side, obtained by ureteral catheterization, had been absolutely free from any abnormal elements. Dr. Brown then gave in detail the history of his two cases.

Dr. Martin W. Ware reported four cases. All of these patients had been shown at previous meetings of the section. One of the cases was that of a girl of fourteen, who gave a protracted history of tuberculosis of one kidney. At the time of the removal of the organ its ureter was found to be much diseased. This delayed her recovery, and a few months after the nephrectomy she developed persistent hematuria. The bladder was opened, revealing an ulceration close to the mouth of the ureter. This was cauterized, and as a result of this the hematuria ceased and the wound in the bladder finally closed. In the second case reported, the hematuria was one of the earliest symptoms of the tuberculosis of the kidney, and it recurred six months after the removal of the affected organ. In the third case the bleeding occurred after the nephrectomy, and a cystoscopic examination showed a large number of engorged blood vessels in the bladder. The fourth case

reported was that of a man, who, after the removal of his tuberculous kidney, had repeated attacks of hematuria. He subsequently developed tuberculosis of the epididymis, with marked induration of the seminal vesicle and cord on the same side, and it was not at all unlikely in this case, Dr. Ware said, that some of the bleeding came from that source.

Dr. H. Goldenberg said that while he had no explanation to offer for the hematuria in the cases reported by Drs. Brown and Ware, it struck him that there was a difference between the two types of cases. In the cases reported by Dr. Brown, the bleeding came on shortly after the operation, while in one of the cases reported by Dr. Ware it came on about one year after the operation, and the cystoscope showed engorgement of the blood-vessels in the bladder. In that case the hemorrhage was possibly due to the rupture of one of these varicosities. The urethra was another possible source of hemorrhage in some of these cases.

Dr. Frederic Bierhoff said that hematuria of renal origin might precede by a number of years the appearance of tubercle bacilli or even pus in the urine, and in at least some of the cases recorded by Drs. Brown and Ware the hemorrhage may have come from an early tuberculous process in the second kidney. The bleeding in these cases was usually the result of the rupture of a small artery or capillary, the walls of which had become eroded by the tuberculous process, and this was the more likely to occur in a kidney, perhaps only slightly diseased, that was suddenly called upon to do double duty.

Excision of a Large Prostate Seven Years After Bottini's Operation.—By Dr. Charles A. Elsberg. The patient was a man of seventy-four, who gave the usual prostatic history and upon whom a Bottini operation had been done seven years before. The prostate was found to be very much enlarged, and the patient's chief symptoms were painful micturition and hematuria. The operation was done in two stages. First, the bladder was opened under cocaine and drained for six days; then the prostatectomy was completed through the suprapubic opening. The removal of the prostate was made somewhat more difficult by the previous Bottini operation. The prostate showed clearly a layer of fibrous tissue on the median side of each lateral lobe where the Bottini cauterization had been done.

Dr. Ware referred to a case in which the prostate was enlarged to such a degree, notwithstanding a Bottini operation seven years ago, that it formed an obstruction in the rectum. In spite of that fact, the patient was able, with some difficulty, to void his urine.

Dr. Benjamin S. Barringer, discussing Dr. Elsberg's case, emphasized the fact that the Bottini operation was not an operation for enlarged prostate, and that it should be limited to special cases of contracted bladder neck, without any enlargement of the prostate. Cases of that type were certainly benefited by the Chetwood modification of Bottini's method.

Dr. Ware said that in one of his cases of hematuria following nephrectomy for renal tuberculosis, with the subsequent development of an acute epididymitis, the patient gave a history of having been mistakenly operated upon for enlarged prostate by the Chetwood galvanocautery method.

A New Catheterizing Cystoscope for Exceptional Bladder Conditions.—Dr. F. Tilden Brown showed this instrument. It was fitted with an indirect vision lens, and the lamp was placed towards the heel of the instrument instead of near the tip, so that the lamp and lens were on the same plane. The instrument was intended for use in certain cases of difficulty due to exceptional bladder conditions and also in certain other cases of prostatic hypertrophy

Philadelphia Neurological Society

At a stated meeting held February 26 Dr. S. D. Ludlum presented a communication entitled "Cardiac Crises in Tabes," and he showed a patient suffering from tabes who complained from time to time of attacks of precordial oppression and pain, with palpitation and rapid action of the heart. The condition is by some considered a vago accessory disorder, but Dr. Ludlum suggested that it may arise from disturbance of the sympathetic nervous system, fibers of which enter the spinal cord in the posterior nerve-roots and make their exit in the anterior roots. Dr. John H. W. Rhein demonstrated "A Possible Case of Landry's Palsy, Presented for Diagnosis." The patient was a barber, who was seized rather abruptly with loss of power in one and then in the other lower extremity, and finally in one upper extremity, with slight tenderness in the calves of the legs, and at first quantitative and later qualitative changes in the electric reactions of the affected muscles, but with increase in the knee-jerks and escape of the sphincters. Improvement set in under treatment. The case was thought to be one of Landry's paralysis, especially on account of the ascending character of the palsy and the absence of pronounced sensory phenomena. In the discussion the opinion was expressed that the case was more probably one of motor peripheral neuritis. Dr Theodore H. Weisenburg presented "A Case of Cerebellar Meningocele." The patient was a child two years old with a characteristic cerebellar gait and with a soft fluctuating mass in the suboccipital region, and pressure on which induced symptoms of intracranial compression. The swelling had been present from birth, which had occurred without abnormality or complication, and the child had learned to walk at an early period, and its intelligence was well developed. The eyegrounds were normal and there was no other motor disturbance. Dr. F. X. Dercum presented "A Case of Poliomyelitis in an Adult Following a Wound in the Hand." The patient was a man, forty-two years old, who, following an infected wound of the right hand, developed weakness and wasting, and fibrillary twitching in the muscles of the upper extremity on the same side, and subsequently on the opposite side also, and likewise of the shoulder girdle. The possibility of the condition having been a peripheral neuritis with extension to the spinal cord was suggested. Dr. Dercum also presented a man whose parents had been deafmutes and who himself had worked in lead, and who presented weakness and wasting in both extremities more pronounced on the left side, and in this likewise a diagnosis of chronic anterior poliomyelitis of the adult was proposed. Dr. S. Weir Mitchell presented a communication entitled "Chorea of Emotion." He detailed the case of a man, forty-five years old, who had exercised his memory considerably and who had been subjected to certain annoyance in the course of his business. From this time on the patient had exhibited marked tremulousness in writing and in performing other motor acts when under observation, or when agitated from any cause. Dr. Mitchell viewed the disorder as a sort of exaggeration of the perturbation manifested by many persons under similar conditions, as when taken by surprise or in undertaking things in the performance of which they feel some uncertainty or incompetency. Dr. Paul H. Bickle read a paper entitled "The Relation of Tabes and Aortic Aneurysm." He reported two cases in which this combination of disorders existed, and he discussed the question as to whether both were the accidental sequels of the same cause, especially syphilis, or whether a more intimate association existed between them. Dr. George F. Price reported "A Case of Meralgia Paraesthetica Recurring with Repeated Pregnancies," and he exhibited "A Case of Myopathy of Unusual Distribution." The latter occurred in a girl about eighteen years old, who presented

atrophy of the muscles of the shoulder girdle, without fibrillary contraction or reactions of degeneration or sensory changes, and a winged position of the scapulæ, more marked on one side. Dr. M. D. Bloomfield reported "A Case of Tuberculoma of the Brain; Diagnosis; Operation; Recovery." The patient was a Russian about thirty-four years old, who had often sustained slight injury of the head and suffered from frequent convulsive seizures, beginning in the right hand and becoming general, with signs of tuberculosis of the lungs and demonstration of tubercle bacilli in the circulating blood. A diagnosis of tuberculoma in the left motor area was made. An osteoplastic flap was resected on the left side of the head, the dura incised, and an infiltrating mass demonstrated in the upper portion of the left ascending frontal convolution. The new growth was in part removed and the wound closed. There was some loss of power in the right upper extremity following the operation, but this gradually improved, and there was no recurrence of the attacks for several months.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

The Arteries of the Gastro-Intestinal Tract with Inosculation Circle. By Byron Robinson, B.S., M.D., Chicago, Ill. 4to, 222 pages; cloth; illustrated; $1.50. Chicago Medical Book Co., Chicago, Ill.

Mental Deficiency (Amentia). By A. F. Tredgold, L.R.C.P.,Lond., M.R.C.S.,Eng. 8vo, 391 pages; cloth; illustrated; $4.00. William Wood & Co., New York.

A Manual of Natural Therapy. By Thomas D. Luke, M.D., F.R.C.S. (Edin.). 8vo, 303 pages; cloth; illustrated; $2.50. William Wood & Co., New York.

Cataract Extraction. By H. Herbert, F.R.C.S. 8vo, 391 pages; cloth; illustrated; $3.75. William Wood & Co., New York.

Synopsis of Surgery. By Ernest W. Hey Groves, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.). 12mo, 486 pages; cloth; $2.50. William Wood & Co., New York.

Common Affections of the Liver. By W. Hale White, M.D., F.R.C.P. 12mo, 302 pages; cloth; $2.00. William Wood & Co., New York.

The Bacteriology of the Eye. By Dr. Theodor Axenfeld. Translated by Angus Macnab, B.A., B.Sc., M.B., Ch.B., F.R.C.S. 8vo, 402 pages; cloth; illustrated; $6.00. William Wood & Co., New York.

The Ophthalmic and Cutaneous Diagnosis of Tuberculosis. The Cutaneous and Conjunctival Tuberculosis Reactions, according to v Pirquet and Wolff-Eisner, together with a Discussion of the Clinical Methods for the Early Diagnosis of Pulmonary Tuberculosis. By Dr. Alfred Wolff-Eisner. 8vo, 207 pages; cloth; illustrated; $2.75. William Wood & Co., New York.

Tuberculosis in Infancy and Childhood, Its Pathology, Prevention and Treatment. By various writers. Edited by T. N. Kelynack, M.D. 8vo, 376 pages; cloth; illustrated; $4.00. William Wood & Co.

The Medical Record Visiting List for 1909. 18mo; leather; $1.50. William Wood & Co., New York.

Keen's Surgery. By W. W. Keen, M.D., LL.D. 8vo, 1,194 pages; illustrated; cloth, $7.00; half morocco, $8.00. W. B. Saunders Co., Philadelphia, Pa.

Surgical Memoirs. James G. Mumford, M.D. 8vo, 358 pages; illustrated; cloth. Moffat, Yard & Co., New York City.

Taber's Pocket Encyclopedic Medical Dictionary. Physicians' Edition. By Clarence W. Taber. 16mo, 418 pages; leather, $1.50. Laird & Lee, Chicago, Ill.

Bellevue and Allied Hospitals, City of New York, 6th Annual Report. 8vo, 416 pages; paper; illustrated. Martin B. Brown Press, New York.

Dictionary of Treatment. By Arthur Lathman, M.A., M.D.,Onan., M.A.,Cantab., F.R.C.P.,Lond. 12mo, 325 pages; cloth; $2.00. P. Blakiston's Son & Co., Philadelphia, Pa.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending March 13, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	485	188
Diphtheria	357	46
Measles	829	22
Scarlet Fever	438	46
Smallpox	1	—
Varicella	246	—
Typhoid Fever	30	6
Whooping Cough	83	6
Cerebrospinal Meningitis	11	9
Malarial Fever	—	—
Totals	2480	323

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending March 12, 1909:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, Los Angeles	Feb. 13–20	2	..
San Francisco	Feb. 13–20	2	..
Illinois, Cairo	Feb. 13–27	9	..
Danville	Feb. 20–28	3	..
Galesburg	Feb. 20–27	1	..
Jacksonville	Feb. 4–11	1	..
Waukegon	Feb. 2–20	3	..
Indiana, Indianapolis	Feb. 21–28	1	..
Lafayette	Feb. 22–Mar. 1	1	..
Kansas, Kansas City	Feb. 20–27	5	..
Kentucky, Lexington	Feb. 20–27	8	..
Paducah	Feb. 20–27	9	..
Louisiana, New Orleans	Feb. 20–27	1	..
Massachusetts, New Bedford	Feb. 20–27	1	..
Missouri, Kansas City	Feb. 20–27	1	..
St Louis	Feb. 20–27	4	..
New Jersey, Camden	Feb. 20–27	1	..
New Hampshire, Lebanon	Jan 15–Feb. 23.	2	..
New York, Buffalo	Feb. 13–20	1	..
North Carolina, 7 Counties	Jan. 1–31	47	..
Ohio, Cincinnati	Feb. 19–26	13	..
Tennessee, Knoxville	Feb. 20–27	1	..
Nashville	Feb. 20–27	11	..
Texas, San Antonio	Feb. 6–27	9	..
Washington, Spokane	Feb. 13–20	1	..
Wisconsin, La Crosse	Feb. 20–27	2	..
Manitowoc	Feb. 20–27	6	..
Milwaukee	Feb. 13–27	18	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Jan. 9–16	1	1
SMALLPOX—FOREIGN.			
Arabia, Aden	Jan. 18–Feb. 1	..	14
British Honduras, Stann Creek	To Feb. 25	3	1
Canada, Winnipeg	Feb 13–20	1	..
Chile, Valparaiso	Dec. 12–19	1	..
Egypt, Alexandria	Jan. 7–14	..	2
Cairo	Jan. 21–28	72	26
France, Paris	Jan. 30–Feb. 6	3	..
Great Britain, Bristol	Feb. 6–13	..	1
India, Bombay	Jan. 27–Feb. 2	..	19
Madras	Jan. 23–29	2	..
Rangoon	Jan. 16–23	2	..
Italy, general	Feb. 7–14	7	1
Naples	Feb. 7–14	7	..
Java, Batavia	Jan. 9–16	3	..
Mexico, Acapulco	Jan. 23–31	2	..
Guadalaiara	Feb. 11–18	..	1
Monterey	Feb. 14–21	..	2
Newfoundland, St. John's	Feb. 6–13	1 from vessel	
Portugal, Lisbon	Jan. 20–Feb. 13.	5	..
Russia, Odessa	Jan. 30–Feb. 6	1	..
St. Petersburg	Jan. 23–30	10	2
Warsaw	Dec. 19–Jan. 2	13	13
YELLOW FEVER.			
Barbados	Feb. 15–16	9	..
Brazil, Manaos	Jan. 23–30	..	2
Para	Jan. 30–Feb. 6	3	..
Ecuador, Guayaquil	Jan. 30–Feb. 6	..	7
CHOLERA—INSULAR.			
Philippine Islands, Provinces	Jan. 9–16	245	159
CHOLERA—FOREIGN.			
India, Bombay	Jan. 27–Feb. 2	..	1
Rangoon	Jan. 16–23	..	3
Russia, Jareslav	Feb. 18	2	..
Rubinsk	Feb. 18	22	8
St. Petersburg	Feb. 10–16	142	43
Straits Settlements, Singapore	Jan. 9–23	..	16
PLAGUE.			
Brazil, Para	Jan. 30–Feb. 6	1	1
Ecuador, Guayaquil	To Jan. 28	26	..
	Jan. 30–Feb. 6	..	3
Tolte	Dec., 1908–Jan. 28	..	20
Egypt, general	Jan. 1–Feb. 4	8	5
India, Bombay	Jan. 27–Feb. 2	..	27
Rangoon	Jan. 16–23	..	10
Indo-China, Saigon	Feb. 9–16	2	2
Turkey, Jiddah	Jan. 30–Feb. 7	18	17

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Original Articles.

REPORTS OF 300 CASES TREATED WITH A CULTURE OF LACTIC ACID BACTERIA.

BY CHARLES E. NORTH, M.D.,

NEW YORK.

IN a former paper[1] I outlined in general the antagonisms which exist between different forms of bacteria, and particularly between lactic acid bacteria and some of the putrefactive and pathogenic species. I at that time suggested that the theory of Metchnikoff regarding the use of lactic acid bacteria in the intestines[2] as therapeutic agents might be extended to other parts of the body which could be reached by sprays or injections of such cultures. I argued that if lactic acid bacteria were able to antagonize certain species of bacteria which irritated the intestine, they might have the same action wherever they were brought in contact with such bacteria in other body cavities. I suggested the use of cultures of lactic acid bacteria in nose and throat inflammations and as an injection for other body cavities discharging pus.

Following my suggestion, one physician after another became interested in the application of the treatment, until a large group of specialists were engaged in the study and in furnishing me with reports of their results.

Only one species of bacteria and one culture medium has been used in this study. This culture of living bacteria has been used as the agent in the treatment of the cases. Forty physicians have coöperated in the research and over 300 cases have been reported. These include inflammations of the nose, throat, ear, eye, mouth and gums, bones and joints; genitourinary cases, bowel inflammations and surgical cases, including wounds, abscesses, and other inflammations.

History.—There are many interesting facts to be cited regarding the rôle played by lactic acid bacteria in natural economy. There are also many theoretical considerations which have been suggested in the course of our study. I must, however, reserve any discussion of these for another paper and confine myself for the present to the facts connected with this research.

In this country Conn was the pioneer among bacteriologists in the study of the bacteria of milk, and in particular of the lactic acid bacteria found in milk. My studies of these bacteria were begun with Conn in the year 1900. Subsequently I continued these for four years in my own laboratory connected with the production of certified milk, in which business I was for some time engaged. In 1905-6 I made for several months a special study of lactic acid bacteria in the bacteriological laboratory of the College of Physicians and Surgeons, New York, under the direction of Professor Hiss. In this I attempted a classification of these bacteria by means of cultivations in a large variety of sugar media. While this work was never completed, I may say in passing that enough was done to show that a true classification can probably be made through the use of such media. At that time a number of species were isolated and preserved by me because of their special virtue as ferments in producing pleasant tasting sour milk beverages. Later I carried on studies of the various sour milk preparations on the market

I have collected at some pains a complete bibliography of the literature on the subject of lactic acid bacteria and sour milk. This shows the growing use of milk cultures, first in France, later in Germany, America, and other countries, in the treatment of putrefactions of the contents of the intestine. Successful results are reported from the treatment both in adults and in infants and children. Several species of bacteria are recommended by the investigators as ferments for making sour milk beverages intended for use in the treatment of intestinal infections.

Nowhere in the literature, however, have I been able to find any suggestion for the use of milk cultures or other cultures of these bacteria in the treatment of disorders of the nose and throat, or of body cavities other than the intestine. In 1908 my attention was drawn to the putrefactive condition of the nose in atrophic rhinitis. It then occurred to me that sour milk might be injected into the nose to relieve this condition. But the heavy curd in the milk was an objection to its use in this locality. A liquid culture medium free from such curds would obviously be of great advantage. The selection of the proper species of bacteria and of a suitable culture medium was done in connection with studies of these matters which I was conducting at that time.

The Species Selected.—I secured pure cultures of bacteria from a number of buttermilks sold by large milk companies in the city, from all of the preparations of sour milk sold in the drug stores and also from a number of powder and tablet cultures of lactic acid bacteria. Among the rest I obtained a culture of a bacillus from Dr. William H Park, of the Research Laboratories of the New York City Department of Health, which he had obtained from Dr. C. A. Herter, who had in turn received it directly from Professor Metchnikoff. This bacillus I was told was called by Metchnikoff *Bacillus bulgaris*, and was first described by Massol,[3] who obtained it from a Bulgarian Yohourth, the national sour milk beverage of Bulgaria. This bacillus produced a higher degree of acidity in milk than any of the other species, and inferring that lactic acid was one of the chief causes of the inhibitory action of lactic bacteria upon other species, I decided to use this bacillus of Massol for the experimental treatment of atrophic rhinitis. It is this bacillus which has been used throughout the research herein re-

ported. Under the microscope it appears as a slender rod. The rods vary greatly in length. At times they extend like an unbroken thread entirely across the field. At other times they appear broken into short lengths. Several sizes commonly appear in the same field. The bacillus is not motile. It takes the gram stain, grows well in milk, grows with some difficulty in broth media, and grows with still greater difficulty in solid media. The best temperature for its growth is 45° C. In some media it appears to form spores; in other media these are absent.

The Culture Medium.—In the study of the methods of cultivating these bacteria it is a pleasure to acknowledge the work of my former assistant, Dr. C. Z. Garside. To him I delegated the task of finding a favorable culture medium. The first medium tried was fresh milk whey. This was obtained in the usual manner by the use of rennet, and the fresh whey, freed from curd, furnished a clear fluid in which it was hoped the bacteria could be developed; but after several attempts this was abandoned as unsuccessful. Lactose broth was tried, with only occasional success. Dextrose broth proved to be more reliable, but even this resulted in frequent failures. Finally, Dr. Garside suggested the use of calcium carbonate in the broth in imitation of the calcium in the curd of milk, believing that because the bacillus always grew rapidly in milk there might be something in the calcium which would encourage its growth in the dextrose broth. This proved to be a most valuable suggestion, for these bacteria developed abundantly in the medium and no trouble was thereafter experienced in securing constant broth cultures at any time.

The use of calcium carbonate in liquid culture media containing sugar dates from the time of Pasteur. Hiss was the first to recommend the use of calcium carbonate in sugar broth as a means of obtaining abundant growth of bacteria, which usually develop feebly in such media. He described in his paper[4] a method for obtaining mass cultures of pneumococcus and streptococcus by the addition of one per cent. of calcium carbonate to ordinary beef bouillon. He based his suggestion on the fact that these bacteria produce lactic acid from the sugar in the medium. The increase of lactic acid in time checks their growth. Calcium carbonate neutralized the acid as it was formed, and consequently diminished to a great extent the accumulation of acid in the media, thus leaving the bacteria free from its unfavorable influence. It was, therefore, undoubtedly this same action of the calcium carbonate in our dextrose broth medium that neutralized the lactic acid as it was formed, and that enabled us to obtain such abundant growths. We used ordinary marble cracked into pieces about one inch in diameter, abundantly spread on the bottom of large flasks, holding one or two liters each of the dextrose broth. These pieces of marble were sterilized with the medium. The formula for making the medium which has proved most effective is as follows: To make one liter, take fresh extract from one pound of lean beef or veal chopped fine, extracted with one liter of water. Dried Witte's peptone, 20 grams; sodium chloride, 5 grams; dextrose, from 10 grams to 40 grams. Make up into broth in the usual way. The reaction is adjusted to the neutral point, using phenolphthalein as an indicator. As stated above, calcium carbonate in lumps is sterilized with the medium.

Cultivation.—A convenient method of keeping the bacteria alive and in a vigorous condition is to make inoculations at intervals of three or four days into tubes of milk which has been properly sterilized. Starting with this milk culture, transfers can be made to large tubes of the dextrose broth medium described above, and from these in turn transfers in larger quantities can be made to flasks of dextrose broth medium. In both cases the dextrose broth should contain calcium carbonate as described. The broth after inoculation should be placed in an incubator having a temperature of 37° to 45° C. In about 18 hours the culture will be abundantly developed. It can then be poured into smaller receptacles as required. The bacteria form a dense cloud in the broth, which when shaken shows streaks and threads, suggesting a thick, oily mucoid substance. These bacteria form an abundance of sticky, ropy material resembling mucus. For several days after the first cultivation the bacteria continue to multiply and the cloudy appearance remains. At the end of that time they settle toward the bottom of the vessel and the fluid becomes clear. Acidity of the medium increases to some extent during this time. At the end of the period of incubation, owing to the presence of calcium carbonate, the acidity does not usually extend beyond 1.2 per cent. If kept at a favorable temperature and free from the presence of calcium carbonate the acidity will increase up to 3 per cent., provided sufficient sugar is present. If the culture is kept in a refrigerator the development of acidity is prevented.

Method of Administration.—The broth culture thus prepared is used in its full strength without dilution. The inflamed surfaces to which it is to be applied may first be cleansed with warm saline solution to remove any heavy mucus, pus, or other matter which may interfere with the culture reaching the inflamed tissue itself. Theoretically the object sought is to bring the culture of lactic acid bacteria into direct contact with the bacteria which are causing inflammation of the membrane. Thus, in the nose and throat a preliminary cleansing is often of advantage, for otherwise the culture might be administered without actually reaching more than a small portion of the inflamed areas. Antiseptics should not be used in connection with this treatment. A syringe or spray apparatus is used to inject the culture fluid into the cavity and direct the stream upon the tissue surfaces. Proper precautions should be exercised to prevent contamination of the culture when removing it from its original container and in the syringe. The dose varies according to the extent of the inflammation. For the nostrils from one to five cubic centimeters is usually injected into each nostril. As a gargle in the throat or as an injection into the intestine much more is used at one time. In fact, since it may be drunk by the glass with no harmful effects so far as discovered, there is probably no danger in using large doses. I have injected five cubic centimeters into the peritoneal cavity of guinea-pigs without any effect upon the animals. The cultures have been handed to most of the physicians using them when not more than twenty-four hours old. It takes about three or four days for the bacteria to settle to the bottom of the medium. If the virtue of the preparation depends upon the presence of the living bacteria, then the culture should be used when not more than four days old. All but a very small part of it has been used within that time in the cases reported here. The instances in which it has been used after the death and precipitation of the bacteria are too few to warrant any statement as to its value at that age.

Organizing the Clinical Research.—For a number of months after the favorable culture medium was found early in January, 1908, my attempts to interest practitioners in the use of the culture for therapeutic purposes were unsuccessful. One nose and throat specialist in particular, who had under his care a number of cases of atrophic rhinitis, was on a number of occasions urged by me to try this treatment on these patients, but could not bring himself to be the first to take this step. I felt warranted in urging its use because in any event the preparation was harmless. The medium contained only beef broth and sugar and about the same amount of lactic acid as found in sour milk. The bacteria were identical with those widely used in sour milk preparations. The culture could, therefore, be freely swallowed by mouth, and I could conceive of no harm that could result from its use in the nose and throat. It was not until the first of June that I was able to secure the attention of any practitioner who would give the culture a fair trial.*

However, following my first paper on this subject, numerous inquiries were received, and cultures were sent to a number of physicians who consented to undertake the study of the treatment and to report the results to me. The majority of physicians thus lending their coöperation were men making a specialty of nose and throat work. I shall, therefore, summarize their reports first.†

Atrophic Rhinitis.—As I have before stated, the putrefactive process accompanying atrophic rhinitis first called my attention to the possibility of securing a favorable effect from the administration of lactic acid cultures in the nose. Metchnikoff had shown the power of cultures of lactic acid bacteria in milk to prevent the action of putrefactive bacteria in the large intestine; and since the mucous membrane of the nose lines one of the entrances to the alimentary canal and in atrophic rhinitis contains putrefactions and irritations from the action of bacteria, it might be expected to find relief from the same method of treatment. It is for this reason that in my communications with physicians on this subject I have suggested first of all the treatment of this disease by the culture, and consequently more cases of atrophic rhinitis have been reported to me than of any other form of inflammation. In the table below are listed the cases and the results obtained, with the names of the physicians reporting the cases:

Physician	Cases	Improved	No Results
Chappelle	6	6	
Goodale	1		1
Curtis	12	11	1
Haviland	1	1	
Gaunt	4	4	
Goldstein	6	6	
Meierhof	1	1	
Yates	1	1	
Tuggle	10	10	
Hurd	9	7	2
Robinson	3	2	1
Maxwell	2	1	1
Total	56	50	6

*The first physician who consented to give my culture a trial was Dr. H. Holbrook Curtis.

†Up to December, 1908, the cultures were produced under my direction at the Lederle Laboratories, New York. These laboratories kindly afforded the facilities for carrying on some of the preliminary work and furnished the cultures free of charge to the physicians cooperating in the research. In December circumstances made it necessary for me to remove my work to the Department of Bacteriology of the College of Physicians and Surgeons, New York. I am now producing the cultures there and furnishing them to a group of physicians who are cooperating with me in the further study of this method of treatment.

From this it appears there have been 56 cases treated, of which 50 have improved and 6 have shown no results. This in itself does not necessarily furnish convincing proof of the value of this method of treatment. There are, however, several features in the descriptions of these cases which strengthen the evidence of the good effects of treatment by this culture. The physicians engaged are located at widely different parts of the country. In the list there are represented Boston, New York, Roanoke, Va., Shreveport, La., and Fort Collins, Col. All these observers inform me that the culture "dissolves crusts." This action I did not anticipate, and it was as much of a surprise to me as to them. They also testify that the culture "destroys odor," or that the odor common to this disease disappears after treatment with the culture. It is also stated that the adhesion of crusts to the mucous membrane is loosened, so that the crusts can be easily removed, and that they are prevented from forming.

While it would not be expedient to give in detail the history of each of these cases, I will quote a few typical ones from reports I have on hand:

Dr. C. M. Haviland, Fort Collins, Col., reports a case as follows: "Mrs. L. B., age 45. Previous history good. She began two years ago to have large, hard scabs form in the nose which were difficult to dislodge. Breath offensive. No hypertrophic condition exists. No previous treatment before coming to me except common remedies, douche of salt water, etc. I tried the usual cleansing treatment for a month with negative results. On September 9 I began the use of the lactic acid bacilli after cleansing the nostrils with sterile water. By spraying under heavy pressure every alternate day the crusts began to soften almost at once, and now, at the end of two weeks, the crusting has almost entirely ceased. A few more treatments will probably bring about a cure, as the small crusts that form are soft and easily expelled."

Samuel Goldstein, M.D., Chief of Clinic, New York Throat, Nose, and Lung Hospital, among other cases reports the following: "N. R., age 30. Female. October 17, 1908. Disease atrophic nasopharyngitis. Previous history: Has had disease nearly thirteen years. Thick scabs at times sufficient to cause nasal obstruction. Very offensive odor. Treatment and results: Ichthyol and theigenol for past three years. For past four months lactic acid bacteria spray. The nares anterior and posterior were cleansed with albolene spray and the lactic acid bacteria were sprayed anteriorly and posteriorly on alternate days; nares were plugged with cotton. After three treatments the scabs became smaller and softer in consistency, and odor much less noticeable. Now the right side shows improvement. Fewer scabs and no odor. This is a very interesting case on account of marked symptoms of atrophy, with its attending discomforts and length of time under treatment. Still under observation."

T. W. Tuggle, M.D., working at the New York Polyclinic, reports an interesting series of careful observations, of which the following is typical: "Sadie K. Age 16. Disease, atrophic rhinitis, Ozena. Previous history: Suffering since infancy with nose and throat. Numerous operations gave little relief. Used applications of various kinds. The odor was extremely offensive and the crust formations were the most tenacious I have ever seen and of the consistency of putty. Much dropping into throat. Continual hawking and blowing of nose. Treatment: Three treatments each week after thorough cleans-

ing with warm saline solution; the culture of bacilli is sprayed into nasal passages and injected into antrum and sinuses with fine silver tube. After about ten treatments the putty like crusts began to dissolve and take on a flocculent character and were easily dislodged. Odor greatly diminished; also throat condition shows marked improvement, with hawking now only mornings, and only every two or three days any accumulated pus, which can be easily blown out."

Dr. Lee M. Hurd, of New York City, reports an interesting case in which, apparently, the favorable results of this treatment depended upon the continuous use of the lactic acid culture, as follows: "Mr. M. S. Age, 44. Nasal obstruction and thick secretion for three years, with headache. Examination shows large crusts in pharyangeal vault. Mucous membrane of vault and nasal cavity atrophied. Treatment: Cleaned out crusts with alkaline spray and gave him lactic acid bacteria culture to use at home, with instructions as to care against contamination of the fluid. Did not have any crusts when seen again in three days, but still complained of headache after ten days. Said that he felt quite well as long as he used the medicine, and now, October 7, he is clean and comfortable as long as he has the lactic acid bacteria solution to use. A few drops used at night suffice to keep him clean. Several times when he has run out of the solution for a couple of days the thick secretion reappeared and he felt uncomfortable. He is now quite a slave to its use and cannot do without it. The improvement seems to depend upon continuous use."

Dr. G. W. Robinson, of Shreveport, La., reports the following case: "Mrs. N. McK., age 26 years. Has had nasal discharge since early childhood. Offensive odor. Has great difficulty in getting rid of semipurulent masses that accumulate in nose. Frequently has frontal headache. Never had received benefit from treatment, although she had tried various remedies. Condition of marked atrophic rhinitis, with nares filled with crusts and purulent secretions. Ozena. Number of sprays with culture of lactic acid bacilli, four. Patient stated that following the second treatment crusts no longer formed. The secretions became less in quantity and more whitish in color. Patient disappeared from further observation. There is no doubt as to marked improvement."

These cases are sufficient to illustrate the character of the results which have been described to me in the 50 cases reported as improved. The fact that 50 out of a total of 56 cases treated all derived benefits of a similar nature seems to point strongly to the conclusion that the culture of lactic acid bacteria was responsible for the results obtained, and that the treatment may prove to be a valuable one in this class of cases.

Physician	Cases	Cured	Improved	No Result
Chappell	3	3	..	..
Goodale	1	..	..	1
Curtis	6	3	2	1
Gaunt	1	1	..	..
Butler	1	1	..	..
Churchill	1	..	..	1
Robinson	1	1	..	..
Maxwell	1	1	..	..
Malcolm	2	2	..	..
Culbert	4	1	2	1
Total	21	13	4	4

Frontal Sinusitis.—The fact that the culture of lactic acid bacteria antagonizes to a certain extent not only the bacteria causing putrefaction, but also staphylococcus, streptococcus and other pathogenic bacteria, suggested its use in inflamed cavities discharging pus where the streptococcus and staphylococcus and other forms of bacteria might be causing the irritation. A number of cases of inflammation of the frontal sinus have been reported, as shown in the preceding table.

From this table it appears that a total of 21 cases have been treated, of which 11 are reported as cured, 6 improved and 4 no result. From these I have selected the following to describe in detail:

G. Madison Maxwell, M. D., of Roanoke, Va., reports the following case: "H. F. W., age 28 years. Chronic frontal sinusitis. Discharge through nostril and externally through openings left by operation above inner canthus in eye brows. Was operated on twice for this trouble in Baltimore. Last operation two years ago. Discharge of creamy color with disagreeable odor at times. Microscopical examination showed staphylococci and streptococci. Used lactic acid bacillus suspension on August 10 and continued same for two weeks every other day. Discharge stopped after second treatment and patient felt better than he had for a year. Has had no discharge since, excepting on November 28 a slight discharge, with some swelling over sinus region, which subsided after application of heat. Patient's general condition decidedly improved."

Dr. W. L. Culbert, New York City, reports the following: "Mrs. T. Frontal sinus infection. Had suffered from this and been treated at intervals since October, 1907. Came for treatment July 14, 1908, because of pain over right eye and to have turbinates removed. Treatment: Lactic acid suspension was injected into the right frontal sinus and into the right antrum, with the result that after six treatments the pain disappeared, the inflammation ceased and an operation was not considered necessary."

Dr. P. E. D. Malcolm, New York City, reports the following case: "W. H. B., age 53. Frontal sinus infection for ten months. Treated through sinus catheter with lactic acid suspension on October 23, 25, 26 and 28. By November 2 nose freer of secretion and patient more comfortable. November 4 got a severe cold. The treatments were continued twice a day in the same way, in addition using a laryngeal syringe. The discharge from the frontal sinus continues to diminish. The nose is considerably freer and more comfortable. Patient less susceptible to cold."

Dr. H. Holbrook Curtis, in a report which he has already published of the cases treated by him, describes similar results in inflammation of the frontal sinus.

Acute Rhinitis.—Under this head I have not attempted to distinguish coryza from other forms of acute nasal inflammations. I have no doubt, however, that there are marked differences in the character of the inflammation in the cases reported.

Physician	Cases	Cured	Improved	No Result
Chappell	40	3	..	37
Gaunt	5	..	5	..
Abbott	1	..	1	..
Personal	6	..	6	..
Total	52	3	12	37

Dr. Walter F. Chappell, of New York City, reports 40 cases of acute rhinitis, as follows: "Uniform treatment. Daily applications by myself for three days. Result: Three cases, all symptoms

abated in 12 hours; 37 cases, no special effect was noticeable."

Dr. Thomas T. Gaunt of New York City reports five cases of cold in the head treated by sprays of lactic acid bacteria culture. In all of these cases he reports excellent results.

In my own observation I have seen six cases of cold in the head treated by nasal douche of the lactic acid cultures, all of which seemed to derive marked relief from the treatment. In these cases the discharge was lessened and the swollen mucous membrane much reduced. These results are felt so soon after the administration of the cultures that the effect cannot be ascribed to bacterial action or antagonism, but must be due to some chemical or physical action of the culture medium itself.

Otitis Media.—There have been fourteen cases of this disease treated by the cultures, the results of which appear in the table below:

Physician	Cases	Cured	Improved	No Result
Kopetzky	5			5
Haviland	1	1		
Robinson	3	3		
Maxwell	1			1
Culbert	4		4	
Total	14	4	4	6

The results shown are quite irregular and not at all convincing, yet in some instances the improvement follows so closely on the heels of the treatment that it would seem that the use of the cultures is at times beneficial.

Thus, Dr. G. W. Robinson, of Shreveport, La., reports the following case: "Mr. M. consulted me about nose and ear. Diagnosis, O. M. S. A. Right empyema. Right frontal sinusitis. Performed paracentesis of membrana tympani and removed a portion of it. Middle turbinate and removed anterior ethmoidal. Frontal sinus discharge rapidly ceased and pain subsided. Discharge from middle ear continued. Began instillations in canal with lactic acid bacilli culture, and also injected into middle ear *via* Eustachian tube. Number of treatments, three. Result: Discharge ceased and opening in membrane promptly healed."

Dr. W. L. Culbert, of New York, reports the following case: "Mr. P. H. Chronic suppuration in middle ear and nose all his life. First appeared for treatment August 20, 1908. Had a discharge from right ear and left nostril. Treatment September 3. Incised both ears and injected lactic acid suspension. Sprayed nostrils with the same. Continued this treatment at intervals of several days for six weeks. By September 25 pus had disappeared from the nostril, ear ceased to discharge, eardrum healed up and patient was considered well."

Dr. C. M. Haviland, of Fort Collins, Col., reports the following case: "W. R. B., age 24. Has pulmonary tuberculosis in about last stage. Came to me on account of chronic otitis media of right ear. Perforation very small. Hearing in left ear entirely gone, due to same trouble some years ago. Treated in ordinary way by a careful cleansing and inflation, also with cold applications to mastoid. No result after six weeks. On September 24 I began using the lactic acid bacteria culture, first carefully cleansing ear with distilled water and then using the fluid through the pipette and slowly dropping same into canal, letting it work its own way into tympanum. Treatment every second day. Discharge diminished at once; then became thinner. At present time has ceased entirely. Hearing improved nearly one-third."

Ethmoiditis.—While there are a number of varieties of this inflammation and cases in which it is accompanied by inflammations in neighboring localities, I have grouped together the cases reported in which the chief trouble seemed to be properly given this name. The physicians and the cases treated are in the table below.

Physician	Cases	Cured	Improved	Negative
Chappell	2		2	
Goodale	5		2	3
Curtis	18	4	13	1
Churchill	1	1		
Yates	3		2	1
Malcolm	3		3	
Culbert	2		2	
Total	34	5	24	5

Of the 34 cases treated, 29 showed marked improvement and 5 of these were reported cured. I will give in detail the history and treatment of several of them:

Dr. J. L. Goodale of Boston, Mass., reports one of his cases as follows: "W. P. G., age 44. Reported January 5, 1907, with a right suppurative ethmoiditis, the antra, frontal sinuses and ethmoids being shown by the *x*-ray to be normal. He was treated during the following year by an argyrol spray and iodide of potash internally. Under this treatment a progressive improvement was noted until November of this year, when, although there was on the whole less discharge, a sufficient amount was formed daily to cause him annoyance. The culture of lactic acid bacteria was employed November 12 by application to the ethmoid region and also used by the patient as a spray with marked diminution in the amount of the discharge and increased comfort. At present, December 23, 1908, patient reported and expressed himself as confident that the use of the culture had been a marked benefit."

Dr. P. E. D. Malcolm of New York reports one of his cases as follows: "Mr. F. H., age fifty-six. Chronic ethmoiditis, specific. Had profuse discharge when first seen October 14. Began treatment after cleansing nose with normal saline solution by injecting serum lactic acid bacteria culture directly into ethmoidal cells. October 16, secretion diminished. October 20, complained of nose feeling dry. Small amount of discharge. October 23, very little thin discharge; October 27, very small amount, and not necessary for patient to douche nose in the morning. October 30, small amount of mucus discharge. November 6, 10, 13, 19, 23, discharge nearly normal with an occasional thin scab. No odor. These treatments are still continued twice a week. In this patient the discharge has decreased considerably so that he is now using only one handkerchief a day. Formerly four handkerchiefs were necessary while under vigorous treatment."

Dr. Wm. L. Culbert of New York City reports the following case: "Mrs. J. W. suffered with ethmoiditis for several years. Came for treatment January 4, 1908. Had operations on January 10, 13, March 11, and April 9. Discharge still continued. Lost sense of taste and smell. July 21, 1908, injected with lactic acid suspension at intervals of a few days for seven treatments. Sense of taste and smell have returned but are not constant. The discharge has diminished. The inflammation has considerably decreased."

Dr. H. H. Curtis has already reported a number

of cases of this inflammation in the papers he has published, and the results of the treatment correspond to those described above, in that the discharge was much diminished.

Antrum.—While inflammations of the antrum accompanied a considerable number of the cases already reported, yet there have been only eight cases in which this inflammation was the chief feature. Of these, four are reported as improved and four as having shown no result after treatment with the cultures of lactic acid bacteria.

Dr. Lee M. Hurd of New York reports a case as follows: "Mrs. C., age thirty-five. Has complained of nasal obstruction and polypi for one year. Examination revealed antrum disease, probably from carious teeth; also some ethmoidal infection. The antrum was opened into nasal cavity under inferior turbinate. The purulent discharge remained and the ethmoids continued to secrete white pus. This did not diminish under several months' local treatment with antiseptics. Beginning September 17, I injected solution of lactic acid bacilli into the antrum and middle meatus every other day without other treatment. The discharge has diminished and became more mucoid, with less color, but at the end of three weeks has not entirely disappeared. The improvement is considerable."

Dr. W. L. Culbert of New York reports a case as follows: "Mr. R. M., age twenty-six. Inflammation of both antra with discharge of pus. May 23, 1908, right antrum opened. May 26, inflammation spread to both ears. May 28, operated on for double acute mastoiditis. Since that time discharge from nose and one ear has continued. January 26, sprayed nose with lactid acid culture. The spray hurt him, but pus stopped. After a few days pus returned. Sprayed again and pus stopped. After a few days pus again returned and was again sprayed. This was repeated several times. Finally lactic acid suspension was injected into ear and Eustachian tube and the pus discharge ceased."

Chronic Rhinitis.—Some cases have been reported under this title which are similar to those classified under some of the other titles before mentioned. Five cases have been handed in under this head, all of which are reported as improved. Dr. C. H. Wood of Glendora, Cal., describes a case as follows: "Patient with chronic rhinitis and nasopharyngitis of twelve years' duration. The patient has undergone at the hands of a number of competent physicians various treatments without considerable benefit. I injected the nose daily with the culture lactic acid bacteria through small syringe and sterile rubber tube. The results with the suspension have thus far been very gratifying. There is a very marked reduction in the amount of the discharge, the use of much fewer handkerchiefs, disappearance of the odor and of headache, with greater facility in breathing, and a general improvement in the patient's physical condition and sense of well-being."

Dr. E. L. Meierhof of New York City reports a case as follows: "Miss F. H., age ten. Mucopurulent rhinitis and adenoids. Previous history, difficulty in breathing by night and day. Examination showed mucopurulent discharge, suppuration from both nostrils. Adenoids were removed. No improvement in nasal discharge or breathing. The culture of lactic acid bacteria was sprayed into the nostrils every second day. After two treatments there was no further evidence of the muco-purulent secretion. An operation on the septum is needed to further improve the breathing."

Hay Fever.—There have been eleven cases of hay fever treated, of which ten are reported as improved and one without result. Eight of these were treated by Dr. H. H. Curtis, and details of his results appear in papers he has published.

Dr. Thomas T. Gaunt of New York City reports two cases in which he describes the results as "fair."

Dr. Lee M. Hurd of New York City reports the following case: "Miss N. B., age twenty-eight. Hay fever. Treated by spray with culture lactic acid bacteria three times a week. August 25, hay fever had disappeared. August 27, 29, 31, September 2, still disappeared, but continued under treatment three times a week until September 19. October 13, has had no lactic acid culture for two weeks. Feels much better. Does not sneeze and is able to breathe freely. Patient thinks improvement is due to medicine, as she always continues with hay fever through September. As there is a large neurotic element in hay fever it is hard to know how much benefit is due to the remedy."

It is difficult to attribute any favorable result in hay fever to the disinfecting or germicidal action of the culture, as hay fever is not considered to be due to bacteria. The culture of lactic acid bacteria is reported by a number of the observers to have an effect upon erectile mucous membrane similar to adrenalin, but not so rapid. That is to say it shrinks the swollen tissues. Possibly the results reported in hay fever are due to this action.

Tuberculous Sinuses.—On the theory that the cultures of lactic acid bacteria might antagonize the tubercle bacilli and the bacteria causing a secondary infection in sinuses and abscesses, a series of cases were treated at the Hospital for Ruptured and Crippled, under the direction of Dr. N. B. Potter. In all there were ten cases; and these included hip disease, caries of the spine, osteitis of the knee, and several others. In all of these cases the culture was injected as far into the sinus and abscess as possible. No permanent benefit resulted from this treatment. There were frequent instances in which the temperature was markedly reduced after injection and some of the cases showed temporary improvement, but in no case was the inflammation definitely checked in a way that would point to the treatment as producing that result. There are certain physical difficulties in bringing the fluid culture into direct contact with the inflamed areas in this class of cases; and this may be one reason why the treatment was not effective. The cultures of lactic acid bacteria may of course have no effect upon tuberculous processes under any circumstances. The experiments outlined above are not conclusive in any event.

Gonorrhea.—There have been two series of cases of this disease treated; one at the New York Post-Graduate Hospital, under the direction of Drs. De Santos Saxe and Conrad Meyer, and the other at the City Hospital, Blackwell's Island, under the direction of Dr. Frederick A. Sutton. None of these cases is reported in detail, but the general results are given in the table below:

Physician	Cases	Cured	Improved	No Result
Saxe	15	1	14	..
Sutton	13	2	10	1
Butler	1	..	1	..
Total	29	3	25	1

Commenting on his cases, Dr. Saxe says: "The duration of the treatment in each instance was about two months. The cases were all acute inflammations of the ordinary type; that is, cases which did not present extreme signs of acute inflammation externally. The duration of the disease previous to the beginning of treatment varied from one to fourteen days. The treatment consisted of injection of lactic acid bacteria three times weekly. The results as thus far observed have been as follows: In no case has there been anything like an aborting of the disease, but with one exception all cases ran a very mild course. Only two of the fifteen cases developed posterior urethritis. In every case the injection seemed to lessen the discharge. In five cases the discharge ceased altogether after the eighth day. Of the group of cases observed only one patient can be said to be completely cured thus far. All the cases received routine treatment of emulsion of sandalwood oil internally. While the above results seemed to be favorable they are not convincing as regards the actual effect of lactic acid bacteria." The cases treated by Drs. Saxe and Meyer were all in males.

Dr. Sutton of the City Hospital reports nine cases of urethritis, six of which were improved, two cured, and one not improved by injections of the culture. He also reports four cases of vaginitis, all of which were improved. One case of mucous patch in the throat and one case of chancroids were greatly improved by swabbing with the lactic acid culture. Of the gonorrheal cases, Dr. Sutton says: "All cases except one showed marked improvement in the nature and amount of discharge almost from the first injection. Injections were given daily, about four drams being used in a small syringe."

Cystitis.—Two cases of cystitis have been reported as follows:

Dr. Biddle R. Marsden of Chestnut Hill, Philadelphia, reports the following case: Pyelitis and cystitis of ten years standing, caused by passage of clots down the ureter. Could not hold urine more than one hour. Bladder holds only nine ounces of salt solution. Treated by washing the bladder with normal salt solution, followed immediately by injection of 5 c.c. of lactic acid culture into the bladder five times weekly for three weeks. Result: The improvement in the urine has been marked, especially in the last few days. Clots of mucus and pus are getting much less. There is considerably less blood in the sediment. Burning and irritation markedly improved. Less pain in the region of the kidney. Can now hold urine three or four hours. Bladder now holds thirteen ounces. On the whole he is fifty per cent. improved.

Dr. Sutton of the City Hospital, New York, reports: "One case of cystitis after operation for stone gave a free discharge of pus in the urine, and rapidly cleared up under the treatment with the culture which was injected into the bladder."

Leucorrhea.—Reports have been handed in concerning seven cases of leucorrhea. Five of these were treated by Dr. Harold B. Judd of New York City, under the direction of Dr. N. B. Potter. Two of these were improved by the treatment and three showed no apparent result.

One of Dr. Judd's cases was as follows: "Miss M. S., thirty-three years of age. First came to dispensary April 10, 1908. Suffering from very marked leucorrhea of three years' duration. Pain in back. No gonococcus. No displacement. Bilateral laceration of cervix. Treated with argyrol and ichthyol three times a week. Discharge and pain somewhat improved. July 3 to July 27 culture of lactic acid bacteria used three times weekly. Amount of discharge steadily decreased until at the present time there is practically none."

Dr. W. W. S. Butler of Roanoke, Va., reports two cases of leucorrhea, in both of which treatment with lactic acid bacteria was successful. One of these cases was as follows: "Mrs. D., age thirty. Three children. Complained of dragging sensation. Pain on both sides of pelvis. Poor condition. Uterine hyperplasia with prolapse, ulceration of cervix with profuse discharge. Tender in tubal region of both sides. Used constitutional treatment and uterine irrigations of tincture of iodine from time to time, but these gave only temporary relief. August 21, treated with cultures of lactic acid bacteria at intervals of five days. At the end of that time condition was as near normal as possible."

Under the direction of Dr. Frank R. Oastler, at the Vanderbilt Clinic of the College of Physicians and Surgeons, New York City, a number of cases of leucorrhea have been treated without apparent benefit.

Diarrhea.—One of the most obvious localities in which favorable results might be expected from the application of the culture of lactic acid of bacteria is the intestine. The use of milk soured by bacteria has been demonstrated by Metchnikoff and his followers to be of great benefit in certain types of intestinal irritation. The injection of broth cultures of lactic acid bacteria per rectum seemed, therefore, to warrant the expectation of good results. A series of eleven cases of infant diarrhea were treated at the New York Infant Asylum by Dr. W. C. Williams. All were of severe acute type. They were treated by injecting the culture of lactic acid bacteria through rectal tubes as high as possible into the colon. In two cases the temperature fell to normal and discharges ceased, and patients completely recovered. In four cases the temperature fell following the treatments and stayed down to normal from two to five days, and discharges were somewhat diminished, when reinfection occurred. In five cases the treatment was without effect.

In addition to this a series of cases were treated with cultures by Dr. Charles G. Kerley, which he has reported in a paper of his own and in which the results were not favorable.

There are some factors which may account to a certain extent for the failure of the treatment on this class of cases. One is that if the seat of inflammation is in the small intestine it may not be reached by the rectal irrigations. A case has been reported where success was achieved by administration of the culture per mouth after the treatment per rectum produced no result. If the type of inflammation is "fermentative" it may be one which is caused by bacteria that are not antagonized by this culture

Surgical Cases.—The cultures have been used by several surgeons with great variation in the results. Dr. George E. Brewer at the Roosevelt Hospital, New York, used it in five cases of acute and chronic suppurating wounds and sinuses. He says of it: "It seemed inferior to the iodine preparations in pyocyaneus infection and formation, and to bichloride in the ordinary mucous infections. I must say, however, that in one of two instances it seemed to act very promptly in check-

ing the colon bacillus infection. As a rule, however, the cases do not do as well as the cases treated by the ordinary routine hospital methods."

Dr. John Rogers of New York City reports an interesting case of general peritonitis as follows: "Miss M. S., seventeen years old. Developed appendicitis about October 25, 1908. On November 11, there was every evidence of general peritonitis. Leucocyte count 29,000, polynuclears 88 per cent., temperature 102°, pulse 130, respiration 40. The abdomen was opened and pus found diffusely throughout the peritoneal cavity. This pus was the pure streptococcus. The pus was hastily flushed out and the contents of a two-ounce bottle of your culture of lactic acid bacilli poured into the abdomen and scattered around as much as possible by my hand, though the distended intestine prevented a thorough distribution. The wound was closed with the exception of a small tube drain down to the appendix, which was not removed. When the patient was returned to bed the pulse was 160 and the extremities cold. The next day the temperature and respiration were nearly normal and the pulse 100; and about a dram of your emulsion was injected through the drainage tube. This was continued daily until November 25. Then the abdomen was opened again on the left side and a small amount of pus evacuated from around the left kidney. The secondary collection of pus in the abdomen after a generalized infection is not uncommon. The injection of your emulsion through the second drainage tube was continued for a day or two longer. This patient is convalescing and sits up to-day for the first time." Dr. Rogers later reported that the patient went on to complete recovery. In addition to this, Dr. Rogers treated eight other cases of large localized abscess in the abdomen due to appendicitis by evacuating the pus and filling the cavity with two ounces of the lactic acid suspension. There have been no deaths in any of these cases and no ill effects. The lactic acid bacilli seemed entirely harmless. "But," Dr. Rogers says, "I do not think the culture has shortened the period of convalescence in these cases."

Dr. W. Francis Honan also reports a case of acute diffused peritonitis treated with this culture. "Mr. A. B., admitted to hospital November 5, 1908. Leucocyte count 21,000. Polymorphonuclears 91 per cent. Cultures from infection of peritoneal cavity (after operation) showed the presence of *B. coli communis* and streptococcus pyogenes. Symptoms of acute indigestion followed by obstinate constipation and apparent obstruction of the bowels brought him to the hospital. On admission temperature was 99.6°, pulse 138, respiration 28. Abdomen distended. General pain on palpation. An operation two hours after admission. Incision through posterior sheath of rectus. Immediate gush of pus and turbid fluid. Extensive involvement of peritoneal cavity and contents. Appendix gangrenous. Amputated with cautery. Two ounces of lactic acid bacteria culture was poured into the peritoneal cavity and on to stump of appendix. No flushing attempted to remove exudate. Wound closed about the drains. Patient returned to bed and placed in Fowler position. Saline absorption plan put in operation. Nuclein solution every six hours hypodermically. Drains removed on fifth day. Wounds dressed daily with lactic acid culture. Convalescence uneventful and patient left hospital in about three weeks."

Dr. Joseph A. Devlin, working under the direction of Dr. Rogers at St. Francis' Hospital, reports the following surgical cases:

"Case I.—Granulated wounds following operation for strangulated hernia. After second day the skin sutures had to be removed to allow discharge to escape. The granulated surface which followed was very indolent and the discharge was excessive. This was the condition when the lactic acid bacteria was first used. Two days later discharge very much lessened and granulations resumed a healthy red color.

"Case II.—A child with a sinus leading to a tubercular os calcis. A mixed infection existed in this case and thus far there has been no diminution in the discharge, although treated by injections of the lactic acid bacteria on two occasions. Five days after the first injection the inflammatory process which was getting under way around the sinus had entirely disappeared. The ankle is still discharging on account of necrotic bone.

"Case III.—A large sinus on inner side of thigh following operation for osteomyelitis of femur. The femur is visible for three inches of its length. Necrotic areas are studded over the exposed portion of the femur. Discharge horribly offensive. Washes and deodorants used with no avail. In this case culture of lactic acid bacteria was poured on the surface. After two applications discharge for the first time in three months became practically odorless, gauze dressings less saturated and discharge much thinner.

"Case IV.—Empyema of the chest. Discharge three ounces of thick greenish pus every day. Culture of lactic acid bacteria injected through the sinus tube every other day for three days. The discharge became less and less, the last was not over one ounce in twenty-four hours, and it was thinner and less offensive in odor."

In addition to these surgical cases, there have been a series of varicose ulcers of the leg treated at the Hudson Street Hospital, details of which have not been received, but verbal reports state that considerable improvement was noted in those cases which were treated by using the lactic acid cultures as a wash and on the dressings.

Maxillary.—H. S. Dunning, D.D.S., carried on a series of experiments at the New York College of Dentistry. He reports five cases of inflammation in the maxillary bones and palate treated by injections of lactic acid bacteria and all of which were improved by treatment. One of these in detail was as follows: "Young woman, age twenty-one. Condition of gums and teeth poor. General health good. Infection of outer portion of inferior maxillary bone from bicuspid to bicuspid. The infection was of seven weeks' standing, and included fistula in the face and the removal of small pieces of bone. There were many sinuses leading from the soft gum tissues to the bone. Pus flowing freely. Injections of the culture of the lactic acid bacteria were given several times weekly, allowing the fluid to remain in each sinus. After about four weeks only one sinus remained open."

Another case. "A man, forty years old. Condition of gums poor. Bad teeth. Poor breath. Poor health. Suspected tuberculosis. The lower jaw in the region of the third molar on the right side deeply infected and a discharge of green pus. Bad odor. The infection was of six months' standing. After several injections of the lactic acid bacteria the condition was cleaned up considerably. Patient disappeared from observation."

Gonorrheal Ophthalmia.—The following table shows the results of the treatment of gonorrheal ophthalmia with lactic bacilli culture:

Physician	Cases	Cured	Improved	No Result
Cutler.	17	15		2
Sutton.	2	1	1	..

Dr. Coleman W. Cutler, New York City, reports seventeen cases of gonorrheal ophthalmia in children occurring in his service at the New York Foundling Hospital and there treated under his direction. Of these he says: "In two cases ulcers of the cornea were present on admission. These children died soon after from marasmus. The corneal ulcers were not influenced by treatment. All the others recovered from the opthalmia without corneal involvement. The duration of the disease in these cases was usually brief, but as the routine was followed as well as the lactic acid bacillus suspension it is not possible to attribute the favorable results to one part of the treatment more than to another. The following four cases, however, would seem to justify the giving of especial credit to the suspension of lactic acid bacillus.

"Case IX.—A. Z., age three years. Congenital syphilis. Ulceration of the septum. Inunctions. Syrup ferri iod. Gonorrheal ophthalmia both eyes. Smear showed numerous gonococci, much secretion, lids swollen. Treatment: Silver nitrate, 2 per cent., once; protargol, 10 per cent., q.2.h. for one day, after which suspension lactic acid bacilli t. i. d., and boracic acid. Improvement rapid, secretion scanty in three days. In one week no secretion, smear negative.

"Case XI.—W. G., age two weeks. Much secretion and swelling. Smear positive. Inflammation continued in spite of silver nitrate and protargol. Suspension of lactic acid bacilli used on third day and t. i. d. thereafter. Secretion diminished rapidly and cure in one week.

"Case XV.—R. G., age two weeks. Moderate secretion. Smear positive. Silver nitrate used once; protargol, 10 per cent., q. 3 h., with no improvement. Then suspension of lactic acid bacilli t. i. d. Rapid improvement and cure.

"Case XVII.—D. S. Mild ophthalmia. Smear positive. Silver nitrate and argyrol. After two days secretion still profuse. Then suspension of lactic acid bacilli. Eye dry in four days."

Dr. Frederick Sutton, at the City Hospital, Blackwell's Island, N. Y., reports two cases of gonorrheal ophthalmia, one of which was "cured and left no opacity." The other "eyes improved rapidly. Pus after first day's treatment became thin and less yellow." Then the treatment was changed, due to removal to another ward.

Conjunctivitis.—In addition to the cases of gonorrheal ophthalmia, Dr. Cutler reports that "one case of pneumococcus conjunctivitis and one of diplobacillary conjunctivitis (Morax-Axenfeld) and eight cases of catarrhal conjunctivitis without microscopic diagnosis were treated with the suspension of lactic acid bacilli alone with success, the secretion diminishing as rapidly as with the ordinary measures."

Summary and Conclusions.—The lists of the groups of cases treated, with the results noted, are summarized in the following table.

In reflecting upon the apparent action of these cultures the question obviously suggests itself whether the action is due to the living bacteria themselves, or to the lactic acid, or to other products in the culture medium. I will not attempt to discuss the question here. These matters are unsettled and will naturally form a part of the further researches on this subject.

Disease	Cases	Cured	Improved	No Result
Atrophic Rhinitis	56		50	6
Ethmoiditis	34	5	24	5
Frontal Sinusitis	21	11	6	4
Acute Rhinitis	51	14		37
Hay Fever	11		10	1
Otitis Media	14		10	4
Chronic Rhinitis	5		5	
Tuberculous Sinuses	10			10
Antrum	8		4	4
Gonorrhea	28	2	26	
Suppurating Wounds	10		5	5
Peritonitis	2	2		
Cystitis	2		2	
Leucorrhea	7		4	3
Diarrhea	11	2	4	5
Rigg's Disease	5		5	
Gonorrheal Ophthalmia	19	17		2
Conjunctivitis	10	10		
Total	304	63	162	86

Reviewing the conduct of this research and the facts which have been gathered up to date it must be admitted that the affair has been somewhat unconventional, and perhaps unscientific. I am fully aware that carefully controlled laboratory experimentation in the study of the species of bacteria and of culture media and of their effect on each other and on animals should precede the studies on human beings. I am also aware that a selected set of cases and the extension of treatment over a long period of time, accompanied by laboratory examinations of exudates from the sites of the inflammations treated should precede any claims as to the value of the treatment. But my work has been done in the midst of an active practice of bacteriology. Interruptions due to this fact have made any regularly organized research impossible. In view of this I do not present the facts that I have gathered as a conventional piece of research, but rather as circumstantial evidence.

How much value should be attached to the results obtained by treatment with the culture of lactic acid bacilli is largely a matter of individual judgment. It is possible to err on the side of enthusiasm, on the one hand, and on the side of caution and timidity on the other. In my opinion the treatment of some inflammations caused by infectious bacteria which can be reached by a spray or wash of the culture of lactic acid bacteria used in this research has considerable value. A few things have been learned by the work that may be even more positively stated:

1. That the bacillus of Massol can be grown abundantly in dextrose bouillon by the addition of lumps of calcium carbonate.

2. That the use of these cultures as a wash or spray on inflamed surfaces or cavities often diminishes the discharge upon such surfaces or cavities.

3. That the use of these cultures often diminishes odor caused by putrefaction.

4. That the treatment sometimes reduces swelling, especially in the erectile tissues of the nose.

5. That both acute and chronic inflammations caused by infections sometimes appear to be checked when their seat can be reached by an injection of these cultures.

6. That the use of the cultures seems to be accompanied by no special danger and that they cause no irritation.

Further study of the treatment seems to be warranted from the results obtained. This study is now being continued by me in conjunction with a number of physicians who are using the treatment. I shall make further reports of the progress of the research in later papers.

If this treatment becomes established, then another weapon will have been placed in our hands for fighting infections. It will mean fighting bacteria with their own weapons; literally, "germ fight germ." The success of one species of bacteria cultivated in one culture medium will suggest the investigation of other species of bacteria and other culture media; and among these may perchance be found not only cultures of general value, but some of special value in combating particular infections of one sort or another. It may be that bacteria cultivated in laboratory media, together with their products, are destined to play an essential part in the warfare against infectious disease.

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437 WEST FIFTY-NINTH STREET.

DIRECT BLOOD TRANSFUSION — ITS TECHNIQUE AND THE INDICATIONS FOR ITS USE.

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THE transfusion of blood is not a new therapeutic procedure. It was known to the ancients, was practised occasionally in the Middle Ages, and with great frequency in the seventeenth century after Harvey had discovered the circulation of the blood. The blood of animals and man has been employed for the purpose, the early operators using especially the blood of lambs. But though blood transfusion is not new, the technique of its performance at the present time is entirely so, and with this new technique the dangers that have hitherto attended the operation have been entirely eliminated. It is because of this new technique and the consequent newer and wider indications for the employment of blood transfusion that the writer brings the subject before you.

By the modern method of transfusion the blood flows directly and immediately from the artery of the donor into the vein of the patient. There is no intermediate system of tubes connecting the donor's artery and the patient's vein, through which the blood must pass. By the present method the blood is always in contact with the healthy intact intima of the blood vessels; it never touches any foreign substance. In this way is avoided the greatest danger that attended the older methods of transfusion, viz., the clotting of the blood in the intermediate tubes and the introduction of these clots into the circulating blood stream of the patient, and the consequent lodgment of emboli in the internal organs.

Another danger that has heretofore attended the practice of transfusion has been the breaking down or dissolution—hemolysis—or the agglutination of the recipient's blood by the newly transfused blood. It is evident that if the transfused blood will hemolyze or agglutinate the blood of the patient, harm instead of good will be done by the operation.

It has been known for some time that the blood of an animal of one species, when brought into contact with the blood of an animal of another species, will dissolve (hemolyze) the red blood cells of the latter; and it has also been demonstrated that the blood of animals of the same species will occasionally act in such hemolytic manner toward each other. These hemolytic phenomena must have occurred in the times when it was customary to use for transfusion into human beings the blood of lower animals, especially lamb's blood; and this undoubtedly explains the bad and often fatal results that attended this practice. In the human species it does not often happen that the blood from one individual will hemolyze the blood of another, but the possibility exists, and consequently no blood transfusion should be attempted, except in cases of urgent necessity, without previously determining whether the donor's blood will hemolyze the blood of the recipient. The test can be rapidly and easily made in any well equipped laboratory.

Of less frequent occurrence, in the former days of transfusion, was air embolism, an accident which is entirely averted with the present method of operating.

The improved technique of the operation of blood transfusion and the elimination of the dangers that have hitherto attended it have led to a readoption of the practice, and a wider field for its employment has been mapped out. The question of its value in these new fields is, however, still an open one, and will be decided only by further trial and experience.

Before interesting ourselves with this part of our subject it will be well to describe the visible and physical effects of a blood transfusion on a patient, and this can be best done by reciting the observations in a recent case.

Anna K., a governess, aged 35, was exsanguinated from repeated hematemeses, due to an open gastric ulcer; to stop the bleeding a posterior gastroenterostomy, with excision of a pyloric ulcer, had been done. Her hemoglobin percentage was 12, the red blood cells 2,000,000, and her general physical condition very much deteriorated. The operation had checked the bleeding, and for five days succeeding the operation everything possible was done to build up her condition, but to no avail. She gradually became more apathetic, her pulse more thready and feeble, and it seemed as though she would die at any moment. As a last resort blood transfusion was performed, a sister giving the blood. For ten minutes after the sister's radial artery had been anastomosed to the patient's median basilic vein no apparent change was noted. Then the stupor lightened, the patient opened her eyes, commenced to ask questions, and was able to recognize her friends. Her pulse became fuller and of better quality; her hemoglobin rose gradually to 60 per cent. After thirty minutes of the transfusion she was in good condition, rosy color, mind clear, recognized her friends, and thanked her sister for the sacrifice she had made. The striking change from deep stupor due to the cerebral anemia to a normal mental state was very impressive.

As regards the technique of the operation, those who are skilful with needle and thread will prefer the end-to-end or end-to-side anastomosis of a superficial artery like the radial with a superficial vein like the saphenous or cephalic, after the method of Carrel. The basic principle of the anastomosis is to bring the intima of the artery everywhere into contact with the intima of the vein. The vessels to be anastomosed are first exposed and freed from their surroundings for a distance of one to one and a half inches, and clamped proximally and distally with a soft serrefine forceps.

The artery and vein are then divided, if end-to-end anastomosis is to be made; or an incision is made into the side of the vein if a lateral anastomosis is to be effected. The cut ends are lightly covered with sterile paraffin oil or vaseline, and two guide sutures are passed to hold the vessels lightly in contact. Then, with a continuous through-and-through suture passing from the outside of one vessel to its inside, and vice versa in the other vessel, the anastomosis is perfected. The suture material should be one of the component strands of fine twisted silk, and the needles are No. 16 straight cambric variety.

The vessels should be handled as little and as gently as possible with fine iris forceps whose ends are kept covered with liquid paraffin or vaseline, and throughout the entire procedure the parts should be kept moist with warm saline solution. With vessels of the caliber of the radial artery and saphenous or cephalic veins, such anastomosis by suture is not at all difficult, nor is it a very time-consuming procedure.

Those who are not sufficiently adept with needle and thread as to warrant their attempting a suture anastomosis will find the method of anastomosis described by Crile an excellent and speedy procedure. Taking the magnesium rings which Payr used for arterial anastomosis as a model, Crile has constructed a small cannula by which, after the method of Payr, a rapid and excellent end-to-end or end-to-side anastomosis can be effected between the artery of the donor and the vein of the recipient. These cannulæ are one-eighth of an inch long and of varying caliber, four different sizes being supplied in a set to suit the caliber of the vessels that are to be anastomosed.

For the end-to-end anastomosis the length of Crile's cannula is just right, but for an end-to-side anastomosis, which with this method is much more readily done, it is the writer's opinion that they should be about half as long again, *i.e.* 3-16 instead of 2-16 of an inch. Each cannula has affixed to it a small handle by which it can be grasped and easily manipulated.

In this method, the artery and vein are exposed as in the suture operation. After dividing the artery and stripping off its outer adventitious coat, three fine guide sutures are passed through its wall at equidistant points. These sutures are threaded through the cannula, and by means of them the vessel is drawn through the latter; then its wall is everted over it in cuff-like manner, and secured in this position by a silk ligature. The outside of the cannula is thus covered by a cuff of the artery with the intima on the outside. After a little experience this step of the operation is easily and rapidly performed. The vein is now laterally incised or nicked and the cannula covered by the cuffed artery is inserted therein and held in place by a suture.

If an end-to-end anastomosis is to be made, the vein is slipped over the cuffed cannula. In either case, the intima of the artery is everywhere in contact with the intima of the vein. The end-to-end anastomosis takes a few moments longer to make than does the lateral anastomosis. Another advantage of the latter is that a much smaller vein suffices than for the end-to-end junction. This is especially important when we have to deal with new-born infants or very young children. One of the chief advantages of anastomosis by the Crile cannula lies in its simplicity. The tube itself is very simple, and with a little practice the entire operation can be easily and rapidly done. A number of modified cannulæ have been suggested, but they have no advantages over the Crile, for they are more complicated and do not add anything to the ease, speed, or safety of the operation.

A very important question that comes up in blood transfusion is the amount to be transfused, and how this is to be measured.

As yet there is no means of measuring the amount of blood that is transfused. It has been the custom to depend upon the increase in hemoglobin percentage of the recipient as a rough indication of the amount of blood transfused. The percentage of hemoglobin in the blood of the recipient and donor is taken immediately before the anastomosis is effected and every 10 minutes during the progress of the operation. From a normal adult man we can usually transfuse sufficient blood to raise the hemoglobin of an adult donee to 65 or 70 per cent. Sometimes the hemoglobin percentage of the recipient increases rapidly, especially when it is low at the outset of the transfusion. Thus we have seen it increase from 20 per cent. to 50 per cent. in 15 minutes; and again in an 8-day infant from 10 or 15 per cent. to 105 per cent. in 12 minutes, the donor in each case being an adult man.

The rapidity of increase depends upon the rate and amount of the flow of the blood into the recipient's vein, and these in turn upon the caliber of the donor's artery and the pressure therein, and the size of the recipient's vein and the pressure therein, and finally upon the character of the recipient's blood.

We must not expect that the donor's hemoglobin will show *during the transfusion* a decrease in percentage proportional to the increase in the recipient. For the blood remaining in the donor has not been deprived of its hemoglobin. It is exceptional for the donor's hemoglobin, during the transfusion, to fall more than 10 per cent., even though the recipient's hemoglobin rise 40 to 50 per cent. It is only a number of hours after the operation, when sufficient fluids have been absorbed from the intestinal canal and tissues to restore the volume of the blood and thereby dilute the remaining hemoglobin, that a material decrease in the hemoglobin percentage is to be noted. To avoid taking too much blood the writer would suggest that in addition to taking the hemoglobin percentage, we record also the donor's blood pressure during the entire operation, and should this fall to 80 m.m. the transfusion is to be stopped.

The improved technique and the precautions that are observed to prevent hemolysis, as above briefly outlined, have removed all the dangers hitherto attending direct blood transfusion, and in consequence thereof the surgeon and internist have both sought to widen the field of its usefulness. Though the writer is very enthusiastic about the value of blood transfusion in certain conditions, he does not believe it to be a panacea for all ills, nor even for most

maladies that human flesh is heir to. Further and more extended experience will soon furnish sufficient facts to more rationally and sharply establish the indications for its employment.

Up to the present direct blood transfusion has been found of value in the following conditions:

Severe acute hemorrhage. In this condition it far surpasses intravenous saline infusion, for in addition to simply adding to the volume of the circulating fluid, as is done by the latter, it furnishes living blood cells and plasma to the exsanguinated patient. Further, the good accomplished by a blood transfusion is likely to be more lasting than that from an intravenous saline infusion.

It goes without saying that the bleeding vessels must be secured, either before or while the transfusion is going on.

For the condition of shock due to acute severe hemorrhage, direct blood transfusion acts most efficiently. The following case will illustrate this:

The patient, a young man about thirty years of age, had repeated attacks of bleeding from a duodenal ulcer. When admitted to the hospital he was exsanguinated, apathetic, and semi-stuporous, had a whitish yellow color, and a scarcely perceptible pulse. The bleeding had recurred in spite of the administration of internal remedies. Though it seemed as if further bleeding would undoubtedly cause the patient's death, yet surgical interference could not be considered in his desperate condition. We consequently determined to wait and to employ further internal remedies, in the hope of preventing renewal of the bleeding.

After 24 hours there were evidences of renewed hemorrhage from the ulcer—the hemoglobin count falling to 18 per cent. in the course of the day. The patient was semi-conscious, the eyes and cheeks sunken, the expression and color lifeless. Blood transfusion was determined upon, and this to be followed by immediate laparotomy so as to control the bleeding. A brother consented to our proposal and we soon had his radial artery anastomosed to the median basilic vein of the patient. Within ten minutes after the transfusion was started the color of the patient's face became pinkish, the cheeks and eyes fuller, and from a state of deep apathy he began to take an interest in the affairs about him and thanked his brother for his devotion. His pulse became fuller and more regular, and the transfusion was continued until the hemoglobin reached 60 per cent. An immediate laparotomy and posterior gastroenterostomy were done. The shock was well borne and the patient reacted nicely.

But brilliant as are the results from blood transfusion in acute hemorrhage and the shock arising therefrom, these have not been found to be so good in conditions of shock due to other causes, *e.g.* severe trauma, perforations of hollow viscera, etc. Further experience is necessary before a fair conclusion can be reached as to the value of the procedure in shock from these latter causes.

Another condition in which blood transfusion has been employed is in the hemorrhagic diathesis, but here again there is need of much more research and clinical observation before a final decision can be reached as to its value. The hemorrhagic diathesis or pathological bleeding, *i.e.* the tendency that some individuals have to repeated, often profuse, and sometimes fatal capillary bleeding, is either inherited, as in hemophilia, or acquired, as in many cases of anemia, jaundice, purpura, asphyxia, acute alcoholism, and other toxic conditions.

It would be entirely foreign to the object of this paper to enter into a discussion of the causes of the capillary bleeding in these various diseases, nor could the writer place before you any satisfactory conclusion in this regard, for some authorities maintain that the fault lies in an alteration of the capillary walls, others insist that the cause is to be found in a delayed coagulability of the blood, and still others attribute the bleeding to both these causes. Again the exciting cause of the structural changes in the capillary walls and of the delayed coagulation time of the blood is by no means determined. Thus, some hold that infectious agents play a leading rôle therein, others advance the toxic theory, and so on.

It is evident that blood transfusion can be of value only in those cases in which changes in the blood account for the hemorrhage, and where the addition of fresh normal blood to the patient would supply the elements that are deficient in his own blood. But before the final word can be said in this regard, more light must be shed upon the pathogenesis and exciting causes of the hemorrhagic diathesis. This evening I shall consider only what has been the clinical experience with blood transfusion in hemorrhagic states.

Carrel and Lambert were able by the transfusion of the father's blood into a baby only a few days old, to check bleeding that seriously threatened to end the child's life. Crile, in a case of cholemia from obstructive jaundice due to biliary calculi, in which there were numerous hemorrhages, was able by blood transfusion to check the bleeding.

During the past summer the writer has had occasion to transfuse an exsanguinated baby aged seven days, suffering from numerous hemorrhages from the skin and mucous membranes. The child had been referred to the pediatric service of Dr. Koplik at Mt. Sinai Hospital by Dr. Schwarz. There Dr. Henry Heiman and Dr. Schwarz used all known medical means to stop the bleeding, but to no avail. It was found that the child's blood had no tendency whatever to coagulate. It remained in a fluid state for 24 hours, but when a drop of its father's blood, or of another adult blood was added to it, coagulation took place within five minutes. On the assumption that the child's blood was deficient in those elements which cause coagulation, and also guided by the brilliant result attained by Carrel in Lambert's patient, transfusion of the father's blood into the baby was proposed and accepted, and the father's radial artery was anastomosed into the femoral vein of the patient. Just before the transfusion, the baby had no pulse in the radial artery, it was deathly pale, and its respirations were superficial; there seemed to be no life whatever, though a faint cardiac pulsation could be noted. Death certainly seemed imminent at any moment. The wound in the thigh did not bleed.

The operation was technically difficult, first because of the small size of the patient's vessels, and second because the veins themselves were collapsed and therefore difficult to locate. Five minutes after the anastomosis was effected the child's hemoglobin rose from 12 to 20 per cent., its color was decidedly pink, the wound in the thigh commenced to bleed, the respirations were deeper, and the radial pulse could be felt. After another five minutes the color was red, the pulse was of good quality, hemoglobin 60 per cent., respirations full and deep. Within the next few minutes the child became rosy red, and then after another few minutes somewhat bluish,

with impaired respirations. Evidently too much blood had been infused, and it was thought that it would be necessary to allow some of it to escape. An immediate stoppage of the transfusion, however, enabled the infant's heart to adjust itself; the respirations, color, and pulse rate became normal, and the child fell asleep. Its blood now coagulated in three minutes, the time of the coagulation of the father's blood. The bleeding from the skin or mucous membranes ceased for the time, the child took nourishment well, and seemed to be normal. The following day the time of its coagulation was three minutes, the second day about the same; the third day it was about five minutes, the following day seven minutes, and the day after that, 12. Coincidently with this renewed delayed coagulability, the bleeding recurred from the finger tips, lips, and nostrils. Numerous pustules then broke out over the body, and into the pustules bleeding occurred. The time of the blood coagulability gradually increased and the bleeding became more profuse, so that about eight days after transfusion the blood showed no tendency to clot. The child was in a deplorable condition, and succumbed shortly thereafter, exsanguinated and septic. Evidently the transfusion, though it temporarily put a stop to the bleeding by adding to the infant's blood those elements in which it was deficient, did not remove the exciting cause of the hemorrhagic diathesis, and consequently after a few days the effect of the transfusion was lost.

It would seem, therefore, that we must distinguish the several varieties of hemophilia in the new born. In some the bleeding is controlled by the well known medical means; in others blood transfusion will succeed in checking the hemorrhage; while in still others this latter will be of no avail. It is the duty of the clinician to determine when blood transfusion will be of value and when it will not.

However, the good effect obtained by Crile and by Carrel should certainly stimulate further trial of this procedure in cases of hemorrhagic diathesis, knowing as we do that bleeding in cholemia usually results fatally, and that forty per cent. of the cases of hemophilia in the new-born terminate in death.

The writer has found blood transfusion to be one of the best means of preparing feeble and exsanguinated patients for major operations. It increases their resisting power immensely, thereby enabling them better to stand the shock and other effects of such operations. In three cases blood transfusion has been employed by the writer as such a preliminary step to severe operations, and in all we were deeply impressed with the good effect. The history of one of the cases will be cited as an illustration:

Charley B., two and one-half years old, was referred to the first surgical service of Mt. Sinai Hospital by Dr. Henry Heiman. Several days previously the child had swallowed a caustic fluid with the result of causing ulcerations in the gastric and pyloric mucosa. In order to feed the patient a gastroenterostomy had been done, which operation had to be followed by a jejunostomy because of leakage alongside of the tube inserted into the stomach. The feeding by the jejunostomy opening enabled us to maintain the life of the patient for a period of several months, during which he passed through an attack of measles and bronchopneumonia. At the end of several months his nutrition, which had been fairly good, commenced to fail; he became emaciated—his weight being 17 pounds—and in spite of all the efforts of the pediatrists no improvement could be effected. It was evident that unless the normal gastroenteric relations were reestablished the child would succumb from inanition, but its physical condition forbade any abdominal operation. A preliminary blood transfusion from the father was therefore made. The child's hemoglobin rose from 50 to 90 per cent. and its pulse materially improved in quality. The stomach and jejunum were freed from the abdominal wall, the fistulous part of the jejunum was excised, posterior gastroenterostomy according to the Y-method (Roux) was done, and the opening in the anterior wall of the stomach was closed, thereby reestablishing the gastroenteric circulation. The child bore the operation which lasted almost one hour extremely well; showed no shock, and made an uneventful convalesence. In two other patients the writer has had equally good results; one had a large abdominal tumor and bore an exploratory laparotomy very well; the other was exsanguinated from hematemeses arising from a gastric ulcer.

Experimentally blood transfusion preceded by bloodletting has been found to be the most effective treatment in illuminating gas poisoning. Trial has also been made of the procedure, though thus far to no avail, in enfeebled and poorly nourished states such as marasmus, in the hope that thereby a new start will be given to the patient. Negative results have likewise followed blood transfusion in pernicious anemia, leukemia, carcinoma, strychnine poisoning, and diphtheria toxemia. In tuberculosis, chronic suppurating conditions, and acute self-limited diseases, the value of blood transfusion is still undetermined.

The writer has shown to-night that the modern operation of blood transfusion is unattended with risk to the donor or the recipient; that in several diseased conditions it is of decided, yes, of life-saving value, and that in others its full worth is not yet determined. While it is not a universal panacea, it is nevertheless an important addition to our armamentarium, and its true worth will be decided only after further experimentation and clinical use.

THE ROENTGEN RAY AND THE ETIOLOGY OF CANCER.*

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We owe it to ourselves and to mankind to contribute anything which in our judgment and experience may shed light upon the etiology of cancer, concerning which the medical profession has been groping in the dark for many centuries. The writer believes that his conception of the etiology of cancer will bear the test of time and desires to explain his views by quotations from his article in the Medical Record, December 8, 1906, which the recent report of the "Imperial British Cancer Research Fund" appears to corroborate in every way.

A quick review of the various theories and observations on this subject will prepare the reader for the subsequent argument. Starting with the father of cellular pathology, Virchow emphasizes local disposition due to injuries, operations, and irritations as contributory factors in the evolution of cancer. He does not, however, explain the method of cancer cell propagation, and he affirms the factor of heredi-

*Read before the American Roentgen Ray Society December 28, 1908.

tary transmission, which all recent statistics seem to disprove.

Cohnheim's theory of defective embryonic development causing the formation of tumors and of misplaced epithelial dormant cells which undergo cancerous proliferation, is taught from the rostrum as one of the plausible explanations of the etiology of this disease. Beard (Edinburgh) has recently promulgated a theory along similar lines. He maintains that "aberrant germ cells" are produced, in what he terms "the critical period" in embryonal development, and that a tissue called trophoblast is formed from which cancer propagates. This tissue has lower vitality than normal tissue, and according to his theory can be destroyed by certain pancreatic ferments, notably trypsin.

Gaylord (Buffalo) claimed some years ago to have discovered the cause of cancer in a coccidium—*Coccidium sarcolytum*, which was said to respond to Koch's postulates, producing similar lesions, to those of the parent body from which it was derived.

This discovery has been confirmed by various investigators, denied by others, the latter claiming that the microorganisms were due to incidental contamination or were the products of degenerative tissue change. Various other organisms have from time to time been discovered in cancer tissue, including Doyen's *Micrococcus neoformans* and Schmidt's micrococcus, only to be thrown into the pathological scrap-heap after official investigation. Quite recently the lay press reported that a Buffalo physician had attributed the cause of cancer to the earthworm which deposited the infection through contact with vegetables. Vaccination has also been accused of being coincident with the increase in cancer, and the assertion has been made that abnormal cells are introduced into the circulation through the vaccine and lying dormant in the tissues become active after irritations, etc.

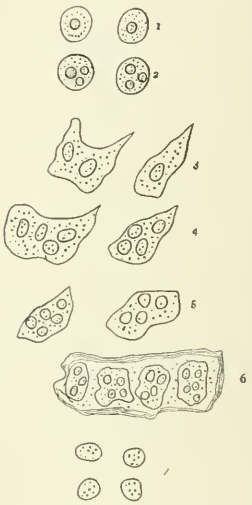
W. Rogers Williams, in his recent book, "The Natural History of Cancer" (Wm. Wood & Co., 1908,) attempts to show that cancer is a disease of alimentation and looks for the prophylaxis in the modification of nutrition, especially as regards diminution of the amount of nourishment habitually taken.

Bell (London) has similar views, and points to autointoxication and constipation as leading factors in the etiology of cancer. McConkey (*N. Y. Medical Journal*, December 19, 1908) attempts to show the relationship between the tubercle bacillus and cancer, and cites an array of interesting pathological facts.

The writer's observations were drawn to new lines owing to the following incidents in his practice, which it will repay to detail. In 1902, a patient who had been treated at various times for chronic catarrhal nephritis with coincident catarrhal prostatitis, was attacked with an acute exacerbation following a cold—his urine was bloody, contained connective tissue shreds, epithelial and granular casts, and numerous epithelia from the kidney, pelvis, urethra, prostate gland, and adnexa. Among the epithelia were a number of squamous epithelia with numerous nuclei or rather endogenous new formations (see No. 4), which to the writer looked suspiciously like squamous cancer cells (No. 5). To verify his diagnosis a specimen of the urine was sent to the well-known urinary pathologist, Dr. Louis Heitzmann, of this city, who reported the presence of an acute croupous recurrence of a chronic catarrhal nephritis with chronic catarrhal prostatitis and evidences of cancer formation in the urethra about the prostate gland. This confirmation of the writer's suspicions in regard to the multinuclear cells and the tentative diagnosis of local cancer formation received a rude but pleasant shock when the patient improved within a month's time and the urine cleared up, so that now, after six years, aside from a mild catarrhal nephritis and prostatitis, diagnosed by the presence of the renal and prostatic epithelia and a few fatty pus corpuscles, the patient is in satisfactory health.

The recovery of this patient induced the following line of investigation:

In examining the urine of pregnant women it will frequently be noted that the epithelial cells of the urinary tract upon which pressure is exerted by the developing fetus, show what have been termed "epithelia with endogenous new formations." This



Endogenous new formation in several forms of epithelia (x 500): 1, cuboidal epithelia; 2, the same, with endogenous new formations; 3, squamous epithelia; 4, the same with endogenous new formations; 5, squamous cancer epithelia; 6, cancer nest; 7, sarcoma cells.

same phenomenon is noted when tumors press upon the kidneys and bladder or when an hypertrophied prostate impinges upon the urethral mucous membrane. In severe inflammation of the genito-urinary tract, the epithelial cells found in the urine frequently have these new formations and certain squamous epithelia such as those from the urethra and bladder look exactly like a squamous cancer cell.

These abnormal cells disappear from the urine when the period of gestation is passed or when severe inflammatory conditions are ameliorated, showing conclusively that pressure and inflammatory stress are able to change the character of cell morphology. *The point we will attempt to prove, based on these observations, is that a continuous or frequently repeated irritation, inflammation, or pressure will eventually produce abnormal cell progeny and consequent abnormal cell proliferation—in other words, we will attempt to explain the genesis of the cancer cell.*

Bearing this broad assertion in mind, let us consider the following facts:

Kirke's "Standard Physiology" defines a cell as

"a nucleated mass of protoplasm of microscopic size which possesses sufficient individuality to have a life history of its own. Each cell goes through the same cycle of changes as the whole organism, though doubtless in a much shorter time. Beginning with its origin from some preexisting cell it grows, produces other cells, and finally dies." What, however, occurs when the integrity of these preexisting cells is interfered with? Do they propagate abnormal or different cells?

As we have had occasion to notice in the urinary examinations, and as has been noted in examinations of tissue after Roentgenization, the character of the cells can be changed by inflammatory stress and trauma. As demonstrated under the microscope, a simple squamous epithelium becomes so changed that it cannot be distinguished from a cancer cell by a competent pathologist.

Let us consider another phase of the subject: What changes occur in cells when through repeated traumata or inflammatory changes the trophic nerve supply of a part is interfered with or impaired or inhibited and its transmission of impulses is hindered?

We quote from Kirke's "Physiology" once more: "The morbid effects which division of the fifth nerve produces in the organs of special sense make it probable that in the normal state the fifth nerve exercises some special or trophic influence upon the nutrition of those parts; although in part the effect of the section of the nerve is only indirectly destructive by abolishing sensation, and therefore the natural safeguard which leads to the protection of parts from external injury. Thus, after a division, within a period varying from twenty-four hours to a week, the cornea begins to be opaque, then it grows completely white; a low destructive inflammatory process ensues in the conjunctiva, sclerotica, and interior parts of the eye, and within one or a few weeks the whole eye may be quite disorganized and the cornea may slough or be penetrated by a large ulcer."

Division, therefore, with absolute disappearance of trophic nerve influence is followed by ulceration of tissue. What occurs when, through repeated irritations, the trophic nerve presiding over tissue changes becomes inflamed and its nerve cells, nerve fibers, and sheaths through pressure lose their ability to preside over function? We can logically conclude that impulses inhibiting and controlling normal cell proliferation can be interfered with—that inasmuch as destruction of the trophic nerve is followed by ulceration, partial inhibition will permit changes in the supplied cells, which, if continued, will induce a new abnormal progeny of cells following the line of observation as already noted. These abnormal cells being under inadequate trophic nerve control proliferate riotously, slowly invade normal tissue, appear as tumors, and destroy surrounding tissues, themselves breaking down and ulcerating ultimately when the trophic influence is entirely lost through division or continued inflammatory changes. The fact that the great majority of cancer cases occur past middle life confirms these contentions.

Arteriosclerosis is a common and almost inevitable change occurring in advanced life; with it coincident changes in the nerve cells and fibers take place, with interference of function and conductivity.

The skin, when subject to friction and mild irritation, protects itself through the formation of keratin—this is particularly noted on the hands and feet. When through repeated trauma or irritation the peripheral nerve supply becomes impaired, the integrity of the skin is lowered and changes in cell proliferation or necrosis will be induced. This readily explains the overwhelming frequency of epithelioma of the face as compared with the protected parts of the body. The face is subject to traumata of all kinds, the prominence, especially about the nose, being particularly subject to such irritations. In the aged, when the innervation and the blood-supply are impaired through sclerotic changes, regeneration and repair of tissue such as follows in youth very promptly is either delayed or absent. The frequency of keratosis senilis in a poorly nourished skin is noticed by all observers—when the condition becomes aggravated and the trophic nerve becomes involved or injured, cancerous degeneration will be invited. The frequency with which senile warts and moles degenerate into malignant tissue requires no emphasis; it is so common an occurrence that prominent surgeons, notably W. W. Keen, have advocated surgical removal of these benign growths in order to obviate subsequent maligancy. Epithelioma and carcinoma of the cervix and uterus having old, neglected lacerations of the parts as a history are too common to require emphasis—as is the fact that married women are more subject to cancer of the genitalia than are unmarried women. These facts can all be referred to chronic inflammation or irritation of the parts and subsequent gradual abnormal cell proliferation. The remarkable increase in cancer of the stomach and intestines may in part be referred to the improved diagnostic ability of the physicians of today as compared with those of several decades ago. It may, however, not be amiss to refer to one feature of civilized life which may have some bearing on this subject. The old copper cooking utensils of our grandsires have now been largely replaced by enameled or agate ware. May it not be the fact that minute particles of this gritty, irritating enamel frequently mix with the food, and through oft repeated irritation of the alimentary tract after many years produce abnormal cells changes? The pylorus, particularly, as the gateway to the intestines is the recipient of irritations of all kinds contained in food, such as spiculæ of bone, seeds and pits of fruits; loose bristles of tooth-brushes accidentally swallowed may also be mentioned as irritants to this portion of the anatomy. Statistics show that the typical location for cancer of the stomach is at the pyloric end. Rectal cancer may be traced to incessant irritation from fissures, ulcers, and hemorrhoids. The use of coarse closet paper (newspapers) may after many years also be expected to induce abnormal cell changes in the mucous membrane of the rectum if our conclusions are correct.

Trauma of the female breast is a common occurrence, and so is coincident cancer of the breast in women. In the male, malignant tumors of the breast are rare. We have treated a case of carcinoma of the breast in a man, the etiology of which was traced to his occupation. He was a porter of hides, and the flaps of the leather struck him over the region of the site of the tumor many thousand times before the abnormal cell changes were noted. Cancer of the throat and tongue are much more common in men than in women. This is undoubtedly due to smoking, with the entailing irritation of the pipe or fumes—this irritation may go on for years before cell changes appear, and a trauma of a

mechanical nature may be requisite before the subsequent repeated irritations induce changes in cell proliferation.

In what way can the relative low percentage of cases of cancer of the throat and tongue in women be explained excepting on the above premises?

In the histories of cases examined by the writer many neoplasms were traced to irritations from decayed and diseased teeth and from repeated injuries to the mucous membranes in dental operations. Two cases of round-cell sarcoma can absolutely be traced to injuries following repeated dental operations about the molar regions. Two cases of scirrhus of the right breast were traced to the habit the women had of carrying purses inside of the corset and pinning jewelry in the same location for safe keeping whenever they left their homes. The constant trauma of these hard substances, striking the gland innumerable times, can undoubtedly be put down as a factor in the etiology of the subsequent tumor. Quite a number of breast tumors were referred to a single severe blow, thus one case reported being struck by a toy hammer in the hands of a grandchild, the tumor growing in the precise lesion induced by the trauma; another case resulted from being injured in an automobile, a piece of metal striking the exact location where the cancer subsequently developed.

Classification of three hundred cases of cancer observed by the writer at Flower Hospital and in private practice shows the following:

1. Sex: 60 per cent. women; married women in great majority.

2. Age: Great majority of patients from 50 to 65 years old.

3. General health: Patients in fairly good health, excepting in cases of long standing, when cachexia had supervened. Constipation present in a large percentage of cases. Negative history of syphilis in nearly all the cases. Gonorrhea admitted by nearly all male cases. Vaccination had been performed on all cases questioned on this point.

4. The infectiousness of cancer from contact or otherwise was not established, and the bacterial or parasitic origin of cancer receives no corroboration or encouragement from our experience.

5. Hereditary history in only 10 per cent. of the cases of cancer.

6. After persistent questioning, history of trauma preceding neoplasm in 90 per cent. of the cases. Offhand questioning often results in negative replies, but persistent and careful questions as regards habits, occupations, etc., usually elicit some kind of trauma or irritation to which the patients frequently attached no importance, but which, in the light of present knowledge, when oft repeated, are a menace to healthy cell development.

As corroborative of his observations, the writer desires to quote a résumé of the report of the "Third Imperial Cancer Research Fund," which has just been published.* "It is a record of vast amount of patient experiment and observations. The first report of the fund was published in the spring of 1904, the second a year later; so that the present volume is the outcome of more than three years' silence, during which work has been continuously conducted in the laboratories. The nature of the connection between the irritation and the disease has received much attention from the investigators acting for the fund. A wide study of cases of cancer has shown that the hypothesis of a congenital or embryonic origin of cancer is incorrect. Thus cancer of the skin of the abdomen is practically unknown in Europe, but common in Kashmir. This is not due to any special presence of embryonic germs in the skin of the abdomen of the Kashmirs, but to its irritation by wearing a charcoal oven around the waist. Again, cancer of the floor of the mouth is rare in European women, although not uncommon in men; but in India women suffer from it in high degree. The difference is due to the fact that Indian women chew betel nut and sleep with the plug in the cheek at the exact spot where cancer starts. In needle-women, melanotic sarcoma often develops in the fingers at the site of frequent puncturing by the sewing needle. Relief in the congenital origin being abandoned, the question of heredity is discussed. The most recent returns of the registrar-general show that in 1906, out of a total of 141,241 deaths of males about the age of 35, 12,695 were due to cancer, and that out of a total of 140,607 similar deaths of females, 17,671 were due to cancer. The duration of human life and the small number of descendants from each pair render a trustworthy statistical inquiry in man impossible at present. But this difficulty can be obviated in short-lived animals. In the mouse the question is in a fair way of being settled by means of breeding and in-breeding experiments on a large scale. As yet no evidence has been obtained that cancer has been increased by in-breeding, and the hypothesis of special inherited liability, although not disproved, is much weakened."

Journal of the American Medical Association, November 8, 1908

With this array of facts before us, the writer desires to review what Roentgenology has contributed to the study of the etiology of cancer.

Soon after the discovery of the Roentgen ray, pathological effects were noted from the effects of Roentgenization. These were, at the beginning, ascribed to the secondary rays, but closer investigation showed that Roentgen rays had a powerful effect not only upon the skin but upon the deeper tissues and organs as well. Kienboeck of Vienna soon pointed out that the intensity of Roentgenization depended upon the quality and quantity of the rays absorbed by the tissues through which they had passed. Depending upon this dosage and the susceptibility of the cell, the reaction was a mild or severe one. Mild Roentgenization permits regeneration of the attacked cell or group of cells—severe raying produces necrobiosis.

Holzknecht of Vienna proved that the action of the ray was not that of a cautery or irritant, but that it produced distinct degenerative processes to which certain cells were more or less susceptible. He also showed that, depending upon the amount of ray absorbed by the cells, degenerative changes were induced—the greater the Roentgenization the quicker the degeneration, and the more severe was the subsequent reactive inflammation. The milder the dose the more delayed was the degeneration (if any) and the milder the induced reaction. Thus the reaction might occur in some cases within three days, in others only after thirty to forty days. The action of the Roentgen ray may therefore be classified as follows: (1) The primary degeneration of cells. (2) The secondary inflammatory reaction, subsequent to the changes in the degenerating cells.

Our therapeutic success depends on the factor of cell degeneration in nearly all cases, although the hyperemia induced by the secondary reactive inflammation has value in many skin lesions (particu-

larly lupus vulgaris) and in the relief of neuralgia and neuritis.

The action of the Roentgen ray has been particularly studied in its relation to the skin and glandular structures.

Upon the skin we recognize two principal varieties of dermatitis, the acute and the chronic Roentgen dermatitis—the latter particularly, found in Roentgenologists. For the purpose of this essay the effect upon the skin and underlying tissues of chronic Roentgen dermatitis only will be discussed.

Holzknecht, Kienboeck, Oudin, Albers-Schoenberg, Scholtz, and many others have made exhaustive studies of the action of the Roentgen ray upon tissues, and proved conclusively that the degeneration of the rayed cells constitutes the principal mode of action of this agent. Upon the skin the epithelial elements degenerate, and the adnexa (including hair, nails, sweat, and sebaceous glands) partake of this degenerative change. Following this procedure we note the reactive inflammation and then regeneration or destruction of tissue depending upon the dose.

Chronic Roentgen dermatitis has been studied particularly by Unna of Hamburg, and his conclusions have been accepted by the majority of Roentgenologists. We desire to call attention especially to the fact that Unna mentions a case of fibrosarcoma developing from an area of chronic Roentgen dermatitis, and that his conclusions are that all parts of the skin partake of degenerative changes, that the epidermis becomes keratinous to a marked degree, atrophy takes place, and a predisposition to cancerous degeneration is noted. That epitheliomata and carcinomata have developed on the site of a Roentgen ulcer requires no detailed exploitation at this time. Cases both abroad and in the United States are fresh in our memory to keep this fact before us. The recent death of the Roentgen tube manufacturer, Mr. Bauer, at a hospital in Brooklyn, from carcinoma traced to chronic Roentgen dermatitis still lingers in our minds, and the many operations on Roentgen operators for carcinomatous degeneration of chronic Roentgen lesions are so well known as to require no emphasis.

The explanation offered by pathologists for the development of malignant cells in Roentgen ulcers or scars does not, in the opinion of the writer, cover the ground. They assume that under the "stimulating" effect of the rays these cells change their character and karyokinesis takes place under abnormal conditions. As continued Roentgenization produces obliteration of the blood-vessels from which the epithelial cells derive their nourishment, the latter, finding their supply of blood gone, seek nourishment in the surrounding tissues and invade them, thus practically becoming parasites upon healthy tissue. This hypothesis does not, in my opinion, explain the process of malignant degeneration as well as does the theory of trauma, irritation, and chronic inflammation with coincident impaired trophic nerve supply and a subsequent progeny of abnormal cells formed in a new environment.

All Roentgenologists can affirm the undoubted efficacy of the ray in epithelioma, and all observers know that chronic Roentgen dermatitis has, in numerous cases, in different parts of the world, produced cancerous degeneration of tissue. This seeming paradox can be physically explained by the fact that Roentgenization, if applied in a given dose, will be followed by degeneration of the cells attacked, and regeneration of surrounding tissue will follow. Normal tissue being less susceptible to the action of the ray, the abnormal cells will degenerate most rapidly and be replaced by healthy reactive scar tissue. If this area is not attacked too soon after the desired effect has been obtained and raying is suspended, all will be well; if, as is frequently the case, however, raying is kept up for many months and the trophic nerve supplying the parts becomes inhibited through inflammation or atrophy of surrounding tissue, the familiar aspect of the Roentgen ulcer is noted with its non-response to treatment and its frequent cancerous degeneration.

The Roentgen ray in its relation to the etiology of cancer has practically annihilated the germ theory of cancer upon which so many experiments have been made, for in none of the excised lesions of Roentgenologists or in others in whom cancerous degeneration supervened has a specific germ been found.

The experience with the Roentgen ray has also killed the bugbear of hereditary predisposition to cancer, for the Roentgenologists attacked give no special history of this kind and had, previous to their Roentgen injuries, been in robust health. Our researches must hereafter, therefore, be confined to the study of vital processes themselves and the pathological observations of the writer on the changes of epithelial cells in inflammatory states of the urinary tract, where they can be readily studied, point out a clear road for further corroborative and experimental study.

To recapitulate our conclusions:

Neoplasms are due to interference with normal cell reproduction induced through trauma, pressure, severe inflammations, or constant irritations; these factors act upon cell proliferation by producing abnormal cells which in turn, if the original irritating status is maintained, again generate cells of their own kind.

If trophic nerve impulses are not interfered with, normal conditions may supervene when the irritation or inflammation subsides.

If involvement of the trophic nerve takes place so that efferent and afferent impulses are interfered with or inhibited, riotous development of the new progeny of cells will be invited. If the trophic nerve supplying the part is severed or permanently inhibited, ulceration will supervene.

The above theory places the etiology of cancer formation upon a rational basis, and permits us to guard against its increase by prophylactic measures which readily suggest themselves.

TWO UNUSUAL CASES OF INFLUENZA-PNEUMONIA.

By ROLFE FLOYD, M.D.

NEW YORK

The following two cases of influenza-pneumonia, both occurring in private practice, seemed to me of sufficient interest to warrant putting them on record; the first, because of its extreme mildness; the second, because of the coincidence of rapid and complete consolidation with an abatement of all constitutional symptoms.

Case 1. *Very Mild Influenza-Pneumonia.*—Incomplete consolidation is almost the rule in the pneumonia that accompanies influenza in New York. In mild cases, with very slight and late-appearing signs, it is sometimes hard to determine whether the influenza is complicated by a true inflammation

of the lung parenchyma or not. Such patients are spoken of as "threatened with pneumonia" or "suffering from acute congestion of the lungs," or by some similar phrase indicative of the physician's inability to make a certain diagnosis. It is of interest to know in this connection how mild a true in-

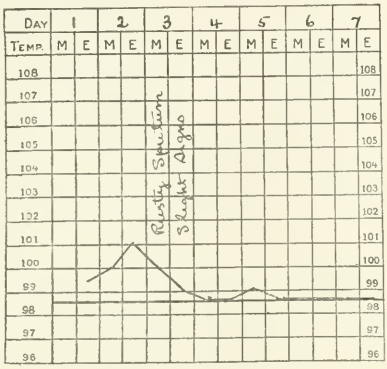


Fig. 1.—Temperature chart of Case I.

fluenza-pneumonia can be. In the following case the presence of typical rusty sputum put the diagnosis beyond question.

A man, 68 years old, came to my office February 23, 1906, suffering from a catarrhal laryngitis. He had had no chill or other marked symptom of onset, but he felt a little miserable. I saw him at his house in the evening feeling a little sick, with temperature of 99½° F. by mouth. There were no abnormal physical signs over the chest.

On the second day of his illness he was about the house, eating fairly well, somewhat hoarse from his laryngitis. Some body pains developed towards evening, but he had no chill and no pain in his chest. There were no abnormal physical signs over the lungs.

On the third day he had rested fairly, and was eating a little solid food. There were slight body pains, but he was hardly sick. He had a very infrequent cough, perhaps six times in the day, and raised typical rusty sputum each time. There was now slight comparative dullness at the base of the left lung, and in same area the breathing was a little increased in intensity and a little altered in quality. There was no change in the voice and no râles. When these symptoms and signs developed, he was sent to bed, much against his will.

On the fourth day he was very comfortable, with no pain anywhere. He ate three meals. His cough was still very infrequent, but he raised about two ounces of sputum in twenty-four hours. In the morning it was typically rusty, with some blood streaks, but in the evening became paler and more mucopurulent in character. There was distinct comparative dullness at the left base, with breathing of slightly altered quality. There was no change in the voice, and there were no râles.

On the fifth day he was no longer sick, appetite good, anxious to be out of bed. Sputum mucoid and tenacious. The dullness persisted, but the breathing was normal again.

On the sixth day he was out of bed for one hour. He raised a little rusty sputum in the morning. Dullness was persistent at the left base.

On the eleventh day the patient was well. The abnormal signs over the lungs had entirely disappeared.

Case II. *Influenza-Pneumonia With Complete Consolidation Appearing During Defervescence by Lysis.*—Man, 34 years old: Six weeks ago he had an attack of influenza, associated with severe coryza, moderate bronchitis, and a temperature of 102½° F. This attack lasted ten days. This evening, January 16, 1908, he was taken with chills, body pains, restlessness and prostration. His temperature rose to 103° F.

On the second day of the illness he was very miserable. He had hardly closed his eyes during the night. Anorexia was complete. There was no cough. There were no abnormal signs over the lungs, and no evidence of any local inflammation.

On the third day he had had no sleep at all. His face was beginning to look poisoned, and his restlessness was increasing. There were a few subcrepitant râles at both bases, more on the right side. There was no change in note, voice, or breathing.

On the fourth day he had had no sleep. Face typical of bad influenza poisoning. Restlessness extreme. Pulse not up to 100. Respiration not disturbed. Physical signs same as on the third day.

On the fifth day he felt a little better, because he got three and a half hours of sleep in the night, after taking bromide. In the evening he felt sicker again, and began to have pain in the left chest, with some cough. There was slight comparative dullness at the left base with altered vesicular breathing. A few subcrepitant râles at both bases.

On the sixth day it was reported that the night had been one of extreme restlessness, in spite of bromide. He wandered from one room to another most of the time, and could not lie still in bed at all. His mind was flighty, but he did not become actually delirious. On this day he looked pretty sick, but his temperature was only 100° F., his pulse and respiration hardly disturbed. He had no cyanosis, but a little subjective dyspnea. The pain in the side was nearly gone. He had a slight cough. There was dullness with distinct bronchial breathing and bronchial voice all over the left lower lobe. He was

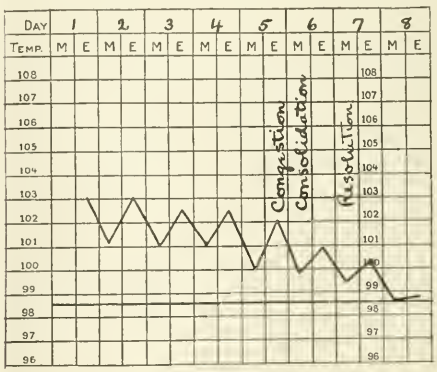


Fig. 2.—Temperature chart of Case II.

given one-sixth grain of morphine by hypodermic, and had a comparatively comfortable day, sleeping a good deal at intervals. In the evening he took a little solid food, and looked less poisoned.

On the seventh day he looked convalescent, after a good night. Air was beginning to enter the left

lower lobe, and the bronchial voice and breathing were much less distinct. Coarse râles were just beginning.

On the eighth day, convalescence and resolution were advancing rapidly.

On the ninth he was still gaining rapidly. He was taken out of bed for an hour. There was no more bronchial voice and breathing; only dullness and râles.

On the eleventh day he was out of the house.

On the thirteenth day the patient was well. No abnormal signs.

A peculiar feature of this case was the small amount of sputum raised; a little mucopus a few times, once blood-streaked, but never rusty. The lymphatics took away a large exudation very promptly.

REDUPLICATION OF THE TIBIA.*

By JOS. B. BISSELL, M.D.,
NEW YORK

I WISH to present this case to you for several reasons: Its rarity, the early age of the subject, the extensive involvement of the disease, and the complete and rapid recovery. Reduplication of bone from the periosteum and the epiphyseal centers is not rare theoretically. Practically, however, we meet with few cases showing such marked results as are found in this little baby, which I show you this evening. The extensive metastases which took place in this subject adding to the difficulty of its recovery make the case still more unique, and thus I hope worth more than a passing notice.

The patient, a boy, R. L. S., at the time of my being called to see him, was eight weeks old, weighed ten pounds three ounces, and was of healthy parentage. Mother has had seven children, two of whom were twins. This is his first illness. Nourished by modified milk from his birth.

While at the seashore, July 8, 1908, a few days before I saw him, a small abcess had appeared over the mental prominence to the right of the middle line. It was opened and healed rapidly. Following that or coincident with it the baby developed an acute attack of colitis, which subsided in about seventy-two hours. Immediately after this intestinal infection, a point of inflammation appeared at the junction of the upper and middle fourth of the right tibia anteriorly. This grew rapidly worse and developed into an abscess which was opened and the pus evacuated.

On my first visit to the patient, a new point of infection had developed over the lower portion of the tibia at its crest, and within forty-eight hours another point of infection appeared low down in the calf muscle. These were opened. As the cavity of the upper abscess seemed pretty deep, a drain was pushed through near the lower part of the popliteal space. Following that I connected the upper and lower part of the tibial area of infection, and drainage was carried through the openings.

During the following two weeks of treatment an abscess developed over the left sternoclavicular junction. Later two small abscesses developed in the periosteum of the skull posteriorly. These latter were opened and drained, and they healed without incident. The abscess at the sternoclavicular junction healed in about three weeks. In the meantime, the sinuses of the tibia were treated by free drainage, constant irrigation, and Bier's cups. On August 19, on removing some pieces of dead bone from the upper sinus, I discovered that the main portion of the bone seemed to be gently rotating in the forceps. All of the tibia from the epiphysis above to the epiphysis below, that is, the entire shaft of the bone, came away without any difficulty. Daily irrigation through the sinuses was continued, until by September 25 the openings closed. There remained an ulceration at the site of the original abscess of the leg which necessitated treatment lasting several weeks.

In order to prevent the fracture of the fibula, which did not seem to be infected, and to prevent deformity of the leg, a moulded plaster-of-Paris splint extending from the groin to below the ankle and encircling the foot was applied for support. Later on a plaster-of-Paris splint—with a window cut in it to permit local treatment—was used to support the leg, the plaster of Paris extending from the toes to the upper portion of the femur. After the lesion in the soft tissue seemed to be entirely healed the plaster of Paris was removed, and an endeavor was made to hold the leg by means of bass-wood splints. The plaster of Paris had to be omitted because of excoriation in the upper part of the thigh, due to dribbling of urine, and also to a slight superficial infection on the heel. The baby constantly injured this leg by striking it with the other foot. Therefore, as soon as the skin was healed, I put the whole leg back in plaster of Paris, making a solid split from the toes to the groin with the knee slightly flexed. As far as I could tell—examining the leg from time to time—there was a bony tibia, but, because of the fact that I had removed the entire shaft of this bone between its epiphyseal centers, I was timid in using much pressure, or in allowing free motion of the leg.

Before applying the plaster-of-Paris solid splint, on October 25, I had an *x*-ray taken of the leg. It was difficult to hold the child quiet, which is the cause of the indefinite outline to the edge of the tibia in the plate, but the solidity of the bone can be shown by contrasting the bones of the leg with those of my fingers, as shown in the *x*-ray plate.

On October 10 a new abscess appeared over the back of the skull. This was opened and drained. It healed without trouble in ten days. Later still, I removed a piece of the lower jaw of the left side that has healed rapidly and completely. The necrosed bone removed is about the size of a dime. It was obtained November 7, 1908. It is here in this bottle with the tibia. This is the last infection to date. The baby has taken nourishment constantly with very little if any difficulty. He now weighs fourteen pounds plus.

The rapid healing of the points of infection on the scalp and of the sinus at the acromioclavicular joint, as well as of the disease in the tibia, was hastened by the application of Bier's cups to the location of the trouble at each special point

46 WEST FIFTY-FIFTH STREET.

*Read before Section on Surgery, Academy of Medicine, December 4, 1908.

A Purin-free Diet in Seasickness.—Dr. A. Stanley Green writes in the *British Medical Journal*, calling attention to the possible influence of abstention from meat as a prophylactic of seasickness. He says he was always a great sufferer from seasickness until, for another reason, he put himself on a purin-free diet. Since then he has crossed the channel several times in very rough weather without a qualm.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

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New York, March 27, 1909.

GEORGE BERNARD SHAW ON THE MEDICAL PROFESSION.

MR. SHAW on one occasion greatly hurt the feelings of English medical men in general by his caricatures of physicians in the "Doctor's Dilemma," and recently in London he has hardly redeemed his reputation in the eyes of the profession by a speech delivered before the Medico-Legal Society on February 16. The subject of the address was a socialist criticism of the medical profession and the pith of the remarks was to the effect that medical men had deteriorated in position and had retrograded in earning power during the past thirty or forty years. Indeed, in the speaker's opinion, the doctor of the present day had been practically driven into the position of a private tradesman. A doctor gave his opinion and the patient asked him what he owed as boldly as one would a shopkeeper in the street. There being no systematic state organization of his profession naturally the doctor was forced by circumstances—however repugnant to his feelings—to go into the commerce of healing and to become a professional "medicine man"—a professional "healer"—who sold "cures" because that was what the public went to him for.

Owing to the acute competition in the medical profession the ordinary doctor was abjectly and humiliatingly poor, and worked harder on the whole than the member of any other profession or trade. His time was never his own, and in a certain class of practice the night bell never stopped. Furthermore doctors had always appearances to keep up and incurred a great many expenses really for the sake of their patients. Many who looked prosperous were in truth quite poor.

Mr. Shaw's remedy for this unfortunate state of affairs is to socialize the medical profession. His argument is that though poverty is no crime, it is closely akin to crime, that, at any rate, poverty is a bad thing, that the poor man is always dangerous, and that the doctor when poor is especially dangerous. Like most men he is as honest as he can afford to be, and in existing circumstances he cannot afford to be scientifically honest. The patient, too poor to pay for scientific treatment, demanded cheaper cures, the result being that the doctor had to gratify him in a way, and having no other means of livelihood he prescribed cheap cures and thereby became a swindler. According to the speaker, and allowing for all paradox and exaggeration it must be confessed that his statements are illuminated by truth, the doctor resembled in many respects a servant trained in a large charitable institution. His training was given at a hospital where were nurses, antiseptics, and so forth. He spent his student days in a building wonderfully and beautifully made with no right angles but with nicely rounded corners, and then, just like the servant, he was suddenly pitched into a poor district and had to go through life in surgically dirty clothes and do his work in surgically dirty rooms with surgically dirty people who could not afford medicines or anything. Organization, that is to say socialization of the medical profession, was the only way out of the difficulty. In order to get the maximum of hygienic influence and the greatest economy in using the skill of the profession, it was necessary to have medical men organized, so that different grades did different work, and that the mere routine should not be left to the best men to do. Such organization was altogether impossible while private practice was the rule. It could only be done if the profession was organized publicly by the State.

Mr. Shaw holds the view that organization of this nature will benefit the physician who elects to undertake private practice nearly as much as he who is in the public service. For, having the alternative of public service he will be in as independent a position as if he were a public servant; and, on the other hand, the patient will always have the choice of getting public attendance, and so he, having the alternative, will be as well off with the private doctor as he will be with the public doctor. Many men who are in a position to judge believe that in Great Britain the time is approaching with greater or less rapidity when the medical man will become the official servant of the public. Matters are in such an unsatisfactory condition from the standpoint of health and hygiene with the population in general, especially in the towns, and with the medical profession financially and otherwise, through competition and lack of unity, that steps to better the situation are loudly called for. Mr. Shaw's views may be visionary, and he may have spoken to some extent with his tongue in his cheek, but his statements are so sound in the main that they cannot but invite the earnest attention of physicians.

BLOOD COUNTS IN APPENDICITIS.

GENERAL practitioners are called more often than surgeons to treat patients with beginning appendicitis, and frequently enough they find great difficulty in deciding just when surgical interference is to be recommended. Only extended hospital experience, with opportunity to study the "pathology of the living" as disclosed on the operation table, can furnish the necessary knowledge that should guide in advising for or against operations, and, of course, such experience at present is limited to the minority of the profession. Any facts that help the general practitioner in reaching the decision in cases of appendicitis in regard to the necessity of operating are, therefore, quite welcome, especially if they are derived from extensive routine

observations made in hospitals. Such facts are presented in an interesting communication by Dr. George N. Pease in the *Annals of Surgery* for March, 1909, dealing with the value of the leucocyte and differential counts in appendicitis. The cases upon which the paper is based numbered three hundred, all of which went to operation, and in all a definite pathological diagnosis of the lesion was made. For the purpose of comparison the cases were divided into those of chronic appendicitis, of simple acute appendicitis, characterized by local inflammation without gangrene, of acute gangrenous appendicitis, of abscess formation, of appendicitis with local peritonitis, and, finally, of cases of general spreading peritonitis. The averages of the blood counts made showed that the more severe the pathological lesion the higher was the leucocyte count and the higher also was the percentage of polymorphonuclear cells in the differential count. But the mere leucocyte count proved to be a very uncertain guide in diagnosing the character of the lesion in each individual case. In many instances of severe infection the resistance of the body was so overwhelmed that very low leucocyte counts were obtained. On the other hand the polymorphonuclear count proved to be a much safer guide; practically two-thirds of the severe cases showed a count of over 85 per cent., while the great majority of cases of peritonitis were accompanied by a polymorphonuclear percentage of over ninety. The general conclusions reached from the study of the three hundred cases are, therefore, that a polynuclear count between 85 and 90 per cent. indicates the presence of a severe process; above 90, a dangerous condition with the probability of peritonitis as a complication; below 80 per cent., safety for the time being; between 80 and 85 per cent., doubt.

It seems evident, accordingly, that a careful study of the blood furnishes a very valuable guide as to the intensity of the process in and about the appendix. At the same time, however, it remains true that in each individual case no one sign or symptom should ever be looked upon as the determining factor; the blood count is only one of the diagnostic methods at our command and its value should not be judged by itself alone but in connection with all other clinical and laboratory data obtained in reference to the patient. Judicious balancing of all the information obtained is the keynote of successful diagnosis of the lesion in cases of appendicitis and, therefore, of successful treatment by medical or surgical means.

A Unique Sanitary Circular.

The communities of the effete East are wont to make merry over the freak bills introduced into and sometimes passed by the legislatures of the Western States, but if any town in any State in the Union has a Board of Health more freakish and more outrageous in its pronouncements than the Board of Health of the town of Depew in New York State it would be interesting to hear of it. We have recently been favored with a pamphlet, copyrighted by George N. Jack, M.D., entitled "Suggestions Adopted by the Depew, N. Y., Board of Health for the Prevention of Sickness, Corruption, Crime, and as an Evolutionary Aid to Humanity." The edict, or code of morality, or bunch of health maxims, or whatever it may be called, is in the form of fifty axiomatic paragraphs. We cannot undertake to reproduce them all, indeed the fear of Mr. Comstock would deter us, and we can only indicate in a general way the nature of the publication, leaving it to any curious-minded reader to write to the author for a copy, the which he will probably receive promptly unless in the meantime the postal authorities declare it unmailable. The author differs from the Psalmist and the ex-President in his estimation of the virtue of large families and regards as far from blessed the man with a full quiver. He regards it indeed as a crime for a poor man to have a large family and would restrict the number of children to four. Others have had similar views as to the advisability of the restriction of the family, but one must have lived many years and read much before meeting a public health official who would propose the author's Rousseauistic remedy for overproduction. But there are other queer pseudo-axioms in the pamphlet, which may be more discreetly noticed. No. 4 reads: "Erroneous notions regarding the sexual organs and the hereafter are the chief causes of neurasthenia, functional insanity, poverty, overbreeding, and prostitution." Correlated with this is No. 46 which affirms that "All barren uneducated people cannot be placed at the door of the physician; they prevent conception themselves. The remedy here is for science to make known the scientific fact (sic!) that we have no conscious existence after death and that those who die childless lose their only hope of continued life or perpetuation." No 9 is an epitome of the doctrine of infectious diseases: "Tuberculosis, Asiatic cholera, the plague, and smallpox are diseases of filth and over-population." An excellent hygienic maxim is No. 41 which says that "The preface (sic!) of all male children should be examined once a week." The Depew Board of Health appears to be as sound in finance as it is in morals, theology, pathology, and grammar, for it announces in this wonderful tract (axiom 20) that no man who has his money in the bank or invested in bonds ever pays taxes. We would not advise the tax-dodger to put his money in bonds on the strength of this. Genius has no show with these sanitary officers, for they say (axiom 23) that "Life is an interlocking, interchanging, magnetic reciprocation, therefore one will never rise mentally or physically much above the status of his country." We hope that the converse is true, that no citizen of our country can ever fall mentally much below the status of the writer of these atrocious "pioneer suggestions," "framed by the Depew Board of Health for the advancement of the human race."

Spitting and Sweeping.

The recent revival in this city of activity in enforcing the antispitting ordinance is justifiable so far as it goes, but like many reforms it scarcely goes far enough to be of permanent value. Spasmodic efforts seldom achieve very much for very long; they are like flames that spring up from dying embers only to be smothered in the smoke and ashes which they create. Reforms, like all other agencies of progress, must be steady and

insistent if the work they are intended to perform is to be of lasting value. In the midst of our efforts to secure ourselves and posterity against untimely disease and premature death we are strangely lax in carrying out the very first principles of what we call the modern services of sanitation. It is scarcely too much to say that a single sweep of a porter's broom upon the cement platform of a subway station sets into motion more colonies of dangerous bacteria than do the careless and disgusting persons who make themselves a public nuisance by expectorating in the very pathway of their neighbors, although it is true the porter's broom is made more of a menace because of the spitter who has supplied the germs for disposal. To minimize the evil of the spitting habit would be an offense, but to magnify it and say nothing of conditions which are far easier to control is neither just nor wise. The street cleaners come in also for their share of opprobrium, and the methods they now use are in urgent need of change. Why should one fresh from a morning bath and in the exhilaration of cleanliness and fitness for the day's work be subject to a shower of ashes and dirt within two minutes after leaving his door? Eyes, nose, mouth, and ears are filled with irritating dirt, and must perchance remain so for the greater part of the day. It is very difficult to see why the toilet of the city should not be performed at night or in the early morning hours before most people are astir. That is the logical time for the collection of garbage and ashes, the sweeping of streets, and the flushing out of gutters. The idea is not new, it has been brought up before, many times, but the old state of things continues. Our slumbers are not likely to be so much disturbed by the work of the scavengers as by the honks of the auto and the clang of flat-wheeled cars. If a heavy fine were imposed upon each and every person who violated an ordinance against unnecessarily poisoning the air we are obliged to breathe, a long step would be taken in the prevention of respiratory and kindred diseases.

Experimentally Produced Tumor.

The experimental study of tumors has of late mainly followed two directions; one of them consists of the transplantation of the tumors of animals into series of healthy individuals, the other of the many attempts to produce tumors in healthy individuals without inoculating them with other tumor cells. These latter attempts have usually met with complete failure, for the various masses of new tissue produced by the use of chemical and mechanical irritants have in the end proved to be simply inflammatory in character and usually failed to persist after the action of the irritant was discontinued. Somewhat more successful have been the numerous endeavors to imitate certain tumors by transplanting various actively growing tissues of one animal into another. One such experiment apparently crowned with unusual success is reported by Neuhäuser in the *Deutsche medizinische Wochenschrift* for February 25, 1909. This investigator utilized for his experiments the adrenal bodies of rabbits only a few days old, transplanting them into the kidneys of other rabbits. In one instance, at least, the implanted piece of adrenal tissue continued to grow in the tissues of the kidney and finally reached many times its original size. More than that, its cells seemed to have invaded the blood and lymph vessels of the host's kidney, so that actively growing areas of tumor could be seen in the vessel lumina; the borders of the new growth, too, were not sharply circumscribed, but showed numerous projections invading the surrounding tissues. Of course, the success in this case has been quite exceptional. However, even a single positive result must be looked upon as of great interest, for there are many reasons for the usual nonsuccess of such experiments. If Neuhäuser's conclusions are accepted they will furnish additional support to the Cohnheim-Ribbert inclusion theory of tumors.

News of the Week.

Sanitary Science and Public Health.—The course of lectures on this subject given at the College of Physicians and Surgeons, Columbia University, 437 West 59th Street, will be concluded during the month of April. The titles and the lecturers for the remaining dates will be as follows: April 5, Quarantine and Disinfection, Past Assistant Surgeon L. E. Cofer, United States Public Health and Marine-Hospital Service, recently Chief Quarantine Officer of the Hawaiian Islands and President of the Territorial Board of Health; April 7, Tenement House Sanitation, Mr. Robert W. de Forest, President of the Charity Organization Society, New York; April 12, Diseases of Animals Transmissible to Man, Dr. Theobald Smith, Fabyan Professor of Comparative Pathology, Harvard University; April 14, Personal Hygiene and the Hygiene of Communities (Gymnasia, Public Baths, Playgrounds, etc.), Dr. Luther Gulick, Chairman, Playground Extension Committee, Sage Foundation, New York; April 19, Industrial Hygiene and Sanitation—Factory Inspection, Dangerous Trades, Preventable Accidents, Child Labor, Mr. Frederick Ludwig Hoffman, Statistician, Prudential Insurance Company, New York; April 21, The Prevention of Alcoholism and Insanity, Dr. Frederick Peterson, Professor of Psychiatry, Columbia University; April 26, Visiting Nursing and Its Influence on the Prevention of Disease, Dr. Richard Clarke Cabot, Instructor in Clinical Medicine, Harvard University; April 28, The Influence of Education on Public Health, Mr. Homer Folks, Secretary of the State Charities Aid Association, New York. The lectures are open to the public without tickets of admission, and are given at five o'clock in the afternoon, the doors of the hall being closed at ten minutes after the hour.

Health Conditions in the Canal Zone.—The report of the Department of Sanitation for the month of January, 1909, calls attention to the low death rate of the total population under the jurisdiction of the department—22.86 per thousand. This is a considerable improvement over the rates for the same month in preceding years, which were as follows: January, 1905, 40.20 per thousand; January, 1906, 47.26; January, 1907, 35.12; January, 1908, 26.66. Among employees only the death rate per thousand is very much lower—10.98—and is also below the rates for preceding years, which were: January, 1905, 20.26 per thousand; January, 1906, 40.36; January, 1907, 25.62; January, 1908, 12.72. No case of yellow fever or smallpox occurred during the month, and the general health conditions were excellent.

Plague in China.—Sporadic cases of bubonic plague are reported in Amoy, China, by Dr. A. D.

Foster, Surgeon in charge of the American Marine Hospital at that point. He has recommended the detention and disinfection of passengers for the Philippines before they embark.

Foot and Mouth Disease.—Despatches from Kingston report that the foot and mouth disease has broken out among the cattle in Jamaica. The Government is taking drastic measures to stamp it out.

Tuberculosis Committee.—The annual report of this committee of the State Charities Aid Association of New York has just been issued. During the year from March 16, 1908, to March 16, 1909, the traveling tuberculosis exhibition was shown in nine cities. One hundred eight public meetings were held, and at these over 300,000 pieces of literature were distributed. Smaller exhibits were sent to thirty-six county fairs, 25,000 personal letters were sent throughout the State, 150,000 pieces of educational matter went out from the central office, and nearly one million pieces of such matter were distributed in various ways. Four counties are to have hospitals for advanced cases, and dispensaries have been opened in five cities. This work is all done outside of New York City.

The Otisville Sanatorium.—The New York City Department of Health calls attention to the facilities for the care of early cases of pulmonary tuberculosis, which are now available at the Municipal Sanatorium, situated at Otisville, New York. This institution has at present a little more than two hundred beds, and the number is being increased as rapidly as possible. Incipient cases and early second stage cases will be accepted. Application for admission should be made at the clinic for communicable pulmonary diseases of the Department of Health in the Borough of Manhattan, situated at 55th Street and Sixth Avenue. Physicians may send their patients directly to this clinic for examination with card or letter.

Summer Course in Chemistry.—Columbia University, New York, announces a course in chemistry to be given in the Summer School during the six weeks from July 7 to August 18, which will include the study of important organic substances of interest to medical men. The following classes of compounds will be considered: Sugars and carbohydrates, fats, amino acids and the hydrolysis of proteids, the uric acid group, alkaloids, essential oils, the artificial remedies and the bearing of their chemical constitution on their physiological function, etc. A series of eighteen lectures will accompany the course, if the attendance is sufficient to warrant it. Other courses will be given in the Summer School on elementary physiological chemistry, on the chemistry of nutrition, and on organic and sanitary analysis. Further information may be obtained from Professor J. L. R. Morgan, Columbia University, New York.

Addition to St. Luke's.—Plans have been filed with the Building Department for a nine-story addition to St. Luke's Hospital, New York, to be known as the Traverse' Pavilion. The addition will form a new wing at the east end of the hospital quadrangle. It is to be of brick with marble trimmings, harmonizing with the existing group of buildings. The first floor will contain a series of surgical operating rooms and examination rooms, and a sterilizing room. The second floor will have more examination rooms, an electrical apparatus room, and a laboratory. On the eighth floor there will be a solarium with a roof garden on top. The pavilion will be for dispensary patients, and will cost about $200,000. It is being erected as a memorial to William R. and Maria L. Travers, the parents of the donor.

Regulation of Laundries.—The passion for sterilization has extended to the laundries, and a bill has been introduced into the New York Assembly providing that all soiled clothing sent to laundries shall be contained in bags, and that these bags and their contents shall be subjected to a heat of 212° before they are opened. Some of the laundrymen have suggested going still further, and propose devising a plan by which the laundered goods may be sent back to the customer in a sealed package, having been sterilized just before it is sealed. The passage of such a bill would probably do away with most of the small Chinese laundries in the city.

Street Car Accidents.—During the month of February there occurred in New York a total of 3,508 accidents on the lines of the transportation companies within the limits of the city, according to the report of the Public Service Commission, the total number of persons injured being 2,188. Of these twenty-seven were killed, seven suffered fractured skulls, two amputated limbs, and fifteen broken limbs, while 140 others were seriously injured. For February, 1908, the total number of accidents was 3,951, and the total number of persons injured 2,157.

Dr. Wolff Freudenthal of New York was recently appointed a corresponding member of the German Laryngological Society of Berlin.

For the Employment of Epileptics.—A society has been organized in Philadelphia for the purpose of securing employment for epileptics. Dr. Matthew Wood has been elected president, and Drs. J. Madison Taylor, Thomas J. Mays, P. E. Bland, John H. W. Rhein and William M. Capp, directors.

Colonies for Epileptics.—The Illinois Legislature is considering at present the appropriation of $803,000 for the establishment of three special colonies for epileptics, one at Kankakee, one at Anna, and a third for feeble-minded children at Lincoln.

Hospital Quarantined.—Two cases of scarlet fever developing among the patients of the Presbyterian Hospital have made it necessary to place the institution under quarantine.

Diphtheria in University.—Three students at the University of Pennsylvania were recently found to be suffering from diphtheria and were removed to the Municipal Hospital.

Red Cross Stamp.—The success of the sale of the Red Cross Christmas stamp last winter has determined its continuance as a means of raising money for the tuberculosis work, and a public competition to provide a design has been announced. Prizes will be offered for the most suitable designs submitted.

No "Eye Specialists."—The Optometrical Society of the State of New York has issued notices that failure to use the title "optometrist" by the opticians who have registered under the new law will be regarded as a cause for expulsion. This action is designed to put an end to the use of such titles as "eye specialist" and "optical expert" on business cards and signs. The society is also giving attention to the use of the title "doctor," which

is assumed by some opticians who have never received a doctor's degree.

One Hundred Ten Years Old.—Mrs. Mary West, of Chatsworth, Ill., celebrated, on March 19, what was said to be her 110th birthday. She is still able to take an active interest in every-day affairs.

Nitrite of Amyl in Hemoptysis.—Dr. Thomas R. Evans, of El Paso, Texas, writes that the profession as a whole is not fully aware of the power of nitrite of amylin arresting hemoptysis. He has recently used it most successfully in two alarming cases in young men.

St. Francis' Hospital.—The report of St. Francis' Hospital, on East 142d Street, New York, shows that 2,500 patients were treated during the past year. The total number of deaths in the institution during the year was 192, but of these eighty-six entered the hospital in a moribund condition. With these latter deducted, the death rate would be only 4.2 per cent. The surgical cases treated numbered 909.

Transfer of Insane Patients.—Because of the overcrowding of the King's Park State Hospital for the Insane, the State Lunacy Commission recently ordered the transfer of 150 patients to other institutions. Of these 100 were sent to the Binghampton State Hospital, and the remainder to the Willard State Hospital. The insane hospitals in the lower part of the State are taxed to their full capacity.

Wholesale Vaccination.—Twenty-four hundred patients, attendants and physicians at the Illinois Central Insane Asylum were vaccinated in two days recently by the order of the Superintendent, following the discovery that one of the new patients at the asylum was suffering from smallpox.

Scientific Dietist, Philippine Service.—The United States Civil Service Commission announces an examination on April 14, 1909, to secure eligibles to fill a vacancy in the position of scientific dietist, at $900 per annum, for duty in the Philippines, and vacancies requiring similar qualifications as they may occur there. Board and quarters are furnished to the occupant of this position. The examination will be based on a thesis to be submitted with the application, on a subject relating to dietetics, 25 points, and on experience, 75 points. Candidates should apply to the United States Civil Service Commission, Washington, D. C., for application Forms 2 and 375.

Southwark Medical Society of Philadelphia.—At a stated meeting of this society, held on March 18, the evening was devoted to a symposium on pneumonia. Dr. Augustus A. Eshner discussed "The Etiology and Symptomatology from the Viewpoint of To-day," Dr. Julius L. Salinger "The Diagnosis and Complications of Pneumonia," and Dr. L. N. Boston "The Prognosis and Treatment of the Disease and Its Complications."

The Iowa State Medical Society will hold its annual convention in Dubuque on May 19, 20, and 21. The convention promises to be one of the largest in the history of the society, between five and six hundred physicians from various parts of the State having signified their intention to be present. On May 18 the State Society of Iowa Medical Women will, as is customary, hold their annual meeting at the same place.

Obituary Notes.—Dr. Henry De Lacey Sherwood of Jersey City, N. J., died at his home on March 16 of a complication of diseases, aged 48 years. Dr. Sherwood was graduated from the College of Physicians and Surgeons, New York, in 1882.

Dr. Dillon Brown of New York died at his home on March 16, after a year's illness, aged 49 years. Dr. Brown was graduated from the Harvard Medical School in 1885. He was resident physician at the New York Foundling Asylum during a part of the time when the late Dr. O'Dwyer was perfecting his method of intubation of the larynx, and became himself one of the pioneer intubationists, his skill in performing this operation bringing him a large pediatric practice when he was still quite a young man. He was for some years house physician at the Netherland and Savoy Hotels, New York, and consulting physician to the Red Cross Hospital.

Dr. Hamilton Dixey Wey of Elmira, N. Y., died on March 16, at Callao, Peru, where he had gone on a trip for his health. Dr. Wey was graduated from the College of Physicians and Surgeons, New York, in 1878. He was a member of the American Medical Association of the Elmira Academy of Medicine and of the New York State Medical Society, of which he was a former president. He was also consulting physician to the Arnot-Ogden Memorial Hospital, health officer of Elmira, and at one time physician to the New York State Reformatory.

Dr. Joseph Schmittle, one of the most highly esteemed practitioners of New Orleans, La., died at his home of disease of the pancreas on March 5, aged 80 years. Dr. Schmittle, who was of German birth, was graduated from the New Orleans School of Medicine in 1862, and since that time had practised continuously in New Orleans, serving for over thirty years as attending physician to the German Orphan Asylum and Fink Home of that city. He was a member of the Louisiana State Medical Society, and an honorary member of the Orleans Parish Medical Society.

Dr. Henry Isaac Jones of Oakland, Cal., died at his home on March 7 from disease of the liver at the age of 64 years. Dr. Jones had received degrees from the University of Edinburgh (1866), the University of Glasgow, and Western Reserve University, Cleveland, Ohio (1884). During the Civil War he served in the Confederate Navy, and was at one time a surgeon in the British service in India. He was a member of the Medical Society of the State of California.

Dr. James H. Hamilton of Richford, Vt., died at his home on March 13, aged 73 years. Dr. Hamilton, who was graduated from the Castleton Medical School, Vermont, was for many years secretary of the Vermont Board of Health, and at one time a member of the Vermont Legislature.

Dr. Frederick W. Sparling of Seattle, Wash., died at his home on March 1, aged 83 years. He was graduated from the University of Victoria, Coburg, Ontario, in 1854, served as major and surgeon of volunteers during the Civil War, and later as assistant surgeon in the United States Army. In 1880 he was placed in charge of the census of the State of Washington, and was later appointed inspector of immigration.

Dr. Milton Sawyer Woodman, of West Lebanon, N. H., died on February 27 at the age of 58 years. Dr. Woodman was a graduate of the Dartmouth Medical College in 1889, a member of the

New Hampshire State Medical Society, the New Hampshire Surgical Society, the New Hampshire Antituberculosis Society, and the New York and New England Railway Surgeons' Association.

Dr. IRA A. SHIRMER, a native of Bethlehem, Pa., and a major in the United States Army, died on March 12, in the Philippines. Dr. Shirmer was a graduate of Lehigh University and of the Medical Department of the University of Pennsylvania.

Dr. WILLIAM BULLARD CUTLER of Boston, Mass., died suddenly on March 5, aged 62 years. Dr. Cutler was a graduate of Yale University and of the Harvard Medical School, receiving the degree of M.D., in 1872.

Correspondence.

SOME OF THE WORK ACCOMPLISHED IN FORMER DAYS.

TO THE EDITOR OF THE MEDICAL RECORD.

SIR:—As one of the early subscribers and contributors to the MEDICAL RECORD, I read with much interest the 2000th weekly issue in which some of the achievements of your journal in the interest of the medical profession are recounted. Since your modesty has led you to omit mention of other achievements outside of its function as an organ for the transmission of knowledge to its readers, I would ask permission to mention some of these of which I happen to have personal knowledge.

By referring to your files you may note that in 1884 there was considerable agitation in this city and country on the subject of Antisepsis in Midwifery. A characteristically brilliant paper on this subject had been read by the late eminent teacher, Dr. T. Gaillard Thomas, advocating the idea that "every woman who passes through labor shall be managed with the same antiseptic measures as one who is subjected to a capital operation." (*New York Medical Journal*, January 5, 1884.) Guided by clinical observation, I wrote several papers opposing active antisepsis after normal labor. I seemed "to stand alone and single-handed in opposition to this universal application of prophylactic antiseptic injections." The MEDICAL RECORD adopted the same view and offered its cooperation in this unpromising agitation. During the two weeks intervening between the reading of the paper and its discussion at a special meeting of the Academy, I made several arguments in Society discussions and in papers in the RECORD against this needless meddling with the normal vaginal canal, and the RECORD published in a six-column editorial a strong argument from the surgical standpoint, emphasizing the fact that "disturbance of healing wounds by injections had been shown in Billroth's tongue excisions to be unsurgical and that a three per cent. carbolic solution was not a real germicide; therefore these prophylactic injections were not only worthless but harmful, and their abolition would prevent much discomfort, pain and danger to puerperal women." How valuable this courageous position of the RECORD proved to be was made evident by the discussion of Dr. Thomas' paper. The prominent obstetricians who participated in it unanimously approved of prophylactic vaginal injections, except Dr. Fordyce Barker, the president. In closing the discussion Dr. Thomas displayed the spirit of the true physician by frankly avowing (*New York Medical Journal*, Feb. 16, 1884), "the arguments which have been used against this practice have had great weight with me. I confess I feel less firm in my convictions upon this point, and in future I shall examine the question carefully before I determine others to adhere to it. You may ask, why this change of opinion? I answer, I strive to mend the faults of yesterday with the wisdom of to-day." I am confident that without the influential aid of the MEDICAL RECORD the abolition of this pernicious practice which actually did follow would not have been so rapidly and completely accomplished. Those who practise in these advanced times may not realize what this sudden change of front of the foremost teacher in obstetrics meant in the saving of distress and of life. The statistics which I cited in one of my arguments from the Lying-in hospitals of Europe demonstrate the difference in the mortality with and without vaginal injections.

Another incident demonstrating the weight of influence carried by the MEDICAL RECORD was its espousal of the cause of Joseph Hoffman, who, in 1895, was attracting great crowds to his concerts by reason of his being regarded as a "musical prodigy." The child fell ill under the enormous strain to which he was subjected. Being placed under my professional care his father was advised that his absolute withdrawal from the stage was demanded to save him from physical wreck. My advice was heeded. But the manager, recognizing the great financial loss resulting from the withdrawal, "moved heaven and earth" to prevent it. His agents importuned me to modify my orders and the musical people beset me with prayers and threats to save this "genius." The newspapers were enlisted in this agitation, and every night a large number of reporters awaited my return from the patient to obtain information of his condition. A prominent medical journal had espoused the cause of the manager, and a commission, consisting of an eminent neurologist, prominent physiologist, and a surgeon convened with my consent at Dr. Sayre's office to discuss the feasibility of my modifying the interdiction. This commission decided against my view. In this dilemma, realizing my duty to the patient, I appealed to the genial editor of the RECORD for counsel. He upheld my view, and voluntarily published an editorial setting forth the true status of this matter so clearly that all agitation ceased. Thus the RECORD aided materially in saving to art a child, who was at that time regarded as a second Mozart.

Another incident in which the powerful influence of the RECORD (obtained solely by its fearless advocacy of the right) moulded public opinion, was its earnest propaganda for public baths. Its able editorials were used before legislative committees with good effect. The law making the construction of public cleansing baths mandatory, which was the consummation of my fondest hopes, had been carried successfully through the Legislature under the skilful management of the Hon. Goodwin Brown, and the Mayor appointed a bath committee to prepare for its enforcement. When this committee, through misunderstanding of a clause in the "Bath Act," reported unfavorably to the Mayor and thus frustrated the labor and effort of ten years, I sought the aid of the MEDICAL RECORD to demonstrate the erroneous construction of the act by the committee. A scathing editorial appeared in your journal (May 8, 1897), asserting boldly, "the Mayor's committee has succeeded by its own blunders in delaying the construction of public baths and in arousing needless but just antagonism against the unlawful use of Tompkins Square for public bath purposes." I had offered a resolution before the Academy of Medicine asking the appointment of a committee to urge upon the Mayor to execute the mandatory bath act, and this resolution was to be discussed at a second meeting. On the day of the appearance of the RECORD editorial, my genial friend, the late Health Commissioner Dr. Fowler, telephoned me that if I shared the view of that editorial he would advise me to call at his office and have the Board's attorney convince me of my error, before I used this erroneous idea in my forthcoming argument before the Academy. When I responded to Dr. Fowler's invitation the attorney directed my attention to the marginal index of the act, "Public Baths in Public Parks," to prove that the Mayor's committee had been correct in its report. My suggestion to the attorney to read the act itself resulted in his discovery that the marginal note was incorrect and misleading. Thus the mistaken attitude of the Mayor's committee and of the Board of Health, which would surely have wrecked this beneficent enterprise at a critical moment, was rectified by this timely editorial. The latter had another important effect. When our committee (which, by the way, was not appointed without influential opposition) appeared before the Mayor, we found that he had read the editorial which had fortunately been reproduced in the *Herald*. The Academy committee's presentation of the "resolution urging the Mayor to build the baths" was met pleasantly by this official with the reply: "All right, I have discovered that my committee was mistaken, and I have selected a lot in Rivington Street for the first bath." Thus the most salutary hygienic movement of recent years received from the MEDICAL RECORD an impetus which has constantly gathered force, as is evidenced by the present favorable attitude of the city authorities. In 1900 I had succeeded in having an appropriation of $25,000 passed by the Board of Aldermen for "an experimental bath." This was done because I could not convince the authorities that the working people would use these baths. The Mayor did not "approve" this resolution. Contrast this incident with the report of President Ahearn of this Borough, stating that last year 7,000,000 baths were given free in this city and the fact that new baths are constantly planned or constructed now. It surely redounds to the credit of a journal to have borne an influential share in such an achievement for the welfare of mankind.

51 W. 70TH STREET SIMON BARUCH, M.D.

OUR LONDON LETTER.

(From our Regular Correspondent.)

THE POLYCLINIC—POST-GRADUATE TEACHING—PERNICIOUS ANEMIA—LETTSOMIAN LECTURES—RADIUM—WEATHER—CEREBRO-SPINAL MENINGITIS—OBITUARY.

LONDON, March 5, 1909.

THE Polyclinic has survived, at any rate for the present, the serious financial crisis which I mentioned in my letter of January 1 as threatening its existence. At the annual general meeting on Monday the report gave particulars which show how grave was this crisis and how the college has passed through it. Lord Iveagh presented £200 to be used for the reduction of the mortgage debt, but even then the outlook was so unsatisfactory that closure of the institution stared the supporters in the face. This has been avoided, mainly through the generosity of Sir Jonathan Hutchinson, who offered to forego the interest on the mortgage, approximately £220, for two years, and in addition to give the Council £100 for each of those two years. Besides this he liquidated the debt of £100 on last year's working. This has prevented closure and increased subscriptions, having been promised by many members, the valuable post-graduate instruction will go on. The chairman, Dr. C. T. Williams, remarked that they had come out of the crisis very well. There were other very good rival schools, besides which the general hospitals had begun post-graduate courses, and they each had staff and materials. On the other hand, this college could bring materials from all London and make not only one, but twenty hospitals, contribute. They had also lecturers from all the hospitals, both in London and the provinces, and provided the best teaching from the whole United Kingdom.

Their laboratory was being extended and its work was most valuable, not only for its excellent teaching, but on account of the specimens analyzed and the reports made on them, from which some income was derived. The college had joined the London Post-Graduate Association.

In connection with the foregoing I may mention one of the rivals, that which has for its home the Seamen's Hospital, and calls itself the London School of Clinical Medicine. The first annual dinner took place on the 19th inst., when the chairman of the hospital gave some historical details of the society with which the school is connected. Sir William Bennett, in responding to the toast of the evening, ascribed the happy idea of forming the school to Dr. Guthrie Rankin, who was struck by material in the hospitals south of the Thames, to all of which were attached men well qualified to undertake post-graduate teaching, and many practitioners in the neighborhood who would be glad of the opportunity of keeping in touch with every advance in medical knowledge. He went on to say that those who brought the scheme to completion were well aware of the other similar institutions and had no idea of rivalry. They wanted to add to the facilities for post-graduate instruction in London, which was much behind other capitals in this respect. They had now been at work three years and about 300 persons had passed through its courses. Dr. Guthrie Rankin next spoke and insisted that this school was no rival, but an important addition to the other institutions. Lord Ridley, on behalf of the guests, recognized the desire of doctors to treat their patients in the best possible way and consequently the value of an institution which helped them to keep in contact with the advances in their science. Sir William S. Church declared that it was now necessary for many things to be learned after a man had received his diploma licensing him to practice. To attain a full knowledge of his profession he must go on learning and these schools would give him the greatest assistance.

The Medical Society of London had two papers before it on the 22d ult. relating to pernicious anemia. They dealt respectively with pathological and clinical considerations. Mr. Leonard Dudgeon stated the results of investigations he had carried on in reference to some pathological points. In two papers received by the Royal Society he had shown that autohemolysis did not occur even when the immune serum was complemented, and further that immune serum failed to hemolyze normal red corpuscles. Immune serum from pernicious anemia was less potent in agglutinating normal red cells than the serum of other diseases. Mr. Dudgeon found no evidence that autoinfection by streptococci and the resulting autointoxication had any relation to the pathology of pernicious anemia.

The clinical aspects were the subject treated by Dr. H. S. French, who said that in patients ill enough for admission to hospital there was almost always an evening rise of temperature to between 99° and 100°, but any pyrexia above 101° was very unusual in the absence of some intercurrent disease. Further, there was little tendency to subnormal morning temperatures if the records were taken at 10 A.M. and 6 P.M. This type of temperature seems unlike that met with in chronic cardiac disease on the one side and chronic sepsis on the other, and Dr. French did not fail to point out the differences. He is of opinion that pernicious anemia as we know it is really a late stage of a malady which may be much commoner than we suppose, running a subacute or chronic course, in some cases perhaps spontaneously recovering and in others becoming acute. If diagnosed earlier, some cases might possibly be cured. It is now recognized earlier than it used to be. Early recognition of phthisis has been achieved and perhaps we may hope for as much in pernicious anemia. In cases treated by arsenic pigmentation in the mouth exactly like that seen in Addison's disease might be met with. Moreover, the spleen could be felt in about a third of the cases really enlarged. Nerve symptoms are not at all uncommon in the disease. It would seem that these several points may all be of importance and a careful study of them and others lead to earlier recognition.

In his third Lettsomian lecture Dr. Martin took up the subject of treatment of functional stomach affections. He put rest in a most important place—rest for the organ, rest for the body. In mild cases after meals, in others complete rest in bed. In hyperchlorhydria he also resorted to alkalies, preferably carbonate of soda, 15 to 20 grains an hour after meals. Sedatives, as hydrocyanic acid and morphine, could be added. He also named extract of cannabis indica and carbolic acid as sedative. In very severe cases lavage once daily for a week was beneficial. In deficiency of secretion, rest in bed was the first essential remedy, and should be insisted on for a period of five or six weeks. Without this nothing was curative. A milk diet at first, carefully graduating the return to ordinary diet. The lecturer seemed doubtful whether any drugs really increased secretion, but admitted that carbonate of sodium would stimulate it, as also would nitrohydrochloric acid with nux vomica or strychnine. When drugs seemed useless lavage daily for a fortnight, then at longer intervals, using two pints of water with two drams each of sodium carb. and sodium chloride. The best time for lavage was at bed time. Lavage appears to aid by relieving the stomach of retained food and also by stimulating the membrane to secrete. Of foods which seem to stimulate secretion, carbohydrates, proteids, and meat extracts were admitted, but fat was stated to have no such action. In dilatation the foregoing treatment, with lavage and strychnine, was often beneficial, as was massage of the stomach from left to right. The lecturer had not found electricity useful in these cases. In nervous dyspepsia regulating the diet and mode of life and giving alkalies with strychnine was often successful. Sometimes bromide of potassium or valerian might be better or useful, in addition, but in such cases intolerance of drugs was not seldom to be reckoned with. Each case must be treated for itself and each considered on its merits. Even bed, diet, and massage might aggravate the symptoms of one person and cure another. Change of environment and open air and exercise were generally useful. Vomiting and flatulence were often cured by lavage, but this was not always necessary. Reflex symptoms demanded rest more than stomach symptoms. A course of a few weeks' appropriate treatment was not enough in pronounced cases. Two or three years of regulated diet and mode of life was necessary for a permanent cure.

Sir W. Ramsay, F.R.S., K.C.B., has accepted the office of consulting chemist to the British Radium Corporation (Limited).

The Radium Institute is making good progress in its arrangements. The King has become a patron. It is decided to restrict medical treatment at the Institute to the use of radium and radioactive substances—excluding *x*-rays, electricity, etc., for which there is full provision in London. The poor will be treated gratuitously, but others will be required to pay fees.

The weather has been very severe all the week. Snowstorms and cold winds have prevailed. We learn that you have also suffered, that the same conditions have interfered with your President's inauguration that have delayed our King's journey to Biarritz.

The report of the Opium Commission was issued yesterday, as to the use of the drug in the Straits Settlements and Malay States. They state that the majority of smokers are moderate, and excessive indulgence only occurs in isolated cases. They find that the evils arising from the use of opium have not increased during the last ten years. They recommend the abolition of the present system of farming the revenue and the substitution of a government monopoly with strict supervision of the shops and the prohibition of women entering licensed premises.

Epidemic cerebrospinal meningitis is made compulsorily notifiable for a further period of twelve months from the 13th prox.

Dr. Peter Horrocks, obstetric physician to Guy's Hospital, died on the 28th of February at the age of fifty-six. He was M.D. Lond. 1878. At the M.B. exam. he had taken honors and the gold medal. In one course he took the M.R.C.P. Lond. and was elected Fellow in 1889. He had in the meantime taken the science degree at Victoria Univ., having been an Owen's College student before entering Guy's. When he reached the Guy's staff he speedily attained a good position as consultant. He has served the Obstetrical Society as president and been a Fellow of several other societies. Has also been examiner at the University and held other positions. He contributed to the *Obstet. Trans.*, to *Guy's Hospital Rep.*, and other journals. At the Hunterian Society he gave the oration in 1878. At one time he was on the staff of the Hospital for Paralysis and Epilepsy.

The name of Dr. Thomas Carlyle Parkinson has to be added to the long list of medical men who have fallen victims to their zealous professional work. An Australian by birth, he studied at the University of Sydney, distinguishing himself at every stage and taking his M.D. there in 1906. He came to England and worked at the Lister Institute. This body placed at his disposal a laboratory at Elstree, in which he could investigate plague for the Indian Commission. While working at this he became infected and fell a victim to medical science, dying on February 4.

Surgeon-Major William Niven, M.D., has died at Hastings, where he lived the last three or four years, in his eighty-fourth year. He took M.D. St. Andrew's in 1852 and entered the Indian Medical Service. He served in the Persian war, 1856-1857, and had the medal and clasp awarded. Later he was medical superintendent of the Bombay Government lunatic asylum. He retired in 1881.

Lieutenant-Colonel John A. Ambrose, R.A.M.C., died suddenly on February 27 in his sixty-eighth year. He took M.D., R. U. I. in 1863 and entered the Indian Medical Service. He contributed to the *Indian Medical Gazette* papers on ipecorcuanha in dysentery, on cholera, and on the health of the children of soldiers in India.

Lieutenant-Colonel J. F. Tuohy, whose death is announced, joined the Indian Medical Service in 1879 and served in the Afghan war of 1880-1881, for which he received the medal. He was on the staff of the Lieutenant-Governor of the Northwestern Province and civil surgeon at Agra, being principal of the Agra Medical School, of the Lady Dufferin Hospital and Medical School for Women at Agra.

OUR LETTER FROM ROME.

(From our Regular Correspondent.)

ROME, March 5.

As was foreshadowed in a former letter, one of those I will not say crises in the Pope's health, which would certainly be going too far—but one of those periods in which His Holiness is not as well as usual is at hand. It was pointed out that the Pope was well advanced in years and besides being subject, like ordinary mortals, to various maladies, had a uric acid diathesis to contend with. In short, he is at present grippé, and has been obliged to give up holding audiences, and functions that had been fixed to take place have been countermanded. Professor Marchiafava, his physician, and the doctors of his entourage assure us that he is as well as circumstances admit, or as could be expected, and they naturally feel no anxiety at all with reference to his condition—and there is no violation of professional secrecy herein. The Pope is seventy-four years of age and of rather strong physique, takes plenty of exercise walking in the spacious gardens and grounds at the Vatican, sleeps well, usually having a good appetite, but, like all persons of his diathesis, is obliged to be moderate and careful in his diet, which is always of the simplest. The real truth is that the Pope is just now getting the common lot and going through a very mild attack of grip, and his doctors, with that precaution exercised by those attending royal personages, have prescribed rest and the usual remedies in affections of this kind where there is also some fever. Such are the proper ones to exhibit regardless of any diathesis and a heart none too strong. Practitioners will observe that when grip attacks a paralytic subject, or one with cerebral softening, it is quickest cured by ignoring entirely the constitutional disease and treating the grippal syndrome absolutely per se, interrupting for the time being all other treatment. At the Vatican they say the Pope is easily affected by cold and subject to catarrhal attacks. As the building is so vast and not well heated, the drafts and currents of cold air in the corridors and chapels might be responsible for them, especially in one of his age and diminished resistance. It will be remembered that but a few weeks ago he had an arthritic attack. Although this present trouble may be nothing serious, yet the repetition of attacks, and the knowledge of how easily a very mild grip may suddenly take a turn for the worse in such cases, must necessarily cause some anxiety. The Pope, nevertheless, received yesterday Cardinal Merry del Val and, as he is much better to-day, will probably soon retake his accustomed work and audiences and will have completely conquered what will probably be characterized as a passing malaise without consequence, but what was really an attack of influenza grafted onto a diathesis of which arteriosclerosis is usually an appanage.

Progress of Medical Science.

Boston Medical and Surgical Journal, March 11, 1909.

The Medical Treatment of Malignant Disease.—G. W. Gay says that the consensus of opinion now is that in many, if not most, instances malignant disease is in its incipiency a local affection, and that if it be thoroughly removed at that time a permanent recovery may reasonably be expected. We do not know how long this incipient stage lasts and are not able to get hold of the patients early enough to decide the matter by operation. Given a case of inoperable or post-operative malignant disease, what shall we do? Some discreet person should be told the true facts of the case, but generally it is not wise to tell the patient. We should rather dwell on the favorable aspects of the case and encourage the hopes of the patient. Our fight may be a losing one, but it should be carried to the end with vigor and discretion. For some years the author has given this class of patients, both before and after operation, compound iodine tincture with or without bromide of arsenic, and these remedies have been continued over long periods of time. He instances several cases in which this therapy seemed to prolong life to a considerable degree. He considers that the Coley treatment with the mixed toxins of erysipelas and bacillus prodigiosus has not received the attention its merits would seem to justify. He extols the benefits of the *x*-ray and radium bromide. We should not turn the cure of hopeless cases over to charlatans. The highest degree of conscientious personal service should be rendered to the class of patients under consideration. As the end approaches opium alone can furnish relief.

Early Treatment of Some Epitheliomas by Pure Radium Salts.—F. H. Williams reproduces the table given out by him last June, showing a cure in 56 out of 69 cases of various epitheliomas. He says that 50 milligrams of pure radium bromide are desirable. Many of those using radium use too small a quantity and too weak a quality to make the remedy efficient. The radium should be placed on a capsule covered with lead except at one side, which is at the end of a long handle as a protection to the physician. The capsule, over which a clean rubber cot for each patient has been drawn for purposes of cleanliness, should then be passed slowly over the area to be heated or held over the special place for one-half up to four minutes. The exposure should be made from one to three times a week, less often after healing has begun. The remedy must be used with sufficient daring to obtain results, but with care to avoid harm.

New York Medical Journal, March 13, 1909.

The Urine in the Diseases of Infancy.—J. L. Morse bases his observations on the results of examining the urine in 667 cases of various maladies. Putting aside, he

says, the diseases of the gastrointestinal tract, albumin and casts are more often found in pneumonia and meningitis than in other acute diseases in infancy. It does not corroborate the statements of Cassel and Simmonds as to the importance of otitis media in the etiology of nephritis in infancy, nor those of many Italian and French authors as to the frequency of renal complications in eczema. It shows that the kidneys are not, as a rule, affected in the diseases of nutrition, although in scurvy and severe anemia the urine may show the evidences of the hemorrhagic tendency characteristic of these diseases. It also shows that affections of the kidneys secondary to other diseases in infancy do not usually produce edema, and conversely that edema in infancy is usually due to some other cause than disease of the kidneys. The study of these cases seems to justify the conclusions that the presence of albumin and casts in the urine in the acute diseases of infancy is the manifestation of an unusual degree of toxemia and is, to a slight extent, of bad prognostic import. This conclusion is justified only in a very general way, however, as many infants showing albuminuria and casts recovered and many others in which the urine was normal did not. There was nothing about these cases to show that the renal condition had any direct influence on the fatal outcome. It was merely an index of the toxemia. So few pathological examinations were made that no statement is justified as to the pathological changes in the kidneys. It seems fair to assume from the changes in the urine, however, that in the vast majority of cases the pathological condition did not go beyond an acute degenerative nephritis, and that a definite parenchymatous or interstitial nephritis was very uncommon. It seems evident from the study of these cases that febrile albuminuria and acute degenerative nephritis occur in the same conditions and at least as frequently in infancy as in childhood and adult life.

Greek for Physicians.—C. W. Super exploits the advantages of a knowledge of Greek to medical men, and advises that where it is possible the beginner should take up modern Greek instead of the classics. Several physicians could form a class and thus assist each other by conference. Concerning the language as a whole, the author says that, taken all in all, classical Greek is probably the most perfect medium for the accurate expression of thought that has ever been devised by the human intellect. It is of advantage to physicians in that it not only enables them to understand the nomenclature of their own calling, but it is an avenue to general culture they cannot afford to neglect.

Successful Medical Treatment of Appendicitis.—E. Palier quotes the statistics of Robin, wherein he reports the medical treatment of 168 cases of appendicitis without a single death. He then gives clinical histories of two cases, both young women, who recovered under medical treatment. The diagnosis in one case seems to the abstractor hardly reliable, in that a vague mass in the appendix region was probably a fecal or mumous mass, for there were but slight fever symptoms and no signs of sepsis. The main point relied on in the "medical" treatment is high intestinal irrigation. The water must be warm and alkaline. Diet during the period of observation must be milk, eggs, and vegetables, no meats for some time afterward as well. Meats enhance the virulence of the colon bacilli and the general toxicity of the alimentary canal. The author takes the position that it is criminal to operate before rational medical treatment has been tried and has failed, excepting those cases, of course, where delay appears to be dangerous, and an immediate operation seems to be urgent, when, for instance, the onset is accompanied by alarming symptoms, or there is an abscess formation. If the physician, however, sees the case early and institutes the proper treatment, he will have to refer to the surgeon only cases of the first category, and will be able to avoid many complications of appendicitis. He adds that it is owing to the fact that up to recently the physician had had very little knowledge of the alimentary canal that the surgeon has shown in it such great activity.

Climate for Consumptives.—E. Everett reminds us that there are many kinds of fresh air and that each of them has a different value for different types of the disease or for the different general physical conditions of the patients. There is warm fresh air and cold fresh air; dry fresh air and moist fresh air; clean fresh air and dust-laden fresh air; fresh air of great altitudes and fresh air of the valleys; fresh air that is quiet or still most of the time, and fresh air that is blown about in gales much of the time. Most of these conditions may be helpful to some patients and positively harmful to others; a tuberculous patient may do well in some of these conditions and lose ground in others. The United States offers practically all varieties of climate. The warm, dry air of the desert though relaxing is not enervating. Patients whose condition has become low through sickness preceding tuberculosis, for instance, pneumonia, or by overwork or nervous strain, usually respond very quickly in this warm, dry, pure fresh air. It is no hardship to live out of doors for practically the entire twenty-four hours. The greatest effort required, beyond the ordinary requirements of life, is to keep out the sunshine—to keep moving into the shade. It is possible to get the maximum of fresh air with the minimum of effort or resistance to nature. During the summer months patients should go elsewhere, as the heat in these regions is often unbearable. There are others who do better in the cold pine air of the mountainous regions. For patients whose strength, weight, and vitality have not been considerably reduced, living under these conditions is possible without injury and often with positive benefit. Incipient cases, where the disease has been detected before great inroads have been made on the resisting power or cases of long standing, where the conditions of the patient as regards weight and strength have been raised up to or beyond normal in milder climates, are often completely arrested if not positively cured under these climatic conditions. But the physical and mental condition of the patient must be equal or superior to such rigorous treatment or positive injury is the result. For patients who are most reduced in weight, strength, and vitality severe cold climates are frequently harmful and occasionally fatal. They should be avoided by such patients. One of the most frequent dangers to patients who have been sent to regions far from their homes is their impatience to return (especially if they have not done very well) as soon as the first few days of hot or cold weather arrive. In the Southwest, when the weather becomes very warm, usually in April, they insist on returning to the raw air of the North. In the mountains they want to run away with the first evidence of snow or cold. This could often be obviated if the home physician held a stronger control over the patient in his absence. They will not heed the advice of the local physician, whose control over them is not so strong as that of their home adviser. A quick gain, a quick return to their homes, and a quick return of the trouble is the frequent history of this disease.

Journal of the American Medical Association, March 13, 1909.

The Unity of the Medical Sciences.—A. T. Bristow points out that the understanding of the complex human body calls for assistance of all the natural sciences and this brings about a unity of all the branches of knowledge represented in medicine. There is between sciences, however, one common bond of union, namely, that they all have for a foundation the mother of all sciences, logic. No science has suffered more from fallacies than medicine, and he shows how the various popular medical delusions have their basis in false reasoning and faulty observation. Besides the matters that affect principally the individual where these fallacies have done their work, he takes up more particularly the questions of sanitation and shows how much the world has suffered from faulty practice and reasoning in this regard. The address is full of practical illustrations and he concludes with the plea for a national department of health and points out the need of such a department. It should be out of the reach of the politicians and conditions are constantly crowding us to realize the necessity of such a governmental department.

Neuroses and Pelvic Disorders.—Clara T. Dercum says that the symptoms of the two great neuroses, neurasthenia and hysteria, are constantly being misunderstood in their relation to pelvic disease. A close study of these disorders proves that true organic pelvic disease plays but an insignificant part in their development. Their real exciting causes must be looked for in environment plus heredity and in the stress to which adolescent and adult life is subject. The local symptomatic pain and general indications of ill health that may accompany pelvic disease do not of themselves constitute true functional neuroses, such as neurasthenia and hysteria. They manifest themselves symptomatically with the pelvic disorders, as they might with any other visceral disease. The fallacy of the doctrine of "reflex nervous disorders" has been demonstrated beyond dispute with our increasing knowledge of nervous diseases. She reviews the principal symp-

tions of neurasthenia, the indications of motor and mental fatigue, the aches and pains, the gastrointestinal and circulatory disturbances and their consequences, and the multitudinous phenomena of hysteria, especially those that simulate or suggest pelvic disorder, and gives an analysis of 412 cases, in tabulated form. The statistics, she says, do not even show that neurasthenia or hysteria exist in pelvic diseases as in other visceral conditions and certainly do not warrant operations on the pelvic and other viscera without positive surgical indications. She particularly speaks against operating for uncomplicated retroversion. No one will deny that when the uterus is dislocated, that is, fixed by adhesions, surgical measures should be employed to free it after medical ones have failed, but it should not be subjected to a new dislocation by fastening it to the abdominal wall. The pelvic floor should always be repaired when lacerated, as it is so intimately connected with the support of the uterus. But in all inflammatory conditions of the pelvic organs induction of hyperemia, that is a fresh supply of blood to the parts, presents the only means of cure, and this can best be induced by frequently repeated hot douches, glycerine tampons, hygroscopy, electricity, menstruation, and gestation. From a close observation and study of these tables she thinks the gynecologist of the future, when he recognizes the significance of the neurologic simulation of pelvic disease, will endeavor to have the fewest possible operations to his credit instead of the greatest number. The conservation of normal pelvic organs and the restoration to health by medical means of those that are diseased will be his highest aim.

Cancer of the Uterus.—W. B. Moulton quotes Crile, that one woman in every eight who reaches the age of thirty-eight dies of cancer (including all forms), and refers to the statistics of Werthheim in uterine cancer as compared with those of other operators, who cure only from 5 to 8 per cent., while he reports 22.5 per cent. of all patients cured. The explanation lies in the fact that he sees the patients earlier, those that come before surgeons in this country are past successful treatment, at least in the majority. A cancer of the cervix that has progressed so far as to be diagnosed unhesitatingly by the touch, eye, or history can be pronounced to have reached the border line between possibility and impossibility of cure. Our hope here lies in the general practitioner, who must start a campaign of education among his female patients and himself consider as serious and not neglect all disturbances of menstruation occurring in the cancer age. Complete surgical extirpation is at present our only method for the cure of cancer of the uterus, but the percentage of cures is much below what it should be. Every woman who has borne children should be examined, Moulton believes, by a competent physician at least once every year until she is fifty-five years old, and the effect of the adoption of educational measures and examination would be the prompt discovery of an enormous number of cancer cases in their very incipiency.

Ancient Quackery.—J. J. Walsh points out that quackery of the most modern type, with all the traits we know so well to-day, abounded in ancient times and is characteristically illustrated in the folk lore of the earliest antiquity. The Arabian Nights are comparatively modern, but they are, as we know them, tales derived from still earlier legends going back to the times of Herodotus and before, even to the central plateau of Asia, where the human race originated. He illustrates his point by one of these tales which has come down to us showing the readiness of the quack to promise to cure anything and everything, and which is as modern in its exhibition of human nature as any of the impositions used to prey on the public in the present day. Man does not essentially change during the ages and is the same in the environment of the Orient as in the centers of civilization.

Bloodless Hysterotomy.—A. E. Hertzler describes his methods of avoiding excessive hemorrhage in the removal of uterine fibroids, by a scheme of preliminary ligation of the blood-vessels. The steps are as follows: "(1) The peritoneum is incised along one side of the tumor. (2) The tumor is raised out of its bed by blunt dissection sufficiently to reach the point of blood supply. (3) This having been found, a ligature is passed and tied and the tumor severed. (4) The peritoneum is incised the remainder of the way around the base and the tumor removed. The peritoneal edges are then approximated by a running plain catgut suture." Each vessel must be separately secured in this preliminary ligation. In some cases, however, in which the tumor is deeply situated or has a wide base, or in case of multiple tumors close together calling for removal of part of the uterus, the area of blood supply is diffuse and such preliminary ligation is impracticable. For these cases he has devised what he calls "bloodless hysterotomy," in which he attempts to apply the principle of the Esmarch bandage to the uterus. The procedure consists in placing a rubber-covered clamp on either side of the organ in such a manner as to compress the uterine vessels sufficiently to control the circulation without injuring their walls. They are so applied that their tips lie in the triangle formed by the ureter externally, the cervix internally, and the uterine artery above. The base of the forceps passes externally to the ovaries and tubes, thus preventing any undue compression of the tube. The clamps once applied, the tumor can be removed, and, if necessary, the uterus can be opened with immunity. After removal of the tumor the resulting defect is closed by sutures, two layers usually being required. If necessary, some additional sutures are placed and any large vessels exposed are separately ligated, as in the amputation of a limb. The clamps illustrated in the cuts accompanying the article are Moynihan stomach clamps ground down sufficiently to give them elasticity enough to prevent undue injury to the vessel walls. The curved handles are convenient when the abdominal wall is thin; with thick abdominal walls the straight Moynihan anastomosis clamp can be used with advantage.

Pulmonary Hemorrhage.—J. B. Fish divides pulmonary hemorrhages into three types according to the pathological conditions: (1) Capillary hemorrhage, resulting from hyperemia of the bronchial mucosa or lung tissue, associated with a relaxed or eroded area of mucous membrane; (2) hemorrhage resulting from the destruction of lung tissue associated with rupture of small or medium-sized blood-vessels (arterial or venous hemorrhage); (3) hemorrhage resulting from the rupture of a large vessel. By far the vast majority of cases belong to the first type and may be produced by many causes, such as chilling of other agencies increasing blood pressure. The precursory signs of the bleeding are to be noticed and the character of the blood discharged; whether it was preceded by tightness or feeling of oppression in the chest, and whether it is moderate or sudden and copious. By these we can judge whether the hemorrhage is of the congestive type. Fish gives directions as to the management of a case, consisting of the usual prescription of quiet, attention to the bowels and kidneys, and, in congestive cases, the use of nitrite of amyl or potassium nitrite, and, after the bleeding is under control, nitroglycerine, say 1/50 grain every three or four hours. By regulating this drug, according to a blood-pressure apparatus if possible, the recurrence may frequently be avoided. A small dose of morphine at bedtime may be given for a troublesome cough. To avoid after-effects, he is in the habit of giving ammonium muriate combined with codein, both in small doses. He also, as an eliminant, gives magnesium sulphate, one dram three times daily. Above all, care should be taken not to overmedicate. In the second type of cases, due to the rupture of a small vessel, the first aim should be to reduce the force of the heart and lessen the flow through the lungs, and here he thinks aconite the best agent. In addition, he uses the calcium salts to increase the coagulability of the blood. Occasionally the subcutaneous or rectal injection is of great service, and ligation of the limbs may be of value. Ergot, he thinks, is of no value and may do harm. In the third type, when a large vessel is ruptured, little can be done but in tiding over the period of collapse and afterward combating the anemia, even to the extent of transfusion of salt solution. So-called vicarious hemorrhage, if moderate in character, requires no special treatment, except keeping the patient quiet and perhaps putting him to bed. Hysterical hemorrhage should not be taken too seriously nor yet neglected, and if evidence of malingering is lacking such patients should be treated for the blood spitting without regard to the nervous complication. In conclusion, Fish mentions malingering, which can usually be detected by one on the lookout. In most cases a pulmonary hemorrhage means tuberculosis, but we must not forget that cases of blood spitting in bronchiectasis and mitral stenosis are by no means rare.

The Lancet, March 6, 1909.

Postural Cardiac Murmurs. E. L. Moss notes that a systolic murmur heard over the upper part of the sternum

unaltered by respiration, may sometimes be produced by raising the arms to a shoulder level, as in the position of holding up the shirt to expose the chest for examination. He relates brief notes of three such cases. His attention was first called to the matter when endeavoring to decide whether the so-called "retraction" murmur occasionally found in tuberculous children was really due to pressure of involved mediastinal glands or some of the large venous trunks or whether it was a sign occasionally found in healthy cases. In investigating adults (as the three cases reported were) he found the murmur described. At first he thought it might be produced by traction on the trachea and bronchi, causing kinking of or pressure on the aorta or pulmonary artery, but since the murmur is produced by raising the arms without backward extension of the head, it seems more likely that the position causes an expansion of the lower part of the thorax, increasing the negative pressure within which allows a temporary dilatation of the aortic arch. Whether or not the normal aorta would be affected in this way it is not easy to say.

The Advisability of Removing the Appendix at the Time of Opening the Appendicular Abscess.—H. S. Clogg operated on 131 cases of localized appendicular suppuration. In 23 the appendix was removed at the same time, and in 108 left. Of complications in the second division cases there were: portal pyemia, 1; subphrenic abscess, 3; pelvic peritonitis, 1; prolonged duration of the sinus, 18; recurrence of suppuration, 9; recurrent non-suppurative appendicitis, 11. The advantages of removing the appendix at the primary operation are thus enumerated: (1) The wound heals quicker. (2) There is less tendency to imperfect drainage, as the supply of infection is removed and the abscess cavity is so thoroughly opened that it may be drained from the most favorable position. (3) The rare complication of a portal pyemia following a persistent sinus may be abolished. (4) An inflammation spreading up the right colon to the subhepatic or subphrenic regions may be anticipated and cut short by a timely lumbar drain. (5) The exploration of the abscess cavity will enable any concretions which have escaped from the appendix to be removed. (6) The persistent sinus and frequently recurring breaking down of the scar will be practically abolished. (7) The risk of ventral hernia is by no means increased but may be actually lessened. (8) The permanent changes in the wall leading to stenosis of the appendix and the very frequent presence of concretions in the lumen which have not escaped into the abscess cavity are most potent predisposing causes to recurrent appendical trouble.

An Investigation into the Clinical Significance of Albumosuria and Its Value in Diagnosis and Prognosis.—J. Henderson has made special investigations with special reference to pneumonia and nephritis. Out of 78 pneumonia cases (of which 15 were fatal) 28 cases showed albumin, and of these 12 were fatal. These 28 patients all showed a severe type of symptoms during the primary fever and usually they were delirious. The presence of albumosuria must be regarded therefore as an unfavorable sign. Over 80 cases of nephritis were examined. Albumose is rarely present in acute and subacute nephritis. When present it may be associated with uremia and herald its onset. Albumosuria appears to indicate the existence of a chronic condition and is most constantly present in the chronic parenchymatous variety. In such cases the albumosuria is often associated with, though it does not necessarily indicate, an early fatal issue. In 50 cases also of heart disease albumose was found in 5 and 2 of these were ulcerative endocarditis both of which proved fatal. It should always be looked for in pneumonia and in cases in which suppuration is suspected. The author discusses the relative value of the various tests for this urinary ingredient. He commends the use of a 20 per cent. solution of caustic alkali in distilled water to which enough copper sulphate is added to give it a faint blue tint. The urine is floated on the surface of this solution and a rose-pink color at the area of junction indicates the presence of albumose.

British Medical Journal, March 6, 1909.

Observations on Pleural Pains and Adhesions.—J. T. Maclachlan says that after four years' careful observation he has come to the conclusion that so-called pleurodynia is in reality a localized pleurisy and that they are mostly of a tuberculous origin. In his experience the pains are referred to certain well-defined regions, namely, where the lungs divide into their lobes or the free margins of the lungs, around the right nipple, left border of the heart, left lower axillary region, and points a little below the apex of each scapula. These areas may be made out by gentle percussion, or "tactile" percussion in which the sense of resistance is strongly appealed to. Ordinary percussion goes through these areas of pleurisy and brings out the ordinary lung sound. Auscultation is not as valuable as is percussion in making out such superficial areas of dullness on the surface of the lung. If the dullness is considerable, the inspiratory murmur may be fairly distinct and the expiratory murmur faint and unusually short as compared with that over the sound pleura and lung. Inspection may show deficient expansion and contraction. All these signs of pleural adhesion are a danger signal to the patient to ward off lung tubercle. If a patient complains of a cough, expectorates, and has a sharp pain in the chest, he has, in all probability (if we can rule out lung cancer), lung tuberculosis. If the sputum contains cheesy-looking particles, it signifies the presence of softening. Hence the three evidences indicated will in all probability correspond to bronchitis, pleurisy and tuberculous pneumonia, or, in other words, phthisis pulmonum.

Treatment of Cancer by the Use of Potassium Bichromate.—J. Fenwick summarizes the facts in nineteen personal cases and adds three more from the experience of a colleague. He injects from seven to ten minims of a sublimate solution of the bichromate of potassium into the substance of the tumor. He claims excellent results in rodent ulcer and epithelioma. Details of the individual cases must be read by those interested.

The Natural Cure of Cancer.—W. S. Handley lays down the following unrecognized law of cancerous growth: Every aggregation of carcinoma cells has a definite life-cycle, and, after increasing in size for a varying period and at a varying rate, tends spontaneously to undergo degenerative and fibrotic changes. These changes extend from the center of the mass centrifugally to the periphery, lead to its shrinkage, and terminate in the replacement of the aggregation of cancer cells by a fibrous scar. The author says that the literature of cancer therapeutics does not contain the record of a single fact which cannot be paralleled among the histories of untreated cases. One of the most striking facts brought out by his investigations is that the permeative spread of cancer is followed by an almost coextensive destruction of the lymph vascular system and by contraction of the network of fibrous threads which replace the lymphatic vessels. In the mamma the perolymphatic fibrosis accounts for the nipple retraction, flattening and shrinkage of the breast, and adhesion to the skin and fascia, and all these are to be regarded as attempts at natural cure. Their absence in a given case is of no value as against malignancy. The leathery thickening of the chest skin is primarily a pachydermia or lymphatic edema of the skin, due to a destruction of the fascial lymphatic plexus and to consequent lymph stasis. Only in the later stages is the skin actually invaded by cancer cells. The permeation theory of dissemination explains also the brawny arm of breast cancer, which is not due merely to pressure of a mass on the axillary veins. It is a pachydermia affecting the arm in consequence of a lymphatic fibrosis, and is to be regarded as an evidence of activity of natural curative processes than as a direct symptom of cancerous growth. The author believes that the general principles of the open-air treatment as laid down for tuberculosis are applicable here. In each instance the object is to promote a fibrosis. The treatment as applied to cancer would need, doubtless, some modification, as less food and more exercise. Yet under no circumstances whatever, the author says, should the treatment be recommended as a substitute for operation if operation is possible.

Berliner klinische Wochenschrift, February 22, 1909.

Pancreatitis and the Cammidge Reaction.—Eichler and Shirokauer have studied this reaction experimentally by producing disease of the pancreas in dogs by tying the pancreatic vessels, or ligating the organ itself. The reaction was not present in any case before the operation. Only a few gave a positive reaction after the operation, and the reaction was never constant, but appeared and disappeared without any discoverable change in the condition of the animals. Two patients with disease of the pancreas did not give the Cammidge reaction, although the existence of a lesion was diagnosed by operation. In another article Caw and Wörner report two cases of pancreatic disease in which the reaction of Cammidge was obtained. These authors think that glycosuric acid has something to do with the appearance of the crystals described by Cammidge. They have also observed that the width in content of the feces is very much increased in the presence of pancreatic disease.

Book Reviews.

A Text-Book of General Pathology. For the use of Students and Practitioners. By J. Martin Beattie, M.A. (N. Z.), M.D. (Edin.) Professor of Pathology and Bacteriology, University of Sheffield; Hon. Pathologist, Sheffield Royal Infirmary and Royal Hospital, and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P. (Edin.), Lecturer on Pathological Bacteriology and Senior Assistant to the Professor of Pathology in the University of Edinburgh; Assistant Pathologist, Royal Infirmary, Edinburgh With 162 illustrations and four colored plates from original preparations. Philadelphia: P. Blakiston's Son & Co., 1908.

It has become somewhat the fashion to speak, or at least to think, rather disparagingly of the purely morphological aspects of the study of pathology and to consider that during the coming years the more important work will be done in the inestigation of problems of biochemistry. While this view is no doubt sound enough in the main, there is no reason to suppose that much progress is not still possible in the domain of the "old" pathology or to abandon even temporarily the microscope and staining fluids for the test tube and distilling flask. No reader of the present volume can fail to be impressed with the immense advances that have recently been made in numerous departments of the subject or to be stimulated to renewed interest in matters that he has perhaps already come to regard as closed chapters.

The book is intended primarily as an exposition of the teaching of the Edinburgh school, the first in the United Kingdom to establish a chair of Pathology and always preeminent in this field, and presents views on many important topics, such, for example, as the manner of formation of the different types of infarcts, and the relation between arterial changes and the lesions of the kidney, that if not altogether novel are at least deserving of widespread attention. The entire section on the various degenerations is especially noteworthy and is illustrated with photographs and colored plates of great interest. Thrombosis also is discussed at greater length than is usually done, while in the chapter on inflammation and repair the recent work on the origin and nature of the various cell forms encountered is presented with much clearness and critical judgment. The authors have also been particularly successful in the sections on tumors, founding their classification on Adami's system in which the tissues are divided into the lepidic or lining membrane tissues, and the hylic or primitive pulp tissues, with a resulting grouping of tumors into two great orders, first the teratomata, and secondly the blastomata, or body tissue tumors, which are either lepidomata or hylomata, the former including the carcinomas and the latter the sarcomas.

The animal parasites are described and figured in greater detail than usual, and the closing chapter on immunity forms a most satisfactory summary of the present hypotheses in this regard. While well adapted to the needs of the student, the book is comprehensive enough to serve as a work of reference and its agreeable style and typographical attractiveness should commend it to the casual reader.

Scientific Laboratory Help in Diagnosis. A Little Book for the Guidance of the General Practitioner and the Specialist, Showing the Usefulness and Advantage of the Laboratory Report. Chicago: The Abbott Alkaloidal Company, 1908.

This pamphlet contains a few tables showing the laboratory findings in uranalysis, examination of gastric contents, and blood examinations. It will doubtless be of use to laboratory workers and others.

A Manual of Bacteriology. By Herbert U. Williams, M.D., Professor of Pathology and Bacteriology, Medical Department, University of Buffalo. Revised by B. Meade Bolton, M.D., Washington, D. C., one time Associate in Bacteriology, Johns Hopkins University; Chief of the Bureau of Health Laboratory, Philadelphia, Pa.; Professor of Pathology and Bacteriology, University of Missouri; Bacteriologist, Bureau of Animal Industry, etc. With 113 illustrations. Fifth Edition, Revised and Enlarged. Philadelphia: P. Blakiston's Son & Co., 1909.

This book is designed primarily for medical students, and as it is now in its fifth edition it may be assumed to have fulfilled its purpose. The present edition has been revised and brought up to date, so that it is well abreast of modern bacteriological knowledge. As was stated in an earlier edition, "The purpose of this book is to give in the smallest possible space the facts which a physician must know, with some of those which it is desirable that he should know, and a little of that which he may learn if his needs or inclinations lead him to go further." For students and practitioners this is just the book to begin with, and in connection with good laboratory instruction it should make the study of bacteriology both sound and attractive. The references to the literature of the subject are judiciously selected, and are sufficient to invite further investigation without bewildering the student.

Meat and Food Inspection. By William Robertson, M.D., D.P.H., F.P.S., Medical Officer of Health, Leith; formerly Medical Officer of Health, Perth and Paisley; author of "Practical First Aid" (third edition); joint author of "Sanitary Law and Practice"; Lecturer on Public Health, Royal College of Surgeons, Edinburgh; Lecturer of Public Health, Women's College, Edinburgh; Examiner in Public Health Conjoint Board, Scotland; Examiner in Public Health, Incorporated Sanitary Association, Scotland, with Regulations Governing Meat Inspection in the United States, by Maximilian Herzog, M.D., Professor of General and Comparative Pathology in the Chicago Veterinary College; Pathologist of the Michael Reese Hospital; Expert of the Chicago Stock Yards Investigation Commission of the Illinois Manufacturers and the Chicago Commercial Associations; Late Pathologist to the Bureau of Science, Manila, Philippine Islands. Chicago: W. T. Keener & Company, 1908.

At the present time the pure food question is one that interests nearly everybody; and since the Government has taken the matter in hand the importance of the subject is greater than before. This work on food and meat inspection is a valuable addition to a somewhat scant list of books dealing with this topic. The subjects discussed in the volume are: Site, structure, and various types of cowsheds, piggeries and stables: milk-supplies; tuberculin and mallein tests; preparation of vaccine lymph; slaughterhouses; the appearance of healthy and diseased animals; anatomical considerations; methods of slaughter; the appearance of the meat of animals under varying conditions; preservation and storage of meat; the diseases most commonly seen in the abattoir; other conditions met at the slaughter-house; fish, oysters, mussels; ptomain and food-poisoning; retail shops and farm produce; prosecutions, various examples. Then follows a section of nearly two hundred pages on the law relating to food inspection, housing of animals, etc. Although the whole subject is discussed from the standpoint of English law, the information contained in the volume is most valuable, and will be found equally applicable to the conditions as found here except, of course, in the details of the legal enactments; and many of these latter may serve as a guide for future use. The book is valuable to all interested in the subject, whether health officers, sanitarians, practitioners, or laymen.

Obstetrics for Nurses. By Joseph B. De Lee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School; Obstetrician to Mercy, Wesley, Provident, Cook County, and Chicago Lying-in Hospitals; Lecturer in the Nurses' Training Schools of Same. Third edition, thoroughly revised and enlarged. Philadelphia and London: W. B. Saunders Company, 1908.

This volume really contains two subjects, namely, obstetrics for nurses, and obstetrical nursing; and these are so admirably combined that not only are their mutual relations well presented, but the book is so complete that nurses will not require any other text-book on either subject. There is but little new matter in this third edition; the chief additions being found in the section on infant feeding, and in the glossary. The work is well and liberally illustrated, and can be recommended to nurses as a very useful book.

Aids to Tropical Medicine. By Gilbert F. Brooke, M.A. Cantab., L.R.C.P. (Edin.), D.P.H., F.R.G.S., Port Health Officer, Singapore; Lecturer in Hygiene and Examiner in Chemistry and Physics to the Medical Council of the Straits Settlements; Formerly Government Medical Officer and District Commissioner, Turks and Caicos Islands, West Indies. New York: William Wood & Co., 1908.

The present volume is intended as a students' notebook on the subject of Tropical Diseases, the study of which has received some impetus in the last few years. The subject matter is arranged alphabetically; and a concise and accurate summary of each of the more important tropical diseases is to be found there. The author writes from an extended personal experience, and gives valuable bibliographical references. The book is small, but useful; and it is the first compend that we have seen on this subject

Society Reports.

NEW YORK ACADEMY OF MEDICINE

SECTION ON SURGERY.

Stated Meeting, Held February 5, 1909.

DR. ELLSWORTH ELIOT IN THE CHAIR.

A Further Report on a Case of Fracture of the Os Magnum.—Dr. EDWARD W. PETERSON made a further report on this case which he had presented at the January meeting of the Section. Dr. Connell at that meeting did not believe a correct diagnosis had been made. Dr. Peterson said that they both were right, and both were wrong. The radiograph did not show a fracture of the os magnum, but the patient did have such a fracture.

A Case of Fracture of the Os Magnum.—Dr. KARL CONNELL presented a man, forty-three years old, who fell upon his left hand seven weeks ago. He was rendered unconscious at the time. He came to the hospital later with an injured wrist. It was learned that he had sustained a Colles' fracture, a fracture of the os magnum, and a forward dislocation of the semilunar bone. Four weeks after the injury he had 60 per cent. supination, full pronation, and 20 degrees of extension of the joint. The scaphoid bone was also broken. Radiographs were shown.

A Further Report on a Case of Foreign Body in the Intestine.—Dr. W. S. SCHLEY made a further report on this case, which he had presented at the previous meeting of the Section. A stick seven and one-eighth inches long was presented. A diagnosis was made of foreign body in the intestine when the patient entered the hospital, and this was correct; a distinct pointed mass was felt one and a half inches above the umbilicus and it could be moved about freely. The patient claimed that he had swallowed it. On the following day he complained of a sense of irritation in the rectum, and the house surgeon then took a pair of sponge forceps and extracted the piece of wood. The question arose as to how the patient could have swallowed such a mass; the probability was that it had been introduced through the anus. He certainly must have had an exceedingly lax sigmoid.

Imperfectly Descended Testicle; Operation and Transplantation to the Scrotum.—Dr. W. S. SCHLEY presented this case. The boy entered the hospital with an undescended testicle; it could not be pushed down into the scrotum, and it seemed wise to try some operative procedure to bring it down. An absolute denudation of the cord was done, stripping it absolutely free of every bit of tissue. The Basinni method was used, and with good results.

Dr. ALEXIS V. MOSCHCOWITZ said the results obtained by Dr. Schley were undoubtedly the best he had ever seen in such a case. He had tried all the methods advised for undescended testicle and he had come to the conclusion that a method as good as any was that of Deaver. In the case presented there seemed to be perfect mobility of the testicle.

Extensive Extravasation of Urine with Sloughing of Skin and Cellular Tissue of the Penis; Skin Grafting.—Dr. SCHLEY reported the case of a man who had an extensive extravasation of urine and who was in a neglected condition when he entered the hospital. The whole skin covering the penis was gangrenous, and there were pockets of pus in the scrotum and in the groin. The skin covering the penis was cut away and skin grafting done with good results.

Nephrectomy for Hydronephrosis.—Dr. A. S. VOSBURGH presented a woman who had walked into the sharp point of a table and received a severe injury to her side, and was ill for some time as the result. Physicians pronounced her suffering due to a loose kidney. For a number of years she had repeated attacks of pain in this side, and the pain was usually associated with vomiting. For two years before the first attack she was absolutely free of symptoms, except a feeling of weight and a sense of discomfort in that side. Her illness preceding her entrance to the hospital was of several days' duration. There was pain in the lower right part of the abdomen, vomiting, temperature, etc., and a tentative diagnosis of appendicitis was made because of the localization of the pain and the temperature of 101°. Upon a careful examination a mass the size of a grape fruit was found in the right lower quadrant of the abdomen. It was not particularly painful except on deep pressure. The urinary examination was negative. The blood count showed 13,000 leucocytes, and the differential count showed 86 per cent. polymorphonuclears. The tumor occupied the site of the right kidney, and was retroperitoneal. The appendix was found to be normal; it could not be pulled into the wound, and so the abdomen was closed and the patient turned upon her side and an ordinary nephrectomy incision was made, discovering a large hydronephrosis or hemonephrosis. The fluid was aspirated, and an enucleation done. Having removed the tumor, there was found a second mass which looked like an infiltration from a hemorrhage. Although it was quite extensive, it was thought best to let it alone. The patient made an uninterrupted recovery, except that she had temperature for some time. The amount of urine passed during the first twenty-four hours was 39 ounces; during the second day, 46 ounces; during the fourth day, 49 ounces; during the fifth day, 25 ounces; during the sixth day, 76 ounces; during the seventh day, 39 ounces; on the tenth day, 49 ounces. Much interest was attached to this case because of the cause of the hydronephrosis; the contents of the hydronephrotic sac were hemorrhagic.

Dr. W. A. LUCKETT reported a case of hydronephrosis of intermittent character. The patient had been suffering from pain in the right side, and passed daily several quarts of urine. The diagnosis was an intermittent hydronephrosis. At operation the pelvis of the kidney was opened, and there was found a small calculus which acted as a ball valve at the mouth of the ureter. This evidently was the beginning and cause of the hydronephrosis.

A Case of Traumatic Aneurysm.—Dr. A. S. VOSBURGH presented a man who had received two pistol shots in the right arm, one bullet penetrating the forearm. At the first examination no pulse could be detected at the wrist, and he thought an injury to the brachial artery had occurred. The upper arm soon began to swell, and he noted expansile pulsation. At operation he found that the bullet had plowed along the brachial artery, and there had been formed a false aneurysmal sac. The median nerve had been wounded as well; the bullet had broken the axis cylinder. Of course, the muscles supplied by this nerve were involved, being paralyzed. There was a flattening of the thenar eminence. Restoration of function had been prompt.

Acute Cholecystitis During the Third Week of Typhoid Fever.—Dr. JOHN DOUGLAS presented a man, forty-eight years old, a Swede, who had been admitted to Bellevue Hospital with typhoid fever on August 15, the disease having started on August 7. He went to bed on August 8. He had hemorrhages from the bowel. He began to feel better, but soon he felt pain in the right hypochondrium. Fever accompanied the pain. His temperature was 103.2°, pulse 20, and respirations 22. The number of leucocytes was rather high for a case of typhoid alone. He ran a normal course of the disease up to August 24, when he had a temperature of 105.2°, and he complained of pain in the right hypochondrium. He had a chill on August 31, and a second one on September 3, with a temperature of 105.3°. The temperature suddenly

dropped to 97.3°, pulse 80, and respirations 20. The leucocytes numbered from 13,000 to 17,000, and the polynuclears were 92 per cent. The pain in the right hypochondrium was marked. He had a distinct cholecystitis. Under cocaine anesthesia an incision was made in the right hypochondrium; no pain was felt, and the patient stood the operation nicely. When the parietal peritoneum was touched, however, severe pain was felt. On the day following the operation the temperature was 98°, pulse 104, and the patient was in good condition. At the operation about fifteen small, light-colored gallstones were removed. Six days after the operation the temperature again rose, and there appeared to be a lapse of the typhoid. Pure culture of the bacilli was taken from the gallbladder. The wound continued to discharge bile for two months after the operation, and during all that time pure cultures were obtained from the bile. However, no cultures could be gotten from the stools. On the eighty-seventh day of the disease, fifty-seven days after the operation, he had a relapse of his typhoid, which ran an ordinary course. The wound continued to discharge. In December he did a cholecystectomy. The operation was comparatively easy because there were so few adhesions. The interest in this case was the attack of acute cholecystitis occurring during typhoid fever, and the operation under local anesthesia.

Large Phagedenic Ulcer of the Abdomen.—Dr. W. A. Luckett reported this case. He especially emphasized the good results following the free use of the cautery in this case.

The Surgical Importance of the Visceral Crises in the Erythema Group of Skin Diseases.—Dr. Henry M. Silver read this paper. Osler had written five articles on this subject, and reported twenty-nine cases. He reported five groups of crises as follows: (1) The colic crisis which occurred in pure angioneutotic edema. (2) Cases in which the skin lesion was an urticaria. (3) Cases of arthritis associated with erythema and colic. (4) Cases in which the lesions were those of erythema multiforme, with or without edema. (5) A remarkable group of cases, very difficult to recognize, with only recurring colic and nothing else. The attacks of colic might recur for years and years before the skin lesion appeared. Of the above five crises, the first and third were the ones that Dr. Silver said he would consider. In the first group, Osler had reported two cases, and Harrington, of Boston, one case. Morris had reported a case in which the attacks followed the use of a stomach tube. Angioneurotic edema was more common among males, and occurred at all ages. The tendency to recurrences remained throughout life. It was fatal when it attacked the larynx. In families that had escaped the disease, it was less likely to be transmitted than in those families where the disease had occurred. Out of eighty cases reported by one writer, thirty-three occurred in families that had had, or did have, the disease. In the third group, those cases of arthritis associated with purpura and colic, was the so-called Henoch's purpura, a case of which Dr. Silver reported in detail. Among the symptoms referable to the alimentary tract was the abdominal pain, colicky in character; with it the patient cried and tossed about. The pain was followed by nausea and vomiting of blood-stained matter. The breath was very offensive and had the odor of acetone. Constipation might be a marked feature. The act of vomiting and the movements of the bowels seemed to give relief from pain. The physical examination revealed nothing abnormal. These attacks had a great tendency to recur. The abdominal symptoms were probably due to a serous or hemorrhagic effusion into the coats of the intestines. The clinical history and the post mortem showed that these hemorrhages occurred into the intestinal wall. Hemorrhages from the nose and throat might occur, and loosening of the teeth as in scurvy. The knees, ankles, elbows were the joints most frequently involved. There was a slight leucocytosis, usually below 14,000, and usually a normal differential count. The one symptom which was almost impossible to describe was the facial appearance of the patient, which pointed to serious illness. The eruption might be a diffuse erythema or an intense hemorrhagic purpura, with shades of intensity between. The essential cause was not sought for in the microorganisms producing leucocytosis. The symptoms of purpura might be an undiscovered toxic process; a toxic action on the endothelial cells leading to a discharge of blood had been assumed to be a cause. The most important surgical disease to be differentiated from Henoch's purpura was intussusception. The pain was sudden and was preceded by diarrhea in both diseases. A slight rise of temperature was not uncommon in both. Vomiting was an early symptom in both diseases. The occurrence of tenesmus was in favor of intussusception. The presence of tumor was the crucial test and especially was to be relied upon to make a positive diagnosis of intussusception. No tumor was palpable in 60 per cent. of a series of twenty-six cases of intussusception. However, hemorrhage in the abdominal wall may give a tumor, but this might be reduced by manipulation. Abdominal tenderness was not present in Henoch's purpura, and there was a slight leucocytosis and a normal blood count. Appendicitis might be differentiated from Henoch's purpura by the sudden onset of the pain, and by palpating a tumor later in the disease when abscess formation had occurred. It had not the doughy feeling that the tumor of an intussusception had. In appendicitis abdominal tenderness and rigidity were marked, the bowels were constipated, and there was little or no tenesmus or bloody stools containing mucus. Appendicitis was not limited to any age, there was no leucocytosis, there was no eruption or joint pains, there was no hematuria, there was no previous history of the attacks of paroxysmal pain. After a careful study, the following practical results were offered: (1) In children and young adults suffering from colic, the greatest care should be taken to obtain a complete history, personal and family, which might bring out any facts of previous attacks either of skin lesions, arthritis, or intestinal crises. (2) One should make the most careful inspection of the skin for angioneurotic edema, purpura, or erythema. (3) An accurate examination of the blood, with the differential count, gave a very important aid in differentiating those cases which needed surgical treatment.

Dr. Walter Lester Carr opened the discussion from the pediatric standpoint. He had recently seen a boy of seventeen years who had been referred to him, and who gave a rheumatic history. He had a mitral murmur. He was lying in bed with the peculiar facial expression mentioned by Dr. Silver. There was some abdominal distension. The boy had pain in and swelling of the knee joint. There was also a distinct nodule below the left knee and the tissues about appeared as if bruised. A very careful examination of the abdomen revealed enlarged lymph nodes; there were also enlarged lymph nodes in both groins. There was some rigidity of the rectus muscles. The bowels were constipated, the tongue was coated, and an analysis of the urine showed the presence of acetone, a faint trace of albumen, and some blood casts. The leucocyte count was 12,000 and the differential count was normal. The boy's recovery was slow. This case probably belonged to the third group of cases described by Dr. Silver. There was a swelling, or prominence of the abdomen which was rather unusual in these cases; most of the cases had a retracted or flat abdomen. These cases Dr. Carr thought were unique

Dr. L. E. La Fetra believed that these cases must be exceedingly rare, even rare to those who saw many cases of purpura and other hemorrhagic types of disease in chil-

dren. He had never seen a case. The nearest approach to this disease was the attacks of asthma which accompanied the erythematous group of disease.

Dr. William L. Stowell said he could recall but one case of visceral crisis which came under his own observation. The patient was a girl, twenty years old, but she was not larger than a child of thirteen or fourteen should be. She had pain in the abdomen with vomiting, and the urine contained blood. The pain in the abdomen and the vomiting continued, and blood passed from the bowels. Soon the blood in the urine disappeared, and nose bleed and bleeding from the gums appeared. The leucocytes numbered 14,000 and there were 2,000,000 red cells. Dr. J. Lewis Smith, as early as 1865, had collected 40 cases of purpura with marked gastrointestinal disturbances, but he did not describe them in such a way as to place them in this class of cases, although they were very closely allied.

Dr. John F. Erdmann said that he had reported 41 cases of intussusception and in 50 per cent. a tumor was palpable. It was very difficult to make a diagnosis of those cases which were allied to Henoch's disease, and he reported an interesting case in which the diagnosis of intussusception was made. He operated upon the child, but the child died. An autopsy was not permitted. The gums were swollen and bleeding. The case was one of scrobutus.

Dr. Charles A. Elsberg continued the discussion from the surgical standpoint. He said that during the past two or three years three cases coming under this group were seen at the Mt. Sinai Hospital. In two an operation was performed, while in the third the condition was recognized and no operation was performed. The question arose in the first case whether or not the picture presented by the patient was not the one described by Osler; but the patient looked so ill that he decided to operate. He removed the appendix; it was a case of appendicitis. Two or three days later he learned that he was mistaken in his diagnosis, because the patient developed pain in the various joints and a rash appeared over the elbows and knees. The second patient gave a history of attacks which were supposed to be due to appendicitis and a normal appendix was removed. Two or three days after the operation, abdominal colic with an erythematous eruption appeared. He did not operate upon the third case, because the typical symptoms of appendicitis were absent. The child, however, was kept under observation in the hospital and soon there appeared pains in the joints, and an erythematous eruption over the extensor surfaces of the elbows, ankles and knees. Another case supposed to belong to this group turned out to be one of early measles with abdominal symptoms.

Dr. Alexis V. Moschcowitz reported the case of a child who was admitted to the hospital with a typical attack of appendicitis. He operated and found some clear serum in the peritoneal cavity and an apparently healthy appendix. The glands at the ileocecal junction were bunched. This child later developed a typical angioneurotic edema.

Dr. Edward W. Peterson said that he had recently been called to see a case supposed to be cholecystisis with a view of operating. It turned out to be a case of herpes zoster with abdominal symptoms, and it was in his opinion quite a unique case.

Dr. John A. Fordyce said that the erythema group which, by the occurrence of transitional forms, comprised such affections as erythema exudativum multiform, erythema nodosum, urticaria, the purpuras, scalatiniform and morbilliform erythema, constituted a connecting link between dermatology and internal medicine and illustrated the important interdependence of one set of organs upon another. It had long been known that toxic products of most diverse origin were capable of producing various types of erythemas. This was illustrated by the urticarial, purpuric and erythematous lesions after the administration of drugs or therapeutic sera, as a manifestation of ptomaine poisoning from spoiled meats or fish, after the ingestion of certain aliments by individuals with peculiar idiosyncrasies, or as a result of numerous intoxications of chemical, bacterial or protozoal origin. An attempt to make an independent entity of exudative erythema had signally failed; it was now regarded as only a part of the symptom-complex of a general toxemia. Osler had pointed out that this disease might manifest itself by the visceral complications only, or in addition to the cutaneous eruption and joint lesions there might be involvement of the visible mucous membranes, those of the gastrointestinal and respiratory tracts, the serous membranes, viscera, brain, etc. Since in the vast majority of instances these erythemas were symptomatic of some internal condition, their importance as indicators of such could not be exaggerated. In considering the surgical importance of this group of diseases in relation to internal disorders, numerous instances had come under his observation in which exudative erythemas had developed in connection with acute abscess formation in the skin and elsewhere, ulcerating gummatous lesions in the throat, Pott's disease, gonorrheal urethritis, cystitis, endometritis, salpingitis, etc. They were particularly apt to occur if pus was confined in a narrow canal or under pressure or where spontaneous evacuation was impossible. Suppurative processes of the sexual organs, especially the vagina, were quite prone to give rise to eruptions of erythema multiforme, which, however, disappeared spontaneously when the original trouble was removed. Of the visceral complications, those known as the gastrointestinal crises were the more frequent, especially as a concomitant of the condition known as Henoch's purpura. They consisted of colic varying in severity, vomiting and diarrhea, sometimes with hemorrhages from the stomach and bowels. That lesions similar to the cutaneous ones occurred on the gastrointestinal mucosa was substantiated by clinical observation and the findings at autopsy. Endocarditis and pericarditis had been observed in connection with erythema nodosum, and occasionally pleuritis and pneumonia. Asthmatic and dyspneic attacks might result from urticarial lesions in the respiratory tract and when localized on the glottis might call for tracheotomy. In the several forms of purpura hemorrhages might take place from the nose, stomach, bowels or lungs, into the serous cavities or viscera, and into the brain resulting in apoplectic seizures. That the toxins associated with the erythema group of diseases were not infrequent cause of acute nephritis was shown in Osler's series of twenty-nine cases with seven deaths, five of which died of uremia.

Dr. Frederic E. Sondern said that he had only made one examination of the blood in a case of Henoch's purpura but he had made a large number of examinations of the blood in a similar disorder, *i.e.*, angioneurotic edema Several of these cases he had followed closely, making repeated blood examinations, and in none had he ever noticed more than a slight leucocytosis, and he had never seen but a normal differential blood count. As a result of his experience with these cases he was inclined to believe that the complete examination of the blood would form an aid in the differential diagnosis between this disorder, Henoch's disease, and the acute disorders of a surgical nature. He recalled a case that he had seen fifteen years ago. No diagnosis had been made. The child was ten years old. He had an attack of appendicitis, but no operation was performed. One day, while in apparently good health, he complained of violent pain in the abdomen. He had very little temperature but he looked very ill. No tumor could be palpated. The abdomen was very sensitive. The bowels had not moved for two days. The tongue was coated. The child was seen by a consultant and no diag-

nosis was made, although they were suspicious of an abdominal obstruction, possibly an intussusception. That same day the child was seen by a surgeon who recommended an exploratory laparotomy. The child vomited all that day and at ten o'clock that night vomited blood. Every effort to move the bowels failed. Soon fecal vomiting occurred. Operation was then done. The appendix was found to be normal and no intestinal obstruction was found after a very diligent search. There were, however, a large number of ecchymotic spots on the peritoneal covering of the intestines and mesentery, and parts of the intestine, six, seven and eight inches long, were in a state of spastic contraction. Other parts appeared to be edematous. The child's condition was so bad that the abdomen was rapidly closed. The vomiting continued and eight or twelve days after the operation the child died. No autopsy was allowed, but on inspection through the abdominal wound it was noted that the punctate spots had disappeared. He believed this to have been a case of Henoch's purpura, although no such diagnosis was made at the time.

SECTION ON PEDIATRICS.

Stated Meeting, Held February 11, 1909.

DR. ELI LONG IN THE CHAIR.

A Case of Acidosis in a Girl of Nineteen Months; Death.—Dr. HENRY E. HALE reported this case. He said that his first experience with diacetic acid in the urine had been five years ago, the patient being a baby, ten months old, who had cyclic vomiting. Since then he had had seven other cases, and the only one that terminated fatally was the subject of his report. As a result of this experience, instead of considering diacetic acid simply an interesting finding in the urine, he regarded it as an important guide in the treatment of acidosis, and an indication for the immediate exhibition of from two to four teaspoonfuls of milk of magnesia, repeated in a few hours; he also ordered sodium bicarbonate or carbonate, by mouth, rectum, or both, encouraged the taking of water, and stopped all food for from twenty-four to forty-eight hours. If he should see another case, he said he would advise hypodermoclysis of a sodium solution, probably a bicarbonate solution of about 0.8 per cent. His prophylactic treatment consisted of a diet low in fats, milk of magnesia as a laxative when such was needed, and the administration of calomel at regular intervals of two or three weeks, followed for one, two, or three days by nightly doses of sodium phosphate and sodium salicylate. The very first sign of malaise or poor appetite was the signal for a urinary test for diacetic acid. Care should be taken not to mistake a drug reaction for that of diacetic acid. He first saw the patient on November 17, and death occurred November 21. The child had been fed almost entirely on milk and cereal. The cereal with cream poured from the top of a quart bottle of milk made up the greater portion of her breakfast. The other four meals consisted of whole milk, a little bread and butter, and possibly once a week a potato. For a month or more previous to her fatal illness she would gag as though to vomit every morning. On November 14 she appeared perfectly well, but on the day following she had no appetite and some fever. There was no vomiting. She was given a dose of castor oil and the bowels began to move the next morning. The first two stools consisted of fecal matter; the others, numbering twenty-three that day and sixteen the next, consisted of water, blood, and mucus. The accuracy of this statement of the parents he questioned. On November 15, 16, and 17 she was fed solely on mutton broth. At no time had her thirst been satisfied. No medicine was given her but subnitrate of bismuth. The child was apparently well nourished and bright. Her pallor was the most striking feature. She did not appear very ill. The rectal temperature was 101.6°, pulse 132, and respirations 44. Dr. Hale directed that she should be taken outdoors and that no food should be given her until he saw her again. He ordered salol and powdered opium in lactose, and told the mother to allow her as much water as she wished, adding a half teaspoonful of sodium bicarbonate to the glass. He asked for a specimen of the urine. On November 18 the mother telephoned that the child had not voided any urine, although she had taken large quantities of water. She was twice placed in a tub of hot water and given a high enemata through a catheter, but without the desired result. That afternoon the child was apparently improved, but there was a distended bladder reaching two inches above the symphysis pubis. This distention was relieved by the catheter, and about six ounces of clear urine was obtained. This contained no albumin, casts, sugar, or indican, but it did contain large amounts of diacetic acid, which was differentiated from any reaction due to salicylic acid. On November 19 the child seemed decidedly better. The quantity of sodium given was not increased because there seemed no indication for it. Had a specimen of urine been obtainable it would probably have given a valuable suggestion to the contrary. On November 20 she was nauseated but did not vomit. She had had many yellow, watery, mucous stools with scarcely any odor. Her appearance was not alarming. On November 21 small gray ulcers developed on the margin of the tongue. The urine was lost in the stools. In the afternoon he was called in and found the child *in extremis*, unconscious, pupils unequal, strabismus marked, and occasionally convulsive movements occurred. The temperature was 105.8°, pulse imperceptible at the wrist but 208 at the apex, and respirations of the Cheyne-Stokes type. Death was ushered in with a convulsion.

Congenital Hypertrophic Pyloric Stenosis.—Dr. J. FINLEY BELL of Englewood presented this case. The child was born October 7, 1908. She was nursed regularly, but from the beginning regurgitated more and more after nursing. Notwithstanding the vomiting, at the end of the third week she weighed eleven pounds; then her weight remained stationary for about two weeks, when she began to fail. The bowel movements were never large, were infrequent, olive green or dark brown, and foul. The urine was scant and left a reddish stain. Various methods of nursing were tried, but the symptoms continued. By December 1 the symptoms had become more severe and were so characteristic of congenital pyloric stenosis that Dr. Jacobi was called in consultation and confirmed the diagnosis. By December 11 he was convinced that operation would have to be resorted to. Two operations were performed by Dr. Curtis (see below). The child left the hospital December 24, and had continued to improve ever since. The idea that infants did not bear operations well should be modified. Cases of pyloric stenosis not readily relieved by medical treatment should be operated upon before the child was too reduced to stand surgical treatment.

Partial Pylorectomy for Fibromata in an Infant Nine Weeks Old.—Dr. B. FARQUHAR CURTIS made this report. The history of this patient had just been related by Dr. Bell. The operation was of interest because it offered a possible method for the removal of benign tumors of the pylorus without opening the cavity of the canal and without entirely separating the stomach from the duodenum. The pylorus was isolated by gauze packing and was found to be the seat of a tumor which occupied principally the free border, although there was some thickening of the walls in the entire circumference. The tumor was covered with normal peritoneum, was densely hard, and

about one centimeter in diameter, rounded and tapering to the normal tissues on all sides without definite demarkation. The mucous membrane could be easily detached from the inner surface of the tumor; he decided to leave this intact and to excise only the muscular and peritoneal coats, leaving the superior border of the pylorus, corresponding to the lesser curvature of the stomach. The mucous membrane was not divided, but was bluntly peeled from the internal surface of the part removed so that it was left as a thin sleeve. The superior or attached border of the pylorus was left intact, forming a bridge about one-half a centimeter long and the same in width. The incision across the duodenum measured about two centimeters, the one across the stomach between two and three centimeters, but the gastric and duodenal borders were drawn together without difficulty in spite of the difference in length of these incisions. The operation lasted thirty-six minutes, including an interruption of ten minutes due to defective respiration and rigidity. About one hundred grams of ether was given in all. The tumor involved only the muscular coats, and proved to be a fibromyoma. The vomiting became as severe as before the operation, and the appearance of a considerable amount of broken-down blood clots seemed to indicate that reactionary swelling of the sleeve of the mucous membrane and perhaps the formation of a hematoma beneath it had produced a complete obstruction of the enlarged orifice. As time did not relieve this obstruction and as the child was rapidly losing ground, it was decided to open the wound and to restore the patency of the canal. Four days after the first operation the second operation was performed. The catgut in the skin had been prematurely absorbed under the strain of the repeated vomiting and the edges of the incision had separated. The wound in the pylorus was very firmly closed by plastic material and the external layers, instead of being stretched apart, were more inverted than they were originally. Adhesions were separated and the redundant mucous membrane was cut away. Care was taken not to invert the wall of the stomach as strongly as had been in the first operation, and when the sutures were all inserted the air in the stomach was driven through into the intestine, thus proving the patency of the canal. Dr. Curtis expressed himself in favor of chloroform as an anesthetic in young children. The pulse after the operation was 144, respiration 46, and the evening temperature 103.2°. Feeding by the stomach was begun very early, owing to the fact that the general condition of the child was so bad. Water was given one hour after the operation and mother's milk three hours after. The threatened collapse justified a violation of the rule to keep the stomach empty. It might be that this precaution was not so necessary as had been supposed. This method greatly simplified resection of the pylorus, where it was not necessary to remove the part entirely. By pinching up the redundant mucous membrane into a transverse fold and rapidly suturing the base of the fold the redundant part could be cut away without cutting into the lumen. The sutures should be introduced first at the angle of the wound on the posterior wall of the pylorus. The danger of recurrence of the fibromyoma was not imminent enough to require a very wide removal of the sac. It was all-important to make the operation as easy and as rapid as possible in these young children, and if recurrence should take place a second operation was preferable to running the risk of losing the child by a too prolonged operation.

Dr. John Douglas said that carmine and charcoal might be of use in determining whether or not stenosis was complete. The presence of curds in the feces would also be of diagnostic value. Even though the vomiting might be continuous, if carmine and charcoal passed through it would prove that the pyloric opening was patent. In regard to the etiology, he said that one could scarcely imagine spasm producing such a hypertrophy of the pylorus. The case which Dr. Bell reported was more like a tumor. Dr. Douglas cited several cases from the literature in which the condition could not have been due to spasm or irritation. In one case the thickening was due to thickened muscular fibers. He thought the cases referred to differed from what was found in adults, where, in doing a gastroenterostomy, there was no sign of thickening or spasm; it hardly seemed possible that they could belong to the same class of cases where there was a congenital non-development as well as spasm and hypertrophy. There seemed to be much diversity of opinion as regarded treatment. Hutchison had reported fourteen cases with thirteen recoveries. There was a certain number of cases in which operation was necessary, as in spasm, thickening, hypertrophy or congenital thickening. The most recent statistics gave 114 cases operated upon; in these divulsion was done in 27 cases with a mortality of 52 per cent.; gastroenterostomy in 69 cases with 54 per cent. mortality; pyloroplasty in 17 with 53 per cent. mortality; and pylorectomy in one case with 100 per cent. mortality. The most recent statistics were in 22 cases with a mortality of 41 per cent. for pyloroplasty. If these cases could be recognized earlier the chances for the patient would be better. A submucous resection of part of the thickened tissue without opening the cavity of the stomach or duodenum, as done by Dr. Curtis, or a submucous pyloroplasty, as done by de Ribes, should in the future give so much better results than had been obtained in the past that the physician would not hesitate to refer to the surgeon those cases which did not respond to treatment.

Dr. Henry Koplik said that, in this case, it was fortunate the child was operated upon, but that this did not seem to be a typical case of hypertrophic stenosis of the pylorus, for, as Dr. Curtis said, a transverse section through the pylorus would have resembled somewhat a signet ring, with an obstructed center displaced far from the seal. This case was a tumor of the pylorus, and had nothing in common with hypertrophic stenosis of the pylorus. Dr. Koplik thought that Dr. Douglas had stated his position in a very liberal way; they were coming to the belief that these cases should not first come under the care of the surgeon. Ibraham, Feer, Koplik, and others had shown 80 per cent. recoveries with medical treatment. Heubner gave 90 per cent. recoveries. Ibraham spent three or four years in the study of this disease, and stated that by medical means he had cured 80 per cent. of his cases. When there was spasm, with but little hypertrophy, the spasm usually subsided before the case came to operation. Dr. Koplik said that he had had 20 cases of hypertrophic stenosis of the pylorus. In some of these cases where surgeons wished to operate the tumor could be felt and peristalsis was marked, yet these cases went on to recovery without operation. There might be considerable stenosis with spasm and still the patient would get well. Medical men looked at these cases in different ways. Some felt that they could not put these children under the knife in true congenital hypertrophic stenosis except as a desperate measure. He had had some very severe cases, and two out of three operated upon died. In one of these the child was in a fairly good condition, but developed a mastoiditis and died. Dr. Koplik related several cases in which the tumor could be distinctly felt and still the children recovered without operation. If there was vomiting of blood with collapse and one felt that something must be done, operation might be resorted to, but he had seen cases where there was vomiting of blood and yet he did not advise operation and the children recovered.

Dr. Clarence A. McWilliams said that medical treatment should not be persisted in too long if the surgeon was to be called in. Dr. Koplik had said that 60 per cent.

of these cases could be cured by medical treatment, but it was only by surgery that some of the remaining 40 per cent. could be saved. Statistics of operations showed 40 to 50 per cent. recoveries, which was not bad, considering the condition of some of the patients at the time of operation. This, too, when stomach surgery was in its developmental stage; better results could be expected in the future. If proper medical treatment were instituted early in these cases probably the majority would get well, but some cases resisted intelligent medical treatment, and these, together with those that came to treatment late in the development of the disease, were proper cases for the surgeon. The most important indication for operation was progressive and obstinate loss of weight. The most favorable statistics were those of Nicoll (*Glasgow Medical Journal*, 1908), who operated upon thirteen cases with only two deaths, a percentage of 15.2. He operated upon the pylorus, making a V-shaped incision through the muscular fibers, but not through the mucous membrane. Divulsion of the pylorus was performed through a separate incision in the stomach. The V was then sutured so as to form a Y. This was a simple operation, and could easily be performed. It was probably necessary only to paralyze the sphincter of the pylorus for some time in order to effect a cure of the stenosis, as it was probable that hypertrophy of the muscle alone in itself never completely closed the pylorus.

Dr. Bell said that some of the cases reported to be cured remained to be proven. He told of one case thus reported that died later from another cause, and at autopsy pyloric stenosis was found to exist. It was not his custom to wash babies' stomachs a great deal, as it taxed their strength too much. In regard to the growth being a tumor, in the case reported, he said that it was not a true hypertrophy; it was largely local, and the microscopical sections showed it to be composed of simple unstriped muscular fibers perfectly normal. The mortality of surgical cases, including medically neglected ones, was 50 per cent. In the case reported the stenosis was complete; it was impossible to drive gas or water through the pylorus.

A Study of the Eye in Mental Defectives.—Drs. L. Pierce Clark and Marten Cohen presented this paper. They said the fact that fundus examinations had been so little emphasized in examinations in idiocy might possibly be accounted for by the negative findings of Moss, who examined 116 feeble-minded children in Berlin. This study showed but two cases with alterations in the fundus. Of 528 cases examined by Gelfe but 27.5 per cent. showed normal eyes. Gelfe's idiots showed a percentage of 43 for normal idiot fundi as compared with 56 for weak-minded, and 83 for simply backward children. Their findings were quite in accord with those of Gelfe. They had undertaken this study because Cline and Tyson, in inquiring into the nature of eye changes, found in dementia precox that a fairly constant eye syndrome was present in that mental disorder embracing among other signs a mild grade of optic degeneration, which was thought to be of autotoxic origin. In the discussion of this paper it was brought out that in the occurrence of optic nerve changes in dementia precox the syndrome was due to a strong tendency to neural degeneration, rather than to a particular autotoxin. It was thought that an investigation of the allied states of mental degeneracy, such as imbecility and idiocy, might throw light on the subject. In the present study fully three-fourths of all the cases of idiocy showed varying stages of a retrobulbar neuritis of a degenerative character. A second object of inquiry was to see whether there were pathognomonic structural defects in the eyes of feeble minded children and idiots comparable with other grosser defects mental and physical. The negative findings in this part of the work had been disappointing. It seemed that the eye defects did not extend beyond those of mere functional incompetency of vision in idiocy. The defective central enervation might account for this lack of visual acuteness. The study was made in the Randall's Island service where there were 1,000 cases from which to select. Fifty cases each of feeble minded, imbeciles, and idiots were chosen, but of these only 129 could be examined carefully. The imbeciles were of the unteachable grades, but able to care for themselves and help a little about the ward. The idiots were of the lowest type of helpless cases in the institution. Only idiopathic cases were chosen. Examination of the eyes showed external changes in but few cases; unilateral ptosis was noticed in two feeble-minded children; strabismus was found in one feeble-minded child. The pupillary reflexes to light, accommodation, etc., were present in all, but sluggish in idiots. One idiot showed rigidity of the pupils. Acuity of vision, fields of vision, and refractive errors could not be determined owing to lack of cooperation due to the mental defect. By using the retinoscope there were found 4 cases of myopia, 3 of hypermetropia, and 15 of astigmatism. Ophthalmoscope examination was made by means of the indirect method, using a candle as the source of light. In only 106 of the 129 cases could the fundus be properly examined. Only 9 of 29 feeble-minded children showed normal fundal appearances. Pallor of the temporal half and odema of the nasal half of the disc were present in 7 cases. There was slight indistinctness of the disc in two cases, and well-marked neuritis in one. The early stage of atrophy was found in six cases, but advanced atrophy was not found in any case. In 4 cases there was dilatation of the veins. Of 24 imbeciles examined, 15 had eye grounds normal in appearance. Four showed pallor of the temporal half and odema of the nasal half of the disc. In one case there was slight indistinctness of the disc. One case showed well marked atrophy. There were 53 cases examined in the group of idiots and all but 11 showed a normal fundus. In 13 cases temporal pallor and nasal edema were present. In one case there was general congestion of the entire disc; in eight there was generalized pallor of the discs; in three there was optic atrophy; in one, dilated veins. One patient each showed, choked disc, thrombosis of the central vein, retinal congestion, retinal hemorrhage. The conclusion reached was that there was a well marked tendency to neural as well as psychic degeneration in the great majority of all grades of idiots.

Dr. Charles H. May said that he had been in the service at Randall's Island nineteen or twenty years ago when there were no facilities for making examinations, but he had made observations on 60 cases. He had been unable to make examinations of the fundus. He had found a great many external anomalies and in this respect his results differed from those which the writers of the paper had reached. He had found that all the material used for squint operation was derived from the feeble-minded and idiot wards; in fact, 10 per cent. of all such patients had squint. Another feature in these cases was the large number of instances of anisometropia, variations in the conditions of refraction in the two eyes. Only gross errors could be taken account of at that time as retinoscopy was not in vogue.

Dr. Henry Hawkins Tyson said that he had made observations on about 40 cases and that his interpretation of the ophthalmoscopical pictures found during examination differed somewhat from those reported in the paper. In the feeble-minded cases the appearances of the fundus oculi varied very slightly from normal; the increased color in the veins found in some cases was such as was found in cases of autointoxication. He found no cases in which the margins of the papillæ were blurred nor indications of an optic neuritis. In a few imbeciles evidences of arteriosclerosis were found in the fundi. In a majority of the cases classified as idiots an atrophy of the optic nerve was found. In cases of post neuritic atrophy associated with

deformities of the skull, the cause of the atrophy was a mooted question, whether the diseased nerves were produced directly by the deformity, or whether both rose from a common cause, or whether the two conditions were coincidental. In Friedenwald's report of 17 cases (12 were oxycephalic) the ophthalmoscopic findings were given in 15 cases of which thirteen (13) had either an optic neuritis, or a post-neuritic atrophy; two cases of optic atrophy were not classified. The orbits in some of these skulls were very shallow and the eyeballs protruded so that at first they might be taken for myopic globes. In the cases of optic atrophy, the atrophy was of the greyish post-neuritic variety, similar to that seen in cases following infantile cerebral disease. He was inclined to the opinion that the optic nerve lesion was the result of some intracranial inflammation, in addition to the degeneration.

Dr. Marten Cohen said that the report was not conclusive because of the great difficulty encountered in the examination of this class of patients. In some cases it was impossible to state definitely by ophthalmoscopic examination whether the atrophy was primary or secondary. Only a microscopical examination of the disc could decide this point. In cases where they had found a normal fundus, the optic nerve tract probably escaped the general cerebral degeneration.

Observations on the Use of Lactic Acid Bacilli at the Babies' Hospital During the Summer.—Dr. Charles Gilmore Kerley presented this paper. He said that for many years buttermilk had been used in Holland in infant feeding and various observers had reported good results. During the summer of 1908 the lactic acid bacillus had been used in the service of Dr. La Fétra and himself in the Babies' Hospital. The milk was prepared in the diet kitchen of the hospital using one tablet containing a pure strain of lactic acid bacillus, dissolved in four ounces of water and mixed with one quart of milk. The mixture was then allowed to stand for from twenty-four to forty-eight hours, when it was diluted with water, cereal water, and milk sugar or cane sugar. The child's caloric requirements were considered in each case. This soured milk was used in 34 cases, full milk being employed in 30 cases, and skimmed milk in four. The first group treated were distinctly feeding cases, from one to sixteen months of age. In 11 of these full milk was used and in four skimmed milk. All but one of the 11 using full milk lost in weight and that one gained one-half ounce in two weeks. One lost four ounces in two days. Another child in fair condition lost six ounces in three days without a sign of illness and after taking the food well. The four that took the soured skimmed milk fared as badly. Three failed rapidly and died in from two to nine days from inanition. The results were so disastrous that further observations on feeding cases were abandoned. The children were not made ill by the soured milk, but simply faded away. The second group treated comprised babies who were given the soured milk after intestinal diseases. It was well-known how difficult it was after a severe attack of summer diarrhea to bring a baby back to a cow's milk diet. The soured milk was used in 19 cases after the subsidence of acute symptoms, when freer feeding might with propriety be substituted. These babies ranged in age from one to fourteen months. This milk was absolutely refused by two babies. In four others a very rapid loss in weight made it necessary to discontinue the milk after using it from two to four days. Only four of the children gained in weight, one gained 7 ounces in 16 days, one two ounces in 16 days, one 10 ounces in 15 days, and one, 1 ounce in six days. But two in the series made a satisfactory showing. The usual methods of resuming stronger feeding gave results incomparably better and further experiments with this method of feeding were discontinued.

Dr. Josephine Hemenway said she had been impressed by two points at the Babies' Hospital. First that children brought to the hospital in a condition by no means hopeless, but who were not gaining, if fed on soured milk, changed so suddenly and failed so rapidly that one could pick them out in going through the ward. The second point was that this food failed to fatten the children; none of them showed any improvement so far as putting on fat was concerned; and this was especially true of the soured skimmed milk. Their experience with skimmed milk showed that it had no value as a food unless some other element of the food was increased, as for instance, sugar. In a small series of cases of winter gatrointestinal trouble, an initial purgative was given, then two days' starvation and then fat-free acidified milk for three or four days. The character of the stools had changed rapidly for the better under this treatment. The children were then placed on regular milk modifications. In several cases of chronic intestinal indigestion in older children the acidified milk seemed to give good results, but it was given in connection with other articles of diet.

Dr. L. E. La Fétra said that there was no doubt that the children fed on this acidified milk did worse, as a rule, than when on the usual diet. The results of the observations had been a great disappointment to him. It was almost impossible by rectal injection of a suspension of the bacilli to get them as far as the ascending colon, where they would do any good. If they could be used by the mouth in sufficient quantities and in good culture media, they might possibly be carried through the tract and exert a favorable action. He felt that there was a distinct field for buttermilk in cases in which fat was not well borne, and those with putrid stools, which were alkaline rather than acid. He had had good results by using the buttermilk for a period of a week or ten days, using it for the purpose of changing the character of the intestinal contents. When the stools became normal he changed the diet.

Dr. Henry Dwight Chapin said that whatever was reported of infants in hospitals should be taken with a great deal of scepticism, as babies in hospitals did not do well on anything. The hospital was not a good place for them. The hospital should be the round-up for those babies acutely ill, but they should be sent out as soon as possible. He had not given so much attention to the stools; as long as the baby gained in weight it was not wise to interfere with the food. If the child lost in weight and the stools were bad, he at once changed the diet. He was of the opinion that buttermilk had a restricted use. Babies did not like it, and the baby was the one to decide what it would take.

Dr. Elias H. Bartley said that his worst trouble had been to get children to partake of this food; he had only succeeded in getting two children to take it. Both of these children improved under it for two days in one case and four in the other. Then they refused to take it longer. He had tried it with some success in private practice and thought that it would cut short acute troubles unless they were due to lactic acid fermentation or lactobutyric fermentation. He had not tried it in healhy babies and saw no reason for doing so. The reports of the bacteriological examinations of the tablets at the Hoagland Laboratory had been disquieting, for almost all the cultures were found to be mixed cultures and not pure ones. He thought the use of milk did tend to reduce the amount of fermentation in the intestinal canal. He had used lactic acid in 5 per cent. solution for several seasons with good results. Recently he had used whey slightly soured with lactic acid and thought it gave as good results as soured milk. In some respects New York did not agree with the outside world. For instance, it was claimed in Europe that babies did well on whole milk. They did not do well on it in New York. In some localities they fed babies on high-fat milk, but they could not do it in New York.

State Medical Licensing Boards.

STATE BOARD EXAMINATIONS QUESTIONS.

Oklahoma State Board of Medical Examiners.

Muskogee, November 10, 1908.

ANATOMY.

1. Name and give location of four ductless glands.
2. What structures pass through the (*a*) jugular foramen, (*b*) foramen magnum?
3. Give origin, insertion, and nerve supply of the following muscles: Biceps, sartorius, gastrocnemius.
4. Give regions of the abdomen and their contents.
5. Mention all the abdominal viscera not completely invested by peritoneum.
6. Name the structures to be divided in operating for strangulation of an oblique inguinal hernia.
7. Name the cranial nerves in their order; give the function of each.
8. Give relation of the femoral artery; give its branches.
9. Name the bones of the cranium and the face; give articulations of each.
10. Give fetal circulation.

BACTERIOLOGY.

1. Into what varieties or species are bacteria divided?
2. How do bacteria multiply? Describe this process in the case of cocci, bacilli, and spirilla.
3. What conditions are required for the proper development of bacteria? Give the most favorable temperature for their growth.
4. What pabulum is necessary for the life of bacteria? Explain how they live in a saline solution.
5. Name culture media: (*a*) two liquids, (*b*) one solid. How are they prepared?
6. Describe the method of inoculating: (*a*) liquid media, (*b*) solid media. What do you understand by (*a*) slant culture, (*b*) stab culture?
7. Give a good method for the cultivation of anaerobic bacteria.
8. Name four pyogenic bacteria; give individual features of each.
9. Give the pathogenesis and morphology of the gonococcus. Name its discoverer.
10. Name the three varieties of malaria parasites found in the human blood; give the life cycle of each.

OBSTETRICS.

1. What changes occur during pregnancy in the external genitals and vagina?
2. When should a healthy child be weaned?
3. Give treatment for severe flooding after birth of child.
4. Describe vaginal and vulvar lacerations resulting from labor; give proper time and mode of repair.
5. Under what circumstances would you be justified in inducing premature labor, and at what period?
6. What are the subjective signs of pregnancy?
7. Give the uses of ergot, cinnamon, mistletoe, and quinine in obstetrics.
8. Give cause and treatment of eclampsia.
9. How may the knee be distinguished from the elbow when presenting?
10. What is the diagnosis of false from true labor pains?

CHEMISTRY.

1. Define (*b*) chemistry; (*c*) organic, (*d*) inorganic.
2. What is an atom? Give an example.
3. What is a molecule? Give an example.
4. Give a test for pure water.
5. Give test for sugar in urine.
6. What is H_2O, HCl? Give symbol for sulphuric acid
7. Give symbol for peroxide of hydrogen.
8. Give symbol for silicon, antimony, carbon, gold, copper.
9. Define and give example of the terms (*a*) acids, (*b*) bases, (*c*) salts.
10. Define the term "an alkaloid"

PATHOLOGY.

1. What pathological changes occur in cirrhosis of the liver?
2. What do you understand by anesthesia?
3. What is the cause of anemia?
4. What is the difference between a malignant and non-malignant tumor?
5. Give difference between albuminuria and diabetes.
6. What is the pathological condition of the kidneys in nephritis?
7. What is pterygium of the eye?
8. What is inflammation, and how characterized?
9. What is the difference between a carbuncle and a boil?
10. Give difference between cancer and ulceration of stomach and diagnosis of each.

MEDICAL JURISPRUDENCE.

1. Enumerate the causes of sudden death.
2. Give an example of criminal malpractice.
3. Give the signs of death by morphine.
4. Give the differences in an incised wound made before and one after death.
5. On what findings would you testify that rape had been committed upon a virgin?
6. Give the cause and duration of rigor mortis.
7. Give the methods of identification of blood stains.
8. To what kind of a crime does strangulation mostly point? Also hanging?
9. Define infanticide. State what means should be resorted to in order to establish it.
10. How would you proceed to examine a case of suspected criminal abortion?

SURGERY.

1. Give the symptoms, diagnosis, and treatment of impacted fracture of the neck of the femur.
2. Describe an amputation of the leg at a point about midway between the knee and foot.
3. What is the differential diagnosis between concussion and compression of the brain?
4. Give symptoms and treatment of dislocation of the semilunar cartilages of the knee-joint.
5. Describe the manipulation for reduction of a posterior luxation of the hip-joint.
6. Give the symptoms and treatment of carbuncle.
7. Describe in detail the treatment of a case of secondary syphilis.
8. What do you understand by septicemia, septic intoxication, and septic infection.
9. Describe aneurysm, its varieties and symptoms.
10. Describe the symptoms of pyothorax and an operation for its relief.

HISTOLOGY.

1. Describe the larynx structurally considered.
2. Define a cell, and name parts of same.
3. What is cartilage? Name three varieties.
4. Describe the striated muscle, and tell where it is found.
5. Of what is nerve tissue composed? From what layer is it derived?
6. Name the parts composing the circulatory system.
7. What kind of a gland is the spleen structurally considered? Describe its capsule.
8. Name the membranes of the central nervous system.
9. What is the thymus body? Of what is it composed in its early stage?
10. What tissues are derived from the entoderm?

TOXICOLOGY.

1. What poison did this man take?

The amount swallowed was about a teaspoonful. About two hours after taking the poison he was seized with vomiting, and continued to vomit large quantities of black blood almost without interruption for the next six hours, after which the color of the vomited blood changed to a bright red under treatment and became much diminished in quantity and frequency. When seen, about eight hours after taking the poison, his breathing was very labored and accompanied with raucous sound. He kept his lips apart, but they were not scarred in any way, though the tongue, especially at the posterior part of the dorsum, was very much wrinkled and burnt. Complexion pallid, feet and hands cold. Pulse 74; respiration 26; temperature under axilla normal. He had little pain except that caused by dyspnea and a constant feeling of soreness about the sternum one inch above the xiphoid cartilage. He was never unconscious; he spoke with difficulty and with a very hoarse voice. Patient improved somewhat under treatment, but died suddenly in collapse, twenty-three or twenty-four hours after taking the poison.

2. Give detailed account of post-mortem appearance caused by nitric acid.
3. Give Reinsch's test for arsenic.
4. Give antidote for acute mercurial poisoning.
5. Give symptoms of chronic lead poisoning.
6. Give tests for zinc sulphate.
7. Give treatment for poisoning by ferrous sulphate.

8. Give treatment for poisoning by oxalic acid.
9. What poison did this man take?

After taking the poison the patient complained immediately of a feeling of intense burning in the gastrointestinal tract followed in fifteen minutes by copious vomiting. The matter vomited contained part of the poison. Dejections followed in twenty minutes after mixture was swallowed, and both vomiting and purging continued at frequent intervals until death took place. The discharges, though involuntary, were attended with great suffering. Prostation was extreme, resembling the collapse of malignant cholera. Thirst was very great. Mind not affected, but for three hours before death vision was so much affected that he was unable to recognize acquaintances.

10. Describe poisoning by opium and morphine.

PHYSICAL DIAGNOSIS.

1. Give the abnormal heart sounds and the point of greatest intensity of each.
2. Give method of examination in suspected pleuritic effusion.
3. Give physical signs and method of examination in ascites.
4. How may pleuritic friction sounds be distinguished from râles in the bronchial tubes?
5. Differentiate cardiac dyspnea, nervous dyspepsia, and asthma.
6. Make differential diagnosis between bronchiectasis and pulmonary tuberculosis with cavity.
7. By what signs may free air in the abdominal cavity be recognized?
8. What conditions give rise to bronchial breathing, and in what diseases may it be heard?
9. Differentiate between a pleuritic and pericardial friction sound.
10. Give the normal boundaries of the liver.

PRACTICE OF MEDICINE.

1. What form of pneumonia is most prevalent in children? Give diagnosis and treatment.
2. What are the symptoms of membranous croup? (*b*) Of spasmodic croup? (*c*) Differentiate and give treatment.
3. What do you understand by "catching cold," and what are the predisposing causes and what is the prophylaxis?
4. Give symptoms, diagnosis, and treatment of typhoid fever.
5. (*a*) Diagnose a case of appendicitis. (*b*) Give medicinal treatment. (*c*) When would you advise an operation?
6. What is the difference between infectious and contagious diseases? Name one of each.
7. What disease does empyema follow, and how would you diagnose it?
8. State the age of a patient and give treatment for diphtheria in detail.
9. Give symptoms and treatment of uremic poison.
10. Give symptoms, diagnosis, and treatment of meningitis.

MATERIA MEDICA AND THERAPEUTICS.

1. Give the different methods of administering medicine and describe your law of cure.
2. What are the remedies used in scarlet fever, and what are the indications that guide you in their use?
3. Name the remedies used in pneumonia and the symptoms that indicate the use of each.
4. Name three different drugs that have direct affinity for the heart, and describe the modus operandi of the action of each.
5. Discuss comparative value of vegetable and mineral cholagogues.
6. Name remedies that are used in rheumatism, and symptoms calling for them.
7. Give dosage and uses of the officinal salts of copper.
8. Write a prescription for intercostal neuralgia.
9. Discuss the action of alcohol upon the human system.
10. Give habitat, preparations, dosage, and uses of ten principal remedies you carry in your medicine case.

PHYSIOLOGY.

1. What is physiology?
2. What causes the arterial circulation?
3. Give the different stages of digestion and the different fluids essential to same.
4. Give the contents of the stomach at the close of gastric digestion.
5. Give the coatings of veins and the forces that cause the circulation in same.
7. How does serum differ from the liquor sanguinis?
8. Give the functions of the liver.
9. What is albumin, where found, and what does it contain?
10. What are the functions of the kidneys?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

OKLAHOMA STATE BOARD OF MEDICAL EXAMINERS

Muskogee, November 10, 1908.

ANATOMY.

1. *Four ductless glands, with location:* (1) The spleen; situated in the back part of the left hypochondriac and epigastric regions, being covered by the ninth, tenth, and eleventh ribs on the left side.

(2) The thyroid; situated on the sides and in front of the upper part of the trachea, and extending upwards on each side of the larynx.

(3) The suprarenals; situated in the back part of the abdominal cavity, behind the peritoneum, one on the upper extremity of each kidney, and slightly also on the inner and anterior surfaces.

(4) The carotid gland; situated generally in the carotid bifurcation.

2. Structures passing through: (*a*) *Jugular foramen*: Inferior petrosal sinus, lateral sinus, meningeal branches of occipital and ascending pharyngeal arteries; glossopharyngeal, pneumogastric, and spinal accessory nerves.

(*b*) *Foramen magnum:* The medulla and its membranes, vertebral arteries, spinal accessory nerves, anterior and posterior spinal arteries, and the occipitoaxial ligament.

4. The regions of the abdomen and their contents are shown in the following table. It is to be remembered that the contents will vary according to the position of the lines drawn; these are arbitrary, and nearly every writer differs from every other. In the following table the superior horizontal line extends between the cartilaginous ends of the tenth ribs, the inferior between the anterior superior iliac spines. The vertical lines pass upward from the iliopectineal eminences, at right angles, to the upper horizontal line.

The viscera situated in each region are as follows:

RIGHT HYPOCHONDRIAC.	EPIGASTRIUM.	LEFT HYPOCHONDRIAC.
Liver.	Liver.	Stomach.
Right kidney.	Stomach.	Spleen.
Hepatic flexure.	Gall bladder.	Left kidney.
Colon.	Duodenum.	Splenic flexure.
	Pancreas.	Colon.
RIGHT LUMBAR.	**UMBILICAL.**	**LEFT LUMBAR.**
Right kidney.	Transverse colon.	Small part of left kidney.
Ascending colon.	Duodenum and small intestines.	Descending colon.
Ileum.	Great omentum.	Small intestines.
RIGHT ILIAC.	**HYPOGASTRIC.**	**LEFT ILIAC.**
Cecum.	Small intestines.	Sigmoid colon.
Appendix.	Bladder in children.	Small intestines.
Last coil of ileum.	Distended bladder in adults.	
	Pregnant uterus.	
	Sigmoid colon.	

5. The abdominal viscera *not completely* invested by peritoneum are: Duodenum, cecum, ascending colon, descending colon, rectum, bladder, vagina. The pancreas, kidneys, and suprarenals are *uncovered* by peritoneum.

6. The structures to be divided in operating for strangulation of an oblique inguinal hernia are: Skin, superficial fascia, intercolumnar fascia, Cremaster muscle and fascia, infundibuliform fascia, subserous areolar tissue, and peritoneum.

7. The special *names* by which the twelve pairs of nerves are generally known are: (1) Olfactory; (2) Optic; (3) Motor oculi; (4) Trochlear or Pathetic; (5) Trifacial; (6) Abducens; (7) Facial; (8) Auditory; (9) Glossopharyngeal; (10) Pneumogastric or Vagus; (11) Spinal Accessory; (12) Hypoglossal.

Functions: (1) Special sense of smell; (2) Special sense of sight; (3) Motor; (4) Motor; (5) General sensation and motor; (6) Motor; (7) Motor: (8) Special sense of hearing; (9) General sensation and special sense of taste; (10) Motor and general sensation: (11) Motor; (12) Motor.

8. FEMORAL ARTERY. *Relations:* Superficial in upper third, being contained in Scarpa's triangle, more deeply

placed in middle third (Hunter's canal). In first 1½ inches is enclosed in femoral sheath. *In front:* Skin, superficial and deep fascia, internal cutaneous branch of anterior crural nerve, sartorius, long saphenous nerve, aponeurotic arch over Hunter's canal. *Behind:* Psoas, profunda vessels, pectineus, adductor longus, femoral vein (at lower part of Scarpa's triangle, and in Hunter's canal), tendon of adductor magnus. *Inner side:* Femoral vein (in Scarpa's space), adductor longus. *Outer side:* Sartorius (in Scarpa's space), vastus internus, femoral vein gets to outer side near ending.—(From *Aids to Anatomy.*)

Branches: Superficial epigastric, superficial circumflex iliac, superficial external pudic, deep external pudic, muscular, anastomotica magna, and profunda femoris (with branches: external circumflex, internal circumflex, and three perforating).

BACTERIOLOGY.

1. The three basic forms of bacteria are: (1) The *coccus,* which is round or oval, and may appear singly, in pairs, in groups of four, in chains, or in bunches. (2) The *bacillus,* which is rod shaped, with the longer sides parallel, and the short ends either straight, rounded, or concave. (3) The *spirillum,* which is spiral.

2. Bacteria multiply by fission, also (sometimes) by sporulation. *Cocci* may divide in one, two, or three directions of space. *Bacilli* divide transversely to their long axis. *Spirilla* divide transversely to their long diameter.

3. Most bacteria require proper temperature, generally at or near that of the body; oxygen is generally needed, those that cannot live without it being called aërobic, and those that can grow without it, anaërobic; nutriment of a proper kind, containing both organic and inorganic material; a slight degree of moisture; a medium of slightly alkaline reaction; and rest. Individual bacteria may require modifications of the above essentials.

4. The pabulum necessary for the life of bacteria is decomposable organic matter (containing carbon and nitrogen); proteid substances.

In a saline solution they probably obtain their nutrition from the decomposition of slight traces of ammonia and the carbon dioxide of the air contained in the water.

5. *Culture media;* two liquid—bouillon, and blood serum; one solid—gelatin.

6. *To inoculate liquid media:* A sterilized platinum needle is introduced into the contaminated material or culture, the smallest amount possible is taken up, and the needle is then introduced into the liquid and gently stirred around.

To inoculate solid media: Take a sterilized platinum needle, dip it into the contaminating material, take up the smallest amount possible, and streak it over the surface of the medium.

Slant culture is a culture made over gelatin which has been allowed to solidify with the test-tube in an inclined position, so as to give a larger surface for inoculation.

Stab culture is a culture made by puncturing the center of a solidified gelatin mass.

7. For the cultivation of anaërobic bacteria, Archinard gives the following method: A culture-tube three-fourths full of the medium is heated to the boiling point and allowed to cool to a temperature in the neighborhood of 40° C.; then a platinum needle charged with the material for inoculation is dipped down to the bottom of the tube. With fluid media, immediately thereafter a layer of paraffin oil is poured on the surface of the liquid before introduction of the cotton plug. With solid media the fluid is allowed to solidify after inoculation, and after solidification the paraffin oil is poured on the surface of the medium. This effectually shuts out the oxygen, and as a rule allows a luxuriant growth of anaërobic bacteria.

8. Four *pyogenic bacteria: Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus, Staphylococcus pyogenes citreus, Streptococcus pyogenes.*

The *Staphylococcus pyogenes aureus* is a small round cell which appears in clusters like a bunch of grapes; its diameter is about 0.8 to 1.0 mikron; it is facultative anaërobic, has no flagella, is not motile, it stains readily with the anilin dyes, and is not decolorized by Gram's method; it forms an orange pigment on gelatin, potatoes, and other media; it also liquefies gelatin.

Staphylococcus pyogenes albus is about the same as the *Staphylococcus pyogenes aureus,* except that it does not form a pigment, and its colonies are of a white color.

Staphylococcus pyogenes citreus is about the same as the *aureus* and *albus,* except that its growth is of a lemon yellow color.

The *Streptococcus pyogenes* is a micrococcus, of spherical shape, and arranged in chains of about thirty or forty cocci (in liquid media), but the chains are much shorter in solid media. Each coccus is about one-half to two mikrons in diameter. It is not motile, does not form spores, does not liquefy gelatin, and stains readily with the ordinary anilin dyes, and by Gram's method.

9. The *Gonococcus* is a diplococcus with a special predilection for the mucous membrane of the urethra; it is sometimes found on the conjunctiva. The appearance is that of two coffee beans; the gonococcus is found in the pus cells, stains with ordinary anilin dyes, but not by Gram's method. It is ærobic, and can be cultivated on human blood serum; it will not grow on gelatin, agar, bouillon, or potato. It was discovered by Neisser.

OBSTETRICS.

1. *Changes occurring during pregnancy in the external genitals and vagina:* Thickening, hypertrophy, congestion, increased secretion from the mucous glands, the vulva is swollen, its opening is patulous, and a bluish tint is observable.

2. A healthy child should be weaned not earlier than the sixth month, and not later than the twelfth month; but there are numerous factors which may cause modification of these limits.

5. Conditions warranting the induction of premature labor: (1) Certain pelvic deformities, (2) placenta prævia, (3) pernicious anemia, (4) toxemia of pregnancy, (5) habitual death of the fetus toward the end of pregnancy, (6) hydatidiform mole, (7) habitually large fetal head.

The most common time for the induction of premature labor is about four to eight weeks before term.

6. The *subjective* signs of pregnancy are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements.

7. *Ergot* is used sometimes after the birth of the head, and during the third stage of labor, to induce uterine contractions, to prevent hemorrhages; also sometimes used in amenorrhea due to plethora.

Cinnamon has been used to ameliorate the nausea and vomiting of pregnancy; it was also formerly used to check uterine hemorrhage.

Mistletoe was formerly used in amenorrhea for uterine hemorrhages, and also as an abortifacient.

Quinine is used to promote uterine contractions, in uterine inertia, as an emmenagogue, also to alleviate after-pains or pains during pregnancy.

8. ECLAMPSIA. The *causes* may be: Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are renal disease and imperfect elimination by the skin, bowels, and kidneys.

The line of *treatment* as laid down by Edgar is as follows: For *preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metaholic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ.

The *curative treatment includes:* (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

9. The *elbow* has three prominences, the olecranon process of the ulna and the two condyles of the humerus.

The *knee* has two tuberosities with an intervening depression; the patella may also be felt.

10. *False labor pains* are slight, occur before labor, do not cause dilatation of the os, do not produce a "show."

True labor pains gradually increase in frequency and severity, occur during labor, cause the os to dilate, produce a "show."

CHEMISTRY.

1. *Chemistry* is that branch of science which treats of the composition of substances, their changes in composition, and the laws governing such changes.

Organic chemistry is the chemistry of the carbon compounds.

Inorganic chemistry is the chemistry of such substances as do not contain carbon.

2. *An atom* is the smallest quantity of an element which can enter into chemical action, or that can enter into the composition of a molecule. *Example:* H., one atom of hydrogen.

3. *A molecule* is the smallest quantity of any substance that can exist in a free state. *Example:* H_2SO_4, one molecule of sulphuric acid

4. Pure water would have a specific gravity of 1,000; would be neutral to litmus paper; a few drops evaporated in a platinum dish would leave no solid residue; the boiling point would be 100° C. or 212° F.

5. A TEST FOR SUGAR IN THE URINE: The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

Fehling's test: Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use, equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

6. H_2O is the formula of one molecule of hydrogen monoxide or water.

HCl is the formula of one molecule of hydrochloric acid.

The *formula* for sulphuric acid is H_2SO_4; there is no *symbol* for a compound.

7. The *formula* for peroxide of hydrogen is H_2O_2; there is no *symbol* for a compound.

8. The *symbol* for Silicon is Si; for Antimony is Sb; for Carbon is C; for Gold is Au; for Copper is Cu.

9. (*a*) *Acids* are compounds of an electronegative element or radical with hydrogen, part or all of which hydrogen they can part with in exchange for an electropositive element, without formation of a base. *Examples:* Sulphuric acid, H_2SO_4; nitric acid, HNO_3.

(*b*) *Bases* are ternary compounds capable of entering into double decomposition with an acid to produce a salt and water. *Examples:* Potassium hydroxide, KOH; Calcium hydroxide, $Ca(OH)_2$.

(*c*) *Salts* are substances formed by the substitution of an electropositive element for part or all of the replaceable hydrogen of an acid. *Examples:* Sodium nitrate, $NaNO_3$; Monopotassic sulphate, $KHSO_4$.

10. An *alkaloid* is a basic nitrogenous substance, of alkaline reaction, and capable of acting with acids to form salts in the same way that ammonia does.

PATHOLOGY.

2. *Anesthesia* is the condition in which sensation (general or tactile) is lost.

3. *The causes of anemia* are as follows: (1) *Of the primary anemias:* The cause is unknown, probably it is some form of intoxication. Predisposing causes are: Insufficient and improper food; nervous disturbances, such as violent shock; pregnancy and lactation; gastrointestinal diseases, such as atrophy of the stomach and interstitial gastritis; parasitic diseases, such as ankylostomiasis and bothriocephaliasis; frequently repeated hemorrhages; general diseases, infectious diseases, and intoxications. (2) *Of the secondary anemias:* Bad hygienic surroundings, as insufficient food or food of bad character, inspiration of noxious gases, overwork and crowding; parasitic diseases; exhausting diseases, as cardiac, renal, or gastrointestinal diseases, cirrhosis of the liver, rickets, scurvy; chronic infections diseases, as tuberculosis, syphilis, leprosy, malaria; frequently repeated small losses of blood; overlactation and gestation; toxemia, as Saturnism, mercurialism, and jaundice.—(From Macfarland's *Pathology*.)

4. *Benign tumors* are encapsulated, do not tend to infiltrate the surrounding tissues, do not give rise to metastatic growths, do not tend to recur after removal, do not produce cachexia, and do not have a fatal tendency (except from their location).

Malignant tumors are not encapsulated, tend to infiltrate the surrounding tissues, give rise to metastatic growths, have a tendency to recur after removal, give a cachexia, have a fatal tendency.

7. *Pterygium of the eye* is a triangular fold of membrane extending from the canthus to the margin of the cornea.

8. *Inflammation* has been defined: (1) As the succession of changes which take place in a living tissue as the result of some kind of injury, provided that this injury be insufficient immediately to destroy its vitality.

(2) As the reaction of tissues to an injury.

It is characterized by: Redness, swelling, heat, pain, and impairment of function.

9.

BOIL.	CARBUNCLE.
Affects the skin only.	Subcutaneous tissue also affected.
Has a single opening.	Multiple openings.
Frequently multiple.	Single, but extensive.
Usually occurs from infection of a hair follicle or sweat gland. No albuminuria or diabetes.	Infection with *Staphylococcus pyogenes aureus;* albuminuria or diabetes often accompanies or precedes.
A local affection.	Often severe constitutional symptoms.

10. *Carcinoma of the stomach* does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; severe anemia and cachexia are also present.

Ulcer of the stomach is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl.

MEDICAL JURISPRUDENCE.

1. The *causes of sudden death* are: Cerebral hemorrhage; rupture of a gastric ulcer; valvular disease of the heart, especially aortic; angina pectoris; rupture of an aortic aneurysm; suffocation during an epileptic fit; shocks of electricity; sunstroke; mental or physical shock; diabetic coma; uremia; exertion on an overloaded stomach.

2. *Example of criminal malpractice:* The performance of an illegal operation, such as criminal abortion.

3. There are no characteristic signs of death by morphine. The only lesions are those that may usually be observed after death from asphyxia. The blood is dark and fluid; the brain, meninges, and lungs may be congested; the bladder is usually full of urine.

4. A wound inflicted during life is generally characterized by hemorrhage, coagulation of the blood, eversion of the edges, and retraction of its sides. It may also be inferred that the wound was inflicted during life if any of the following are noticed: The presence of inflammation, swelling, pus, or gangrene on the edges of the wound, or if there is any sign of beginning cicatrization.

5. *Rape* is carnal knowledge of a female by a man, unlawfully, forcibly, and without her free consent.

The *medical evidence* is based on: (1) Marks of violence about the woman's genital organs; (2) wounds, bruises, or other marks of injury on the woman or on the accused; (3) blood stains and seminal stains on the person or clothing of either party; and (4) the presence of any venereal disease on either party.

6. Rigor mortis is supposed to be due to the coagulation of the myosin in the muscles. It lasts for a variable period, generally from about sixteen to twenty-four hours.

7. *To identify blood stains:* (1) Some of the material from the suspected stain is thoroughly mixed with a few drops of a saturated solution of sodium chloride, and then allowed to evaporate to dryness on a slide covered with a cover-glass. Now add a drop of glacial acetic acid to the slide, and allow it to enter under the cover slip; then apply gentle warmth. If the suspected stain is *blood,* crystals of hemin will form later, and can be seen under the microscope; this will not be the case with *iron rust.*

Other tests are: (2) The demonstration of the *corpuscles* by the aid of the *microscope;* (3) *spectroscopic* appearance of two dark absorption bands in the green rays, and at the junction of the green and yellow rays; (4) *chemical* tests, and as the action of guaiacum and ozonic ether, nitric acid, or caustic potash.

8. *Strangulation* generally points to homicide; *hanging,* to suicide.

9. *Infanticide* is the murder of a newborn child, which has a separate existence from its mother.

In order to establish *infanticide,* it is necessary to prove: (1) That the child was born alive; (2) that it was capable of an independent existence; (3) that its death was due to violence; and (4) that this violence was criminal.

SURGERY.

3.

CONCUSSION OF THE BRAIN.	COMPRESSION OF THE BRAIN
Unconsciousness is incomplete; patient can be made to answer, though it may be briefly, and in simple words.	Complete unconsciousness; may scream into patient's ear at the top of the voice, but will receive no answer.
Special senses, though greatly blunted, are not abolished.	Special senses entirely suspended.
Power of movement not destroyed; if the position of a limb be changed the patient will resist or bring it immediately into the original position.	Complete or partial paralysis; in most cases hemiplegia.
Respiration is quiet and feeble.	Respiration full and noisy.
Pulse feeble, frequent, and intermittent.	Pulse full and slow, and sometimes laboring.
The stomach sickens and rejects its contents.	The stomach is insensible to any impression; no nausea or vomiting.
The feces may be discharged incontinently, as may also the urine, though not usually.	Bowels are torpid, and the bladder incapable of emptying itself, though the urine may escape by overflow.
Deglutition little impaired.	Deglutition difficult or impossible.
Pupils variable, though generally contracted; the eyelids somewhat open.	Pupils variable, though generally much dilated, and the eyelids closed.
Temperature of the body less than natural.	Temperature almost natural, a little below the normal standard.

—(From Treves' *Manual of Surgery.*)

5. In posterior luxation of the hip joint the patient should be placed on a mattress on the floor, and then be anesthetized. The leg is then to be flexed on the thigh, and the thigh flexed on the abdomen; adduction is to be increased so that the knee is beyond the middle line of the body; then abduct, freely circumduct outward, and finally extend the limb so that it is parallel with the other.

TOXICOLOGY.

1. The man took sulphuric acid.

2. *Post-mortem appearances caused by nitric acid:* "The lips, mouth, fauces, and esophagus will be stained a yellow or yellowish brown; the mucous membrane in the same regions will be softened, peel off readily, and probably be found in shreds. The stomach will probably be distended by gas, and, as is the case with any of the stronger acids, its walls may be softened, ulcerated, or perforated. The contents of the stomach will be green or yellow, the lining membrane congested. Similar conditions but diminished in intensity will be found in the upper part of the small intestine."—(Dwight's *Toxicology.*)

3. *Reinsch's test for arsenic* is as follows: To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper, and put it into a clean, dry glass tube, open at both ends, and apply heat at the part where the copper is. If arsenic is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of octahedral crystals of arsenic trioxide.

4. White of egg in moderation, followed by an emetic.

5. *The symptoms of chronic lead poisoning are:* Progressive emaciation, anemia, wrist drop, severe colic around the umbilicus, constipation, feces clay colored, blue line on the gums at the junction with the teeth, fetid breath.

6. A white precipitate is found on the addition of potassium ferrocyanide, ammonium sulphide, or barium chloride to an aqueous solution of zinc sulphate.

7. Alkaline carbonates, followed by an emetic.

8. *Treatment for poisoning by oxalic acid:* Promptly give magnesia usta or slaked lime in water or mucilage, followed, if necessary, by an emetic (unless corrosion is marked).

9. The man took croton oil.

10. *The symptoms of poisoning by opium or morphine* are as follows: At first there is usually a period of excitation, marked by restlessness, great physical activity, loquacity, and hallucinations. The patient then becomes weary, dull, and drowsy; he yields to the desire for sleep, from which at first he may be roused. The lips are livid, the face pale, the pupils contracted, and the surface bathed in perspiration. The condition of somnolence rapidly passes into narcosis. The patient cannot be roused, and lies motionless and senseless, with completely relaxed muscles. The pulse, at first full and strong, becomes feeble, slow, irregular, and easily compressible; the respiration slow, shallow, stertorous, and accompanied by mucous râles. The patient rapidly becomes comatose, and, in fatal cases, dies in from 45 minutes to 56 hours, usually in from 12 to 18 hours. In cases of recovery after the stage of narcosis, the pulse and respiration gradually return to the normal, and the condition of coma passes into one of deep sleep, lasting 24 to 36 hours.

Treatment: Wash out the stomach with a dilute solution of potassium permanganate, leaving about 500 c.c. in the stomach, and maintain the respiration. In the first or second stage the "ambulatory treatment" should be adopted to prevent, if possible, the establishment of the third stage. If this stage develop, the main reliance is to be placed in maintaining the respiration by artificial methods, until the poison has been eliminated. Strong coffee, or caffein, by the mouth or rectum, are of benefit. The same cannot be said of atropin. The urine should be drawn by the catheter.

PHYSICAL DIAGNOSIS.

1. (1) A systolic murmur, soft and blowing, heard best at the apex, and transmitted to the left axilla and toward the angle of the left scapula, indicates mitral regurgitation. (2) A presystolic murmur, harsh and rough, heard best very near the apex, and not transmitted, denotes mitral stenosis. (3) A diastolic murmur, soft, heard best in the second right intercostal space, and transmitted down the sternum or toward the apex, denotes aortic regurgitation. (4) A systolic murmur, harsh, heard best in the second right intercostal space, and transmitted into the carotids, denotes aortic stenosis. (5) A systolic murmur, heard best over the lower end of the sternum, denotes tricuspid regurgitation. (6) A presystolic murmur, heard best over the ensiform cartilage, and not transmitted, denotes tricuspid stenosis. (7) A diastolic murmur, heard best in the second left intercostal space, denotes pulmonary regurgitation. (8) A systolic murmur, heard best in the second left intercostal space, and not transmitted to the large vessels of the neck, denotes pulmonary stenosis. (9) A murmur, usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a hemic or functional murmur, and denotes as a rule an impoverished condition of the blood.

4. Pleuritic friction sounds may be distinguished from râles in the bronchial tubes, by being more superficial and localized, being heard during both inspiration and expiration, and not being modified by cough or deep inspiration.

6. In *bronchiectasis* the sputum is fetid and does not contain the tubercle bacillus; there is usually no fever, no loss of strength and no history of tuberculosis. The reverse conditions obtain in *pulmonary tuberculosis with cavity.*

7. If air be in the abdominal cavity there will be a tympanitic note on percussing the anterior abdominal wall (with patient lying on his back), and there will be no fluctuation.

8. *Bronchial breathing* may indicate consolidation of the lung, or a large cavity communicating with a bronchus; it is heard in phthisis, lobar pneumonia, and hemorrhagic infarction; it is also heard normally over the trachea and large bronchi.

9. *Pleuritic friction* sounds are synchronous with the respirations, and cease if the patient hold his breath. These conditions do not obtain in *pericardial friction* sounds.

PHYSIOLOGY.

1. *Physiology* is that branch of science which treats of the functions of living tissues and organs in a state of health.

2. The arterial circulation is caused by: (1) The elasticity and tone of the arteries, (2) the force and frequency of the cardiac contractions, (3) the resistance in the capillaries.

3. *The different stages of digestion* are: (1) *In the mouth*, where the food is crushed, mixed with saliva, and reduced to a pulp; a certain amount of starch converted into maltose and rendered slightly alkaline. Fats and

proteids are unaltered. (2) *In the stomach*, where the contents are rendered acid, conversion of starch into sugar ceases, connective tissue of fats is dissolved, and fats are set free. Proteids are dissolved and peptones formed. The albuminous foods are dissolved for the most part, and a grumous mixture of peptones, liquid fats, and starches is formed, which is termed chyme, and is gradually passed through the pylorus into the intestine. (3) *In the intestine*, where the chyme mixes with the bile, pancreatic and intestinal juices, becomes alkaline, conversion of starch into sugar recommences, emulsifying of fat begins, and the undissolved proteids are converted into peptones. The diffusible peptones and salts enter the portal vein, the fat in a fine state of division entering the lacteals. In the large intestine the liquid chyme becomes more and more solid, is rendered acid by fermentative changes, and acquires the odor of feces. (From Ashby's *Notes on Physiology.*)

The different fluids essential to the same are: Saliva, gastric juice, pancreatic juice, succus entericus, and bile.

4. The contents of the stomach at the close of gastric digestion are: Water, inorganic salts, acidified proteids, peptones, liquid fats, starch, cellulose and the indigestible residues of various foods.

5. *The coats of veins* are: (1) *Tunica intima*, endothelial cells on a basement membrane; (2) *tunica media*, muscle fibers and elastic fibers; (3) *tunica adventitia*, connective tissue of white fibrous and yellow elastic kinds.

The forces that cause the circulation in the veins are: (1) The action of the heart, (2) aspiration of the thorax, (3) the contraction of the muscles, and (4) slightly, the valves in the veins.

7. Serum differs from liquor sanguinis in that it (serum) contains thrombin and cell-globulin, and has lost fibrinogen and fibrin and a little calcium salt.

10. *The functions of the kidneys* are: (1) To separate the urine from the blood, (2) to excrete urea, and (3) the production of an internal secretion.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION
Alabama*.....	W. H. Sanders, Montgomery...	Montgomery.....July 13
Arizona*.....	Ancil Martin, Phoenix.....	Phoenix.....April 5
Arkansas*.....	F. T. Murphy, Brinkley.....	Little Rock.....April 13
California*.....	Chas. L. Tisdale, 1879 Sutter Street, San Francisco.....	San Francisco...April 6
Colorado.....	S. D. Van Meter, 1723 Tremont Street, Denver.....	Denver.....April 6
Connecticut*...	Chas. A. Tuttle, New Haven...	New Haven ....July 13
Delaware.....	J. H. Wilson, Dover.....	Dover.....June 15
Dist. of Col'bia.	Geo. C. Ober, Washington.....	Washington.....April 13
Florida*.....	J. D. Fernandez, Jacksonville..	Tallahassee.....May 19
Georgia.....	E. R. Anthony, Griffin.....	Atlanta, Augusta.May —
Idaho*.....	W. F. Howard, Pocatello.....	Boise.....April 6
Illinois.....	J. Egan, Springfield.....	Chicago.....April 15
Indiana.....	W. T. Gott, Crawfordsville....	Indianapolis....May 25
Iowa.....	Louis A. Thomas, Des Moines..	Des Moines.....
Kansas.....	D. P. Cook, Clay Center.....	Kansas City.....June 8
Kentucky	J. N. McCormick, Bowling Green	Louisville.....April 27
Louisiana.....	F. A. LaRue, 211 Camp Street, New Orleans.....	New Orleans....May 20
Maine.....	Wm. J. Maybury, Saco.....	Augusta.....July 13
Maryland.....	J. McP. Scott, Hagerstown ...	Baltimore.....June 15
Massachusetts*.	E. B. Harvey, State House, Boston.....	Boston.....May 11
Michigan.....	B. D. Harison, 205 Whitney Building, Detroit.....	Ann Arbor.....June 8
Minnesota.....	W. S. Fullerton, St. Paul.....	St. Paul.....April 6
Mississippi*...	S. H. McLean, Jackson.....	Jackson.....May 11
Missouri.....	J. A. B. Adcock, Warrensburg.	Kansas City.....May 4
Montana*.....	Wm. C. Riddell, Helena.....	Helena.....April 6
Nebraska.....	E. J. C. Sward, Oakland.....	Lincoln.....May —
Nevada.....	S. L. Lee, Carson City.....	Carson City.....May 3
N. Hampshire..	Henry C. Morrison, State Library, Concord.....	Concord .....June 29
New Jersey.....	J. W. Bennett, Long Branch...	Trenton.....June 15
New Mexico....	J. A. Massie, Santa Fe.....	Santa Fe.....April 12
New York.....	C.F.Wheelock, Univ. of State of New York, Albany.....	New York.. Albany..... Syracuse..... Buffalo..... } May 18
N. Carolina....	B. K. Hays, Oxford.....	Asheville.....June 9
N. Dakota.....	H. M. Wheeler, Grand Forks...	Grand Forks.....April 6
Ohio.....	Geo. H. Matson, Columbus ..	Columbus.....June 8
Oklahoma*.....	F. P. Davis, Enid.....	Guthrie.....April 13
Oregon*.....	B. E. Miller, Portland.....	Portland.....July 6
Pennsylvania*..	N. C. Schaeffer, Harrisburg..	Philadelphia Pittsburg } June 22
Rhode Island*.	G. T. Swarts, Providence....	Providence.....April 1
S. Carolina.....	H. H. Wyman, Aiken.....	Columbia.....June 8
S. Dakota*	H. E. McNutt, Aberdeen	Watertown.....July 14
Tennessee..	T. J. Happel, Trenton.	Memphis..... Nashville..... Knoxville..... } May —
Texas.....	C. B. Fossue, Waco.....	Cleburne.....June 22
Utah.....	R. W. Fisher, Salt Lake City..	Salt Lake City .April 5
Vermont.....	W. Scott Nay, Underhill.....	Burlington.....July 13
Virginia.....	R. S. Martin, Stuart.....	Richmond.....June 22
Washington* ..	K. Turner, Seattle.....	Seattle.....July 6
W. Virginia....	H. A. Barbee, Point Pleasant .	Huntington ....April 13
Wisconsin.....	J. V. Stevens, Jefferson.....	Madison.....July 13
Wyoming.....	S. B. Miller, Laramie.....	Laramie.....June 23

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending March 20, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	551	188
Diphtheria	372	52
Measles	922	21
Scarlet Fever	386	25
Smallpox	—	—
Varicella	173	—
Typhoid Fever	23	5
Whooping Cough	117	8
Cerebrospinal Meningitis	8	7
Malarial Fever	—	—
Totals...	2552	306

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending March 19, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Arkansas, Bethal	Jan. 25	3	.
Jonesboro	Jan. 20–Mar. 1	20	.
Paragould	Feb. 1–Mar. 9	7	.
California, Oakland	Jan. 1–31	4	.
San Francisco	Feb. 20–27	6	.
District of Columbia, Washington	Feb. 20–27	1	.
Illinois, Banld	Feb. 15–18	2	.
Chicago	Feb. 27–Mar. 6	2	.
Danville	Mar. 1–7	4	.
Galesburg	Feb. 27–Mar. 6	1	.
Indiana, Elkhart	Feb. 28–Mar. 6	2	.
Lafayette	Mar. 1–8	1	.
Iowa, Council Bluffs	Jan. 1–31	9	.
	Feb. 1–28	4	.
Kansas, Kansas City	Feb. 27–Mar. 6	1	.
Topeka	Feb. 20–27	6	.
Kentucky, Covington	Feb. 27–Mar. 6	3	.
Georgetown	Dec. 2 Mar 4	31	.
Paducah	Mar. 1–7	2	.
Louisiana, Alexandria	Feb. 1–28	9	.
New Orleans	Feb. 29–Mar. 6	1	Imported
Michigan, Detroit	Feb. 20–Mar. 6	2	.
Minnesota, Minneapolis	Feb. 27–Mar. 6	11	.
Missouri, Kansas City	Feb. 27–Mar. 6	2	.
St. Louis	Feb. 27–Mar. 6	2	.
Montana, Butte	Feb. 16–Mar. 2	2	.
Nebraska, Arlington	Jan. 25	1	.
South Omaha	Feb. 20–27	5	.
New Jersey, Camden	Feb. 27–Mar. 6	2	.
Perth Amboy	Mar. 10	6	.
New York, Buffalo	Feb. 28–Mar. 6	1	.
New York	Feb. 22–27	1	1
Ohio, Cincinnati	Feb. 26–Mar. 5	9	.
Cleveland	Feb. 26–Mar. 5	2	.
Columbus	Feb. 28–Mar. 6	1	.
Pennsylvania, New Castle	Feb. 1–28	2	.
Prompton	Feb. 2–Mar. 4	8	.
Tennessee, Memphis	Jan. 1–31	61	.
Nashville	Feb. 28–Mar. 6	10	.
Texas, El Paso	Feb. 23–Mar. 2	.	1
San Antonio	Feb. 27–Mar. 6	3	.
Utah, general	Jan. 1–31	237	1
Virginia, Caroline County	Mar. 9	1	.
Washington, Tacoma	Feb. 14–Mar. 7	8	.
Wisconsin, La Crosse	Feb. 27–Mar. 6	2	.

SMALLPOX—FOREIGN.

Algeria, Algiers	Jan. 1–31	.	29
Canada, Halifax	Feb. 20–27	6	.
China, Dalny	Jan. 23–30	.	1
Tientsin	Jan. 23–30	5	1
Egypt, Alexandria	Jan. 1–31	8	.
Cairo	Jan. 28–Feb. 4	33	12
France, Paris	Feb. 6–13	4	1
Germany, Brunswick	Feb. 13–20	1	.
Great Britain, Bristol	Feb. 13–20	4	.
India, Bombay	Feb. 2–9	.	12
Calcutta	Jan. 16–30	.	181
Madras	Jan. 30–Feb. 5	.	1
Rangoon	Jan. 23–30	.	2
Italy, general	Feb. 14–28	15	.
Naples	Feb. 14–21	21	5
Palermo	Jan. 23–30	1	.
Java, Batavia	Jan. 16–23	3	.
Malta	Feb. 1–13	2	.
Mexico, Mexico City	Jan. 23–Feb. 6	.	19
Vera Cruz	Feb. 1–27	1	.
Persia, Arabistan	Feb. 3	Present	.
Mechedizzer	Feb. 3	Present	.
Mohammerah	Feb. 3	Present	.
Portugal, Lisbon	Feb. 13–20	1	.
Russia, Moscow	Jan. 30–Feb. 13	2	.
St. Petersburg	Jan. 30–Feb. 6	7	5
Warsaw	Jan. 2–9	.	1
Spain, Almeria	Jan. 1–31	.	1
Barcelona	Jan. 23–Feb. 13	.	15
Valencia	Feb. 6–13	3	.
Tripoli, Tripoli	Feb. 6–13	4	.
Turkey, Constantinople	Feb. 7–21	.	4
Trebizond	Feb. 6–20	6	Present

YELLOW FEVER.

Barbodos, general	To Feb. 27	54	16

Medical Record

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Original Articles.

A NEW METHOD OF RECOGNIZING ULCERS OF THE UPPER DIGESTIVE TRACT AND OF LOCALIZING THEM.

By MAX EINHORN, M.D.,

NEW YORK.

PROFESSOR OF INTERNAL MEDICINE AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL.

THE diagnosis of ulcer of the stomach is usually connected with a good deal of difficulty. Even in the presence of larger quantities of blood in the vomited matter or in the stool no positive diagnosis of ulcer of the stomach can be made. For on the one hand we may have a parenchymatous hemorrhage in the stomach without the presence of an ulcer; on the other hand we have enough cases of ulcer of the digestive tract, which run their course without any manifest hemorrhage or even without any occult blood either in the stomach contents or in the stool. If an ulcer is present its localization, whether in the cardia, pylorus, or duodenum, is rather difficult, at times impossible.

The gastroscope, which might be of aid, is at present not available in these cases, firstly on account of the difficulty of introducing the instrument; secondly on account of the danger of perforation. A method, which would make it possible to determine accurately the presence of an ulcer, and at times to localize it, would therefore be of considerable value. I have for a long time been experimenting with some such method and would like to communicate the results.

The method consists in the following: The patient swallows the duodenal bucket in a gelatine capsule about 9 P. M. The thread which is of braided silk (English, No. 5) is attached to the shirt in such a manner that it can pass in through the digestive tract for a distance of 75 cm. from the lips. The bucket is left in the digestive apparatus over night and is removed about 7 or 8 A. M., in the fasting condition. At the pylorus we often experience a slight resistance which is usually easily overcome; a greater resistance is offered at the larynx at the entrance of the esophagus. Here the patient must swallow and while the larynx moves upward the bucket may easily be drawn out. The thread is then closely inspected. In favorable cases of ulcer, particularly if the thread has come into intimate contact with the surface of the ulcer, we find a brown or dirty black discoloration of the thread at this point. The distance of this brown spot from the lips points to the seat of the ulcer. A blood stain in the neighborhood of 40 cm. points to an ulcer at the cardia, at 44 to 54 cm. ulcer of the lesser curvature, 56 to 58 cm. pylorus, 59 and more ulcer in the duodenum.

The method might be called the "thread impregnation test." Ulcers situated in the esophagus, cardia, lesser curvature, pylorus, and duodenum can best be recognized by this method, whereas

TABLE OF CASES OF ULCER OF THE UPPER DIGESTIVE TRACT, EXAMINED BY MEANS OF THE THREAD IMPREGNATION TEST

No.	Name	Hematemesis or Melena, Whether Present and How Long Ago	Brown Discoloration of Thread, Whether Present and at What Distance from Lips	Thread Test, How Often Made and Its Result	Remarks
1	G. McA.	Melena 4 years, 2 years and 1 month ago	+ 36–43 cm.	1 +	
2	Fr. Th.	Slight hematemesis a week ago	+ 33 cm.	2; 1 = +, 1 = 0	
3	Dr. R. M.	Hematemesis 6 months ago	+ 47–5 cm.	2; both +	
4	R. J.	Melena 2 years, 1 year and 3 weeks ago	+ 48–55 cm.	8, all +	
5	J. R. M.	Hematemesis 14 days ago	+ 46–51 cm.	1 +	Patient was operated and an ulcer was found at the lesser curvature (about the middle)
6	C. M.	Hematemesis about 4 weeks ago	0	2 both 0	
7	Dr. B.	Slight hematemesis a week ago	0	1 = 0	
8	R.	Hematemesis 3 weeks ago	+ 57½–59 cm.	2 both +	
9	B. F. B.	Hematemesis 3 years ago	+ 44–74 cm.	2 both +	At time of test the stomach was filled with blood and ischochymia was present.
10	W. H. v. G.	No previous history of hemorrhage	+ 53–54 cm.	2 both +	Occult blood was found neither in the stomach contents nor in the feces.
11	Dr. L.	Vomited blood 1½ years ago	+ 59–62 cm.	1 +	
12	J. F. H.		+ 61 cm.	2 both +	
13	M. O. S.		+ 61–66 cm.	1 +	Occult blood neither in stomach contents nor in feces.
14	N. B.	Vomited blood 4 weeks ago	+ 61–62 cm.	2; 1 + , 1 = 0	

ulcers of the fundus and the greater curvature cannot be discovered by this test. Ten cases without ulcer were tested with the thread test and a negative result obtained. In the following table I have grouped 14 cases of ulcer of the digestive tract in which the thread test with the duodenal bucket has been applied.

In eleven cases with hematemesis or melena the test was found positive in nine, whereas, in two it was negative. In three cases which were not preceded by hemorrhage the test was positive. Of these three patients two were operated upon and the diagnosis was confirmed. As both cases are of interest, I will give a short account of each.

Case I.—January 10, 1909. W. H. v. G., 45 years old, has been suffering for eight years from stomach pains, occurring about two or three hours after meals. This complaint occurs periodically, lasts two or three months, and alternates with varying periods of euphoria. Constipation occurs constantly; vomiting, however, has never been present. In the last three years patient has lost nearly 50 pounds. For the last three years patient has been washing out his stomach, and reports that he often finds food remnants in the fasting condition; sometimes, however, the stomach is empty. If the pains are intense, patient washes out his stomach and then generally feels much easier. As he has lately lost considerable flesh, and as his trouble became a great deal worse, he consulted me.

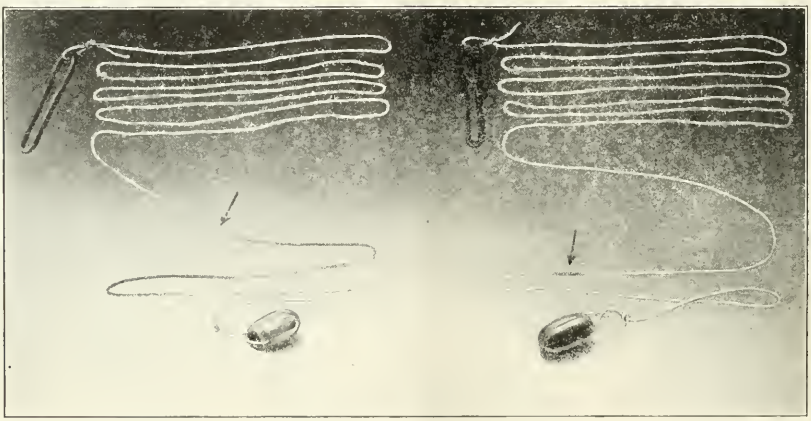
Status præsens.—The thoracic organs are normal. On examining the abdomen a marked dilatation of the stomach can readily be detected by means of clapotage. The stomach extends from the left ribs up to one to two fingers' width above the symphysis. Palpation does not reveal any particularly painful points in the abdomen; visible peristaltic waves, however, are elicited by palpation. They travel from left to right, and are recognized as originating from the stomach (peristaltic restlessness of the stomach). Examination one hour after a test breakfast shows: Free HCl, 60; total acidity, 80; no occult blood.

In the fasting condition the stomach, after a preceding meal of rice the night before, contained 100 c.c. of juice without food; HCl + acidity = 76. Patient was placed upon liquid diet and was given calcined magnesia and subnitrate of bismuth.

On January 12 the patient swallowed the duodenal bucket in a gelatin capsule; the following day in the fasting condition the bucket was removed. The bucket contained a light yellowish liquid of acid reaction but showing an absence of free HCl. The thread was colored yellow near the bucket. A little higher up a reddish brown spot 2 cm. in length was found, at a distance from 53 or 54 cm. from the teeth. (Table, Case X.) A few days later the test was repeated with the same result.

The diagnosis of ulcer of the stomach at the lesser curvature near the pylorus was made. Since the pylorus was still pervious, as shown by the rice test, and particularly the duodenal bucket, the peristaltic restlessness of the stomach and the marked dilatation as well as the occasional ischochymia pointed to a spastic contraction of the pylorus caused by the ulcer.

In spite of careful treatment the condition of the patient did not improve, and for this reason Dr. Willy Meyer did a posterior gastroenterostomy. During the operation the ulcer was found at the lesser curvature, and no thickening or narrowing of the pylorus could be discovered.



a *b*

Fig. 1.—Duodenal Bucket with thread, after a night's stay in the digestive tract of patient R. J. (Table, case 4); *a*, after ordinary foods; *b*, after a week's treatment with a strictly liquid diet. The arrow marks the place where the blood stain begins.

Case II.—December 20, 1908. J. F. H., 52 years old, has been suffering for eight years from severe pains, occurring about four hours after meals, and from frequent vomiting. These attacks usually lasted one to two months, interchanging with periods of euphoria lasting about six months. Up till February, 1905, the patient had lost twenty-five pounds, then he underwent a strict cure for ulcer (milk diet and rest abed) and then felt well for two years. Since 1907 the attacks recurred and patient again lost considerably in weight. The attacks of pain were now so severe that large doses of morphine had hardly any effect. There had never been any vomiting of blood.

President condition: liver somewhat enlarged; the right lobe of the liver is sensitive to pressure. Stomach slightly dilated, and off and on slight peristaltic restlessness of this organ may be observed. After a test meal a slight degree of hyperacidity (acidity = 75) is found.

In the fasting condition, after a previous meal of rice the night before, the presence of about 60 c.c. of gastric juice mixed with bile is found, but no food remnants.

The duodenal bucket test showed: Contents yellow; of alkaline reaction, fat-splitting ferment present. Thread discolored yellow at the bucket, higher up it is discolored brownish to the length of 1 cm. at the distance of 61 or 62 cm. from the teeth (Table, Case 12). We concluded from this test that the pylorus is permeable and that a small ulcer is situated in the duodenum not far from the pylorus, giving rise to an occasional spastic contraction of the pylorus.

Whereas at first I thought that in this case we had to deal, aside from the hyperchlorhydria, with gallstones, after recognizing the ulcer in the duodenum I discarded the other diagnosis. As the patient did not improve under suitable medical treatment, a gastroenterostomy was performed on him also by Dr. Willy Meyer. At the operation the gallbladder was found empty, the pylorus patent, and an ulcer with infiltrated margins was discovered one inch from the pylorus in the duodenum. Both patients are now doing well.

chymia and movable tumor of the pylorus, the introduction of the duodenal bucket produced real duodenal contents (slightly alkaline reaction, yellow discoloration due to bile, and presence of fat-splitting ferment). The thread showed no trace of brownish color and was only of a yellow bile-stained appearance at the lower 12 cm. of its length. I concluded that in spite of the tumor the pylorus was still perfectly passable for the duodenal bucket and that its surface was not ulcerated. A few days later the patient was operated upon by Dr. Willy Meyer in the German Hospital; a resection of the tumor was done. The pylorus was indeed entirely patent and its mucous membrane smooth and not ulcerated; at the upper part of the pylorus two carcinomatous nodules were attached, but were still covered with mucous mebrane. Here we could determine the mechanical conditions of the pylorus before the operation.

In as far as it appears to be advantageous to recognize ulcers also in regions that are not accessible to the thread I attempted to make use of the same principle of impregnation in these instances, too.

The method consists in the introduction into the

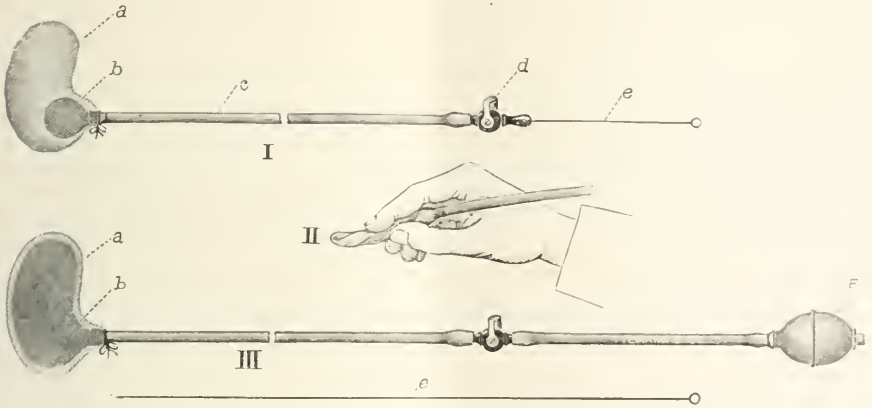


Fig. 2.—The Gastric Stamper: *a*, silk gauze bag; *b*, rubber balloon; *c*, tube; *d*, cock; *e*, stilet; *f* bulb. I. Gastric Stamper, with collapsed balloon. II. The gauze bag and balloon folded up around the tube, ready for introduction. III. Balloon filled with air, following the outline of the gauze bag.

This test seems also to be of value in judging objectively as to the result of treatment of the ulcer. Thus we noticed in patient R. J. (Case 4) that after liquid diet the test was less marked than after coarser food. The illustrations (Fig. 1) show test *a*, after a moderately solid diet, and test *b*, after a strictly liquid diet. The good influence of strict diet can readily be recognized. As soon as we put patient on a more solid diet we obtained tests that looked like *a*.

The thread impregnation test cannot, of course, indicate whether we have to deal with a benign or a malignant process. The usual clinical symptoms have to be considered, which in most cases easily enable one to make the diagnosis. The position of a neoplasm, especially if its surface is somewhat ulcerated, can also often be ascertained by the thread test.

If we can be sure that the bucket was in the duodenum, we can exclude the presence of active ulceration at the pylorus or the duodenum if the lower part of the thread is not discolored either brown or black. In a patient (J. K.) with ischo-

stomach of a rubber bag, surrounded with silk gauze which is inflated and left for a half hour in this condition. The walls of the stomach are thus in close contact with the inflated bag. Finally the air is allowed to escape and the collapsed balloon is withdrawn. If an ulcerated surface is present in the stomach we get a blood spot on the gauze at the corresponding point.

I have used this method several times and have occasionally obtained positive signs of ulceration. The instrument used for this purpose consists of a rubber tube with mandrin and stopcock, a rubber balloon, and a silk gauze bag surrounding the latter (see Fig. 2). The gauze bag is shaped like the stomach, the balloon also assuming this form after inflation. The instrument could probably best be called the "gastric stamper."

The procedure is as follows: The patient must have an empty stomach, otherwise the organ has to be washed out. The gastric stamper, provided with the mandrin, is placed in lukewarm water. The balloon is entirely emptied of air and is laid around the lower end of the tube with the gauze

bag around it (see Fig. 2, II.). Grasping this lower part like a pen, but with a little more pressure, it is pushed, after depressing the tongue of the patient with the left index, into the throat and down into the stomach. The mandrin is withdrawn and the patient lies down; now we inflate the balloon just sufficiently to fill the gauze bag and the stopcock is closed. The patient remains quiet for a half hour; then the air from the balloon is allowed to escape and the stomach stamper is withdrawn in the sitting posture; again the balloon is blown up and is hung up to dry for a few hours.

The dried bag thus shows an impression of the stomach and we can recognize from any visible blood spots—if there are any—where the ulceration is. Mucus can also be recognized after drying and we can see in which region of the stomach it collects.

The gauze bag can readily be removed from the balloon and may be preserved. Of course it is used but once and for every examination a new gauze bag is requisite.

The duodenal bucket as well as the gastric stamper must of course first be sterilized before each application.

Finally I desire to state that the thread impregnation method by means of the duodenal bucket* can be used without any difficulty in all patients suspected of ulceration. In each case a new silk thread must be used. We can in this manner often arrive at a positive diagnosis of ulcer and its situation. Sometimes the size of the ulcer can also be approximately reckoned by the length of the stain; occasionally there are two brownish dots on the thread at a distance of about one centimeter apart; these probably mark the margins of the ulcer.

The introduction of the gastric stamper is somewhat more difficult and can be done only in patients who are used to lavage, and in whom the latter procedure is not contraindicated. This method must still be worked up a little more before it may become of general use. I shall be pleased to report upon it again at some future time.

POSTURAL LUNG-DULLNESS; ITS VALUE IN DIAGNOSIS AND TREATMENT.

By ALBERT ABRAMS, A.M., M.D.,

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Pulmonary Resonance.—Over the lung, as over any other air-containing organ, percussion yields a clear sound which is called pulmonary resonance. The physiologist assumes that the lungs are in a stretched condition, yet the clinician finds that even in the norm certain portions of the lungs are collapsed and deprived of sufficient air to yield a dullness, and, in some instances, flatness on percussion. Thus, what the author has called "atelectatic zones"[1] may often be demonstrated even in healthy individuals. They are circumscribed areas of pulmonary atelectasis, dissociated with any demonstrable lesion, varying in size from a twenty-five cent piece to a dollar or larger, and disappearing after a deep inspiration or upon application of the lung reflex test. They usually reappear, however, after a few minutes when tranquil breathing is resumed. In the accompanying illustrations (Figs. 1 and 2) a composite picture is projected defining the usual situation of the zones based on an examination of over one hundred apparently healthy individuals (children as well as adults). These zones are frequently mistaken for areas of lung consolidation, either when detected by percussion or seen at an *x*-ray examination. The zones are frequently present in what

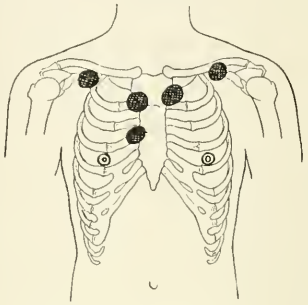

FIG. 1.—Atelectatic zones on the anterior surface of the chest.

the author has called "pulmonary anemia,"[2] and they also bear a definite relation to the points of election and paths of distribution of the lesions in chronic pulmonary tuberculosis. Very often in apparently healthy persons the lungs are hyperresonant on percussion, dependent on a pulmonary neurosis, which the author has called "acute lung dilatation."[3] The picture presented in this condition is essentially that of emphysema. By means of the cocaine test, *i. e.* cocainization of the nasal mucosa, the atelectatic zones will disappear and so will the condition of acute lung dilatation. The author has shown[4] clinically that the vagus contains constrictor and dilator fibers for the bronchioles, which observation was demonstrated later as correct by the physiological experiments of Dixon and Brodie.[5] The action of the dilator fibers can be inhibited reflexly by cocainizing the nasal mucosa, hence resonance on percussion will substitute hyperresonance, and similarly if, in consequence of a nasal anomaly the constrictor fibers are irritated, cocaine by inhibiting their action will translate dullness into resonance. Many clinicians employ a plexor and pleximeter in percussion, and by so doing they unknowingly elict

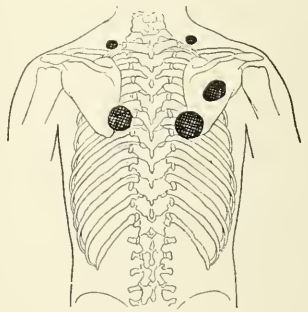

FIG. 2.—Atelectatic zones on the posterior surface of the chest.

the lung reflex of contraction,[6] which will yield a dullness on percussion.

Tissue Vulnerability.—Cutaneous and other complications can be anticipated in diabetes mellitus for the reason that the disease is demonstrated by the presence of sugar in the urine. In pulmonary tuber-

*The duodenal bucket, as well as the gastric stamper, are made by Tiemann & Co., New York.

culosis, however, this tissue susceptibility is ignored, hence the pulmonary condition preceding tuberculosis is unrecognized. The pretuberculous lung is essentially an emphysematous lung, and characterized by hyperresonance on percussion, extension of the lung borders, and the lung when percussed either at

Fig. 3.—The vibrosuppressor.

the height of forced inspiration or expiration shows no change in the percussion note. The restricted diaphragmatic movements peculiar to early phthisis owe their origin to the emphysematous lung condition.

Vibrosuppression.[7]—If one percusses the normal lung the sound elicited is the product of the vibration of the lung tissue and the thoracic walls. It is the summation of this vibration which interferes with the elicitation of the dullness of the airless organs in juxtaposition to the lungs. The sternum is practically a sounding board, and by the elimination of its vibrations localized areas of lung dullness can be demonstrated which otherwise would escape recognition. Thus, in early phthisis, resonance (owing to lung dilatation) is the usual phenomenon obtained by percussion, but if vibration of the sternum can be excluded dullness of one or both apices may be elicited. During percussion the vibrosuppressor may be used (Figs 3 and 4), or the lower end of the sternum may be forcibly compressed by the hand of the patient, or, better still, by an assistant. With these preliminary facts at our command, the reader will be able to appreciate better the observations of the author concerning postural lung dullness.

Postural Lung Dullness.—Percussional results are often influenced by the prejudiced preconceived ideas of the physician. The skilled clinician in his interpretation of percussional phenomena is guided not so much by the ear as by the *tactus eruditus;* thus, palpatory percussion will often yield results which would wholly escape the observer who is influenced only by what he hears and not by what he feels. Any one, however, reasonably skilled in percussion will, when attention is called to the fact, recognize a decided difference in the percussion note of the lungs if percussion is made first in the erect and then again in the recumbent posture. One will also note a difference if the patient is percussed first leaning far forward and then backward (supported by an assistant). In other words (the author is assuming an average typical normal subject), the percussion changes correspond in a minor degree to the alterations in the percussion note when fluid is present in a pleural space. The changes noted would be as follows:

Leaning far forward: Anterior chest region diffused dullness, especially marked in a definite area (Fig. 5). Posterior chest region hyperresonant.

Leaning far backward: Posterior chest region shows diffused dullness, notably in a definite area (Fig. 6). Anterior chest wall elicits a hyperresonant percussion note.

Leaning to one side: Side of chest wall toward which patient inclines shows dullness, whereas the other side is hyperresonant.

Lying on one side: Side of chest on which the patient lies demonstrates dullness of the lung, including the apex, whereas the other side is hyperresonant.

Recumbent posture: The anterior thoracic wall is decidedly more resonant than in any other posture.

Prone posture: The posterior thoracic region is more resonant than in any other posture.

Exaggerated Trendelenburg: Slight dullness of the pulmonary apices; lower chest region hyperresonant.

Differential Diagnosis: Postural dullness as a pathological phenomenon is frequently encountered and may be confounded with the dullness of atelectasis. Dullness dependent on atelectasis is usually circumscribed and may be dispelled by a series of forced inspirations, rubbing the skin over the area of dullness to provoke the lung reflex of dilatation and by the cocaine test already cited.

Fig. 4.—Method of application of the vibrosuppressor.

Postural dullness is usually diffused, involving one or more lobes, and cannot be dispelled by forced inspirations, the cocaine test, or by exciting the lung reflex. The dullness in question, however, disappears at once by a complete change in the posture of the patient. Assuming, for example, that the dull-

ness is somewhere over the posterior surface of the chest, its dissipation cannot be effected until the patient assumes the prone posture.

Etiology of Postural Dullness.—After a careful consideration of this subject the author is constrained to conclude for the following reasons that

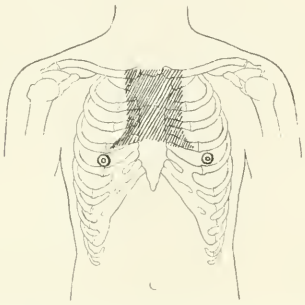

FIG. 5.—Dullness on the anterior surface of the chest when the patient leans far forward. The point of maximum intensity of the dullness is at the sternal insertion of the second ribs.

the dullness provoked by posture is dependent on the blood normally present in the blood-vessels of the lungs, which is influenced by gravity, like any other fluid:

1. The blood in the lungs, unlike in other viscera, is not restricted in amount, owing to the absence of vasomotor nerves. 2. The area of most pronounced dullness (as influenced by posture)) corresponds to the situation of the largest pulmonary vessels, and is least manifested in areas where the vessels are less abundant. 3. In passive congestion of the lungs observed in cardiopaths, the dullness elicited by postural changes is most pronounced. 4. The postural dullness is uninfluenced by all the maneuvers which act upon either the bronchoconstrictor or bronchodilator nerves of the vagus.

Postural Lung Dullness in Disease.—As already observed, postural lung dullness is observed as a normal condition, or perhaps, to speak more definitely, in the norm lung resonance is modified by posture. In passive congestion of the lungs it is most pronounced. In pulmonary tuberculosis I have noted only slight impairment of lung resonance as

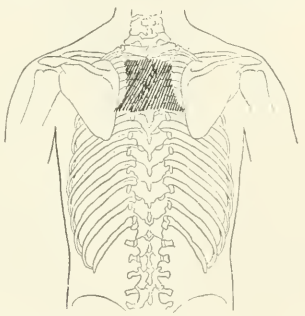

FIG. 6.—Area of dullness when the patient leans far backward.

determined by posture, and this observation applies with equal cogency to the pretuberculous lung. For this reason I seek to augment the quantity of blood in the apices of the lungs by having my tuberculous patients raise the foot of the bed so that the blood will gravitate toward the apices. After this manner I endeavor to induce a passive hyperemia of the regions in question. I cannot speak of results, inasmuch as this innovation has not been subjected to the test of time. Sir James Barr,[8] in his erudite Bradshawe lecture before the Royal College of Physicians, London, refers to the frequency of atelectasis in exhausting diseases, which may be mistaken for a pleural effusion. He furthermore says: "Atelectasis is often mistaken for hypostatic congestion of the lung, and forcible rubbing of the affected side, acting through the lung reflex of Albert Abrams, causes some expansion of the lung and clears up the percussion note." My observations do not tally with the latter. On the contrary, ever since I recognized the method of differentiating lung atelectasis and lung hyperemia, I am convinced that what is frequently regarded as atelectasis is in reality a passive congestion.

Grocco's Sign.[9]—The paravertebral triangle of dullness observed when there is a collection of fluid in one pleural sac is by no means characteristic of a pleural effusion, inasmuch as it has been noted in lobar pneumonia, pregnancy, and other extrathoracic affections. I have observed this sign very frequently in the norm, either on one or the other side when the patient assumed the lateral posture. The triangle of

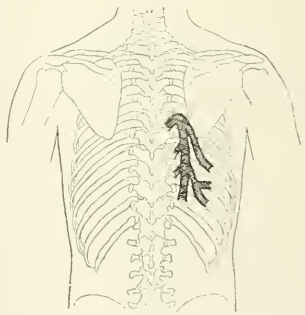

FIG. 7.—Arrangement of the pulmonary blood-vessels corresponding to the paravertebral triangle of dullness.

dullness is accentuated if, during percussion, the vibration of the vertebral column is suppressed by pressure with the hand, the spine, like the sternum, acting as a sounding board. When Grocco's sign is obtained in the norm it cannot be dissipated by the lung reflex of dilatation, but disappears at once when the patient assumes the prone posture. For the latter reason I assume that the sign in question is dependent on passive lung hyperemia. If one views a picture of the arrangement of the pulmonary vessels (Fig. 7), one notes that in the event of passive hyperemia any dullness ensuing would be triangular in shape. If Grocco's sign is present in a pleural effusion, or lobar pneumonia, it is for the reason that in either condition the vibrations of the spine are suppressed by the fluid or consolidated lung. Again in pleurisy, there is practically always a passive hyperemia of the lungs, inasmuch as there is a coexisting cardiac enfeeblement superinduced by a pleural reflex. The writer has frequently directed attention in the literature[10] to various methods for inhibiting the heart action (heart reflex of Abrams), but he has only recently noted that, if firm pressure is made with the finger in any of the intercostal spaces, the heart reflex ensues, which is manifested by a feeble or even inhibited pulse. He believes that

syncope and even death following thoracentesis is dependent on this fact.

Postural Dullness in Treatment.—The empirical treatment of pulmonary affections by external applications to the thoracic wall is fully justified, since the lung reflex of dilatation has been recognized. The postural treatment of diseases of the lungs is equally justified by the foregoing observations of the author. One fact, however, must be emphasized, and that is, the posture assumed by the patient must be an extreme one. Thus, to contend against hypostatic congestion the patient must assume the prone posture at least for a time several times a day. In hemoptysis, the correct posture can be determined when the area involved in the bleeding yields a resonant percussion note and indicates the exsanguination of the area in question. Amyl nitrite inhalations, as the author has shown,[11] are of decided value in hemoptysis, and owe their efficiency to exsanguination of the lungs by provoking the lung reflex of contraction. So it is with a variety of cardiorespiratory diseases, which need not be described in detail. The fact is that the author has not studied the phenomenon of postural dullness over a sufficient length of time to warrant his formulating conclusions in morbid conditions, and this contribution must only be regarded in the nature of a preliminary report.

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246 POWELL STREET.

ANAPHYLAXIS AND IMMUNITY.*

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THE injection or transfusion of the blood of one species of animal into another of different species very frequently causes toxic symptoms and leads to fatal results. This fact has been known for many years, and long since the practice of blood transfusion from animal to man has been abandoned except in rare cases of anemia and poisoning.

It is not necessary at this time to consider the many examples of intoxications due to foreign bloods. I would call your attention, however, to one case; the action of the blood serum of the horse upon man in the treatment of diphtheria and tetanus by antitoxins. As is well known, the antitoxins for diphtheria and tetanus are made by actively immunizing the horse to the toxin of the diphtheria bacillus and tetanus bacillus, respectively, or to mixtures of the specific toxins and antitoxins which have been previously prepared. In the blood serum of the immunized horse there is developed the antitoxin, a definite substance about which little is known chemically. This horse serum after removal from the animal is standardized, a small amount of preservative added, and it is then bottled and placed on the market. We then inject horse serum containing antitoxin for diphtheria or tetanus, as the case may be. What is the effect of the injection of this foreign blood serum into man? After the majority of injections of antitoxin no pathological symptoms develop. However, in a certain percentage of cases, with which I dare say most of you are familiar, there is some fever, nausea, pain in the joints, urticaria, edema, and inflammations of the lymph nodes and kidneys. Occasionally death occurs following marked symptoms which we shall discuss later. I would call your attention to the fact that these reactions appear only after a period of eight to thirteen days subsequent to the injection of the antitoxin. Von Pirquet and Schick applied the name "serum disease" to reactions of this kind. The first observation of a skin eruption from foreign blood transfusion was made in 1874 by Dalera, an Italian. Quite recently several cases of death and some in which very serious symptoms have resulted have been reported in man. I would direct your attention to two cases of death among several following the injection of antidiphtheritic serum for both asthma and the prophylaxis and treatment of diphtheria in this country.

CASE I, reported by Dr. H. F. Gillette, Cuba, N. Y. (*Journal American Medical Association*, January 4, 1908).—Patient's age, 52 years. Rheumatic attack 15 years previous. Has asthma and bronchial catarrh. Patient was given 2,000 units of antidiphtheritic serum under the left scapula for asthma. He developed a prickling sensation within the chest and neck, had dyspnea and tonic spasms, and died in five minutes after injection of serum.

CASE II, reported by Dr. S. N. Wiley, Norristown, Pa. (*Journal American Medical Association*, January 11, 1908).—Patient's age, 34 years, and in the best of health. Patient was given a prophylactic injection of 1,000 units of diphtheria antitoxin. He soon developed an intense itching and burning sensation, dyspnea, edema and cyanosis of the face, paralysis, and convulsions. The patient died in five minutes after receiving the injection. The heart continued to beat for some time, death evidently being due to paralysis of respiration.

There are many other cases reported in the medical literature of this country where injection of antitoxin has given rise to serious intoxications. Von Pirquet and Schick, of Vienna, in their monograph on "Die Serumkrankheit" report several cases of untoward results from various antiserums from the horse, of which antidiphtheritic serum was the most common one used

It is obviously of great importance to determine whether these reactions are due to the antitoxin in the serum, to the horse serum, or to both. Positive proof is at hand, without going into details of this proof, showing that the antitoxin is not the toxic substance and is absolutely bland. Neither is there any toxin or toxon present to account for this reaction. It has been demonstrated that rabbits, guinea pigs, and other animals, in addition to man can withstand with no inconvenience very large injections of normal horse serum. However, if a guinea pig is given a small injection, say 0.004 (1/250) c.c., then a somewhat larger injection say 0.1 (1/10) c.c., after an interval of eight to thirteen days the guinea pig usually dies or is seriously in

*Read by invitation before the North Side Medical Research Society, Columbus, Ohio, January 14, 1909.

toxicated, showing very similar symptoms to those fatal cases in man, although often more pronounced. In animals, as in man, death is due to paralysis of respiration. I may say that in my own experience in guinea pigs I have observed the heart beat for two hours and forty minutes after respiration had ceased.

On carefully analyzing the above experiment, we find that as a result of the first injection of horse serum the animal has been rendered hypersensitive to some protein in the horse serum, so that symptoms of a serious intoxication develop after a second injection of a somewhat larger amount. We also find that, in order to render the animal susceptible to the protein of horse serum, an interval of at least eight to thirteen days must elapse before the second injection. If the second injection is given within this period the animal does not react, and usually on being injected subsequently at the proper interval it does not react; in other words, a state of immunity to the protein of horse serum exists. The state of hypersusceptibility probably lasts throughout life, judging from the experiments on animals.

It has been found that all proteins with the exception of gelatin will produce the reaction of hypersusceptibility the same as the proteins of horse serum.

To this condition of hypersusceptibility or supersensitiveness to proteins the name *anaphylaxis* has been given by Richet. Anaphylaxis, from the Greek (against protection) suggests also the antithesis of prophylaxis. In the above mentioned experiments when a rather large injection of horse serum is given within the so-called "period of incubation" a condition of *antianaphylaxis* results, which is nothing more than immunity.

Small injections usually hypersensitize, large injections produce immunity. Individuals may also be in a state of anaphylaxis or hypersusceptibility and antianaphylaxis or acquired immunity at the same time. To this condition Von Pirquet applies the name "allergie" to distinguish the condition from absolute immunity. As examples of the condition of "allergie" I might mention the acquired immunity of the syphilitic against syphilis, the leper against leprosy, the vaccinated against smallpox, etc. If the infection recurs, the reaction of the individual differs markedly from that observed in the primary infection, and the individual is to some degree immune.

In order that we may have some concrete and well known examples of the condition of anaphylaxis before we proceed further with this discussion, I would mention the mallein and tuberculin reactions for glanders and tuberculosis, respectively. As you all know, when these two toxic products in proper amounts are injected into healthy individuals no reaction occurs, but in those individuals having glanders or tuberculosis we have a state of hypersusceptibility or anaphylaxis, so that when the toxic products of the bacteria concerned in these diseases are injected we get a pronounced reaction. In other words, then the individual is hypersensitive or anaphylactic to mallein or tuberculin, as the case may be.

The question as to how or why certain individuals are anaphylactic to the horse serum of diphtheria and tetanus antitoxin, of course, occurs to us. This question we will have to leave open for the time being and subsequently take it up for discussion.

As stated above, it has been found that many if not all proteins except gelatin, which is very low in aromatic radicals, will give the anaphylaxis reaction. Egg-white, milk, various animal sera, certain vegetable proteins such as zein, gliadin, and various species of bacteria and yeasts have been used.

Those interested in the historical side of this question, I would refer to an article by Rosenau and Anderson, in the Bulletin of the Hygienic Laboratory of the Public Health and Marine Hospital Service, No. 29.

Let us now take up for a brief discussion the various substances and propositions concerned in this anaphylaxis reaction.

The Anaphylaxis Reaction.—Before going extensively into the mechanism of the reaction it might be well to review the symptoms which experimental animals such as guinea pigs show when sensitized and intoxicated by proteins. The severity of the reaction depends upon the protein used and the resistance of the animal. The animal, a guinea pig for example, having been sensitized by a minute dose of a protein, now receives, after an interval of eight to thirteen days, a second injection of the same protein. It makes practically no difference whether the injection is made intraperitoneally or subcutaneously. However, if the second injection is given intradurally or intravenously symptoms develop very rapidly and the guinea pig is usually dead in a few minutes. Usually in from five to fifteen minutes in the case of horse serum and egg-white and somewhat longer in the case of other proteins, the guinea pig shows an increase in respiration, giddiness, followed shortly by scratching and spasmodic coughing. Later, marked nervous symptoms, characterized by restlessness and tremors, develop. Subsequent to this the pig almost invariably becomes paralyzed in the hind extremities and the paresis gradually extends over the whole body. Convulsions and death usually follow. The period occupied in this reaction may be from ten minutes to several hours. Guinea pigs may be completely paralyzed and then recover. The prognosis is decidedly unfavorable when convulsions appear. Those guinea pigs in which symptoms develop slowly rarely died.

Furthermore, a guinea pig may be sensitized to several proteins at the same time. This point will be discussed later.

The question now arises as to the nature of the sensitizing substance and whether sensitization comes on rapidly or slowly. The question as to the nature of the intoxicating substance also presents itself.

The Sensitizing and Intoxicating Substances.—It has been suggested by Rosenau and Anderson that the chemical substance which sensitizes is perhaps of the same nature as that which subsequently poisons. Several investigators, among them Otto, Besredka and Steinhardt, Rosenau and Anderson, Gay and Adler, Gay and Southard, have devoted much time to the isolation of the chemical substance concerned in sensitization but without success.

This substance is not affected by phenol or any of the agents used in preserving sera, by formalin, or by drying. It is precipitated by ammonium and magnesium sulphate, but its chemical nature is not changed. The sensitizing proteins of blood serum are not affected by a temperature of 60° C. (140° F.) for thirty minutes, and do not dialyze through a collodion sac in the abdomen of a guinea pig.

The blood serum of a sensitized animal may be drawn and injected in somewhat larger amounts than in the first case into a second animal and thus render that animal hypersensitive or anaphylactic in a much shorter period. This experiment shows this sensitizing chemical substance or anaphylactin to be in the blood serum and to act similarly to the aggressins of bacteria.

It must be remembered that this sensitizing protein is not necessarily present in large amounts. It has been found that 1/1,000,000 c.c. of horse serum will sensitize more quickly than 10 cc. The best results have been obtained by using 1/100 to 1/1,000 c.c. of serum for sensitization.

Gay and Adler (*Journal of Medical Research*, 1908, p. 433) found that the (euglobulin) precipitate obtained by one-third saturation of horse serum with ammonium sulphate was sensitizing, but not intoxicating. This substance is identical with the anaphylactin of Gay and Southard. The successive fractions thrown down possessed less sensitizing and more toxic substances until complete saturation, when the preciptate was distinctly toxic and possessed very slight sensitizing properties. Gay and Adler have not been able to separate distinctly these elements from each other. These results seem to indicate that in horse serum the sensitizing and intoxicating substances are distinct and separate. The anaphylactin derived from one-third saturation with ammonium sulphate is, according to Gay and Adler (*Journal Medical Research*, 1908, p. 449), "(1) non-toxic for sensitized animals; (2) repeated large doses not only cause no refractory phase, but abbreviate the period of incubation; (3) its injection into sensitized animals not only does not intoxicate, but also produces no refractory or antianaphylactic stage; (4) it may give rise to sensitization of normal individuals in a few days (four or five), as does the transfer of blood from a sensitized animal."

Ether extracts and filtrates after precipitation with ammonium sulphate are neither sensitizing nor intoxicating. The substances concerned in this reaction are evidently proteins.

Attempts have been made to isolate the toxic or intoxicating agent in a pure state, but with no more success than has attended the isolation of the sensitizing substance. If this toxic principle could be eliminated, destroyed, or neutralized in horse serum, undoubtedly cases similar to those which have been referred to would not occur. Heating horse serum to 100° C. (212° F.) for twenty-five minutes destroys the toxic substances, but it would also destroy any antibodies which might be present. The intoxicating substance is not affected by freezing or by exposure to *x*-rays. Drying, dialysis, and filtration produce no effect. It is not altered by such chemical reagents as ammonium and magnesium sulphate, calcium chloride, silver nitrate, and formaldehyde or by ferments such as pancreatin, diastase, rennin, emulsin, myrosin, invertin, and acid and alkaline pepsin, or by such substances as inglutin, malt, papain, stropine, strychnine, morphine, and caffeine.

Rosenau and Anderson have found that the toxic effects of normal antitoxin and that refined by precipitation, when used in the same proportions, are equal for sensitized animals. They found the intraperitoneal minimum lethal dose to be one-tenth of a cubic centimeter (0.1 c.c.), the intracardiac minimum lethal dose one one-hundredth of a cubic centimeter (0.01 c.c.), and the intracranial minimum lethal dose one-twenty-fifth of a cubic centimeter (0.04 c.c.) for guinea pigs.

In support of the view that both the sensitizing and intoxicating substances are the same, Vaughan and Wheeler (*Journal of Infectious Diseases*, 1907, p. 476) claim to have obtained positive results with egg-white, which, by boiling with absolute alcohol and two per cent. sodium hydroxide, they have split into a toxic and non-toxic portion. They state that in their opinion, and they seem to have some evidence, the first or sensitizing dose of a protein causes a specific enzyme to be developed by the cells and that this enzyme at the second injection of egg-white splits out the poisonous radical which they have demonstrated, and intoxicates the animal. They have shown that this poisonous radical, when isolated and injected into animals, produces the same symptoms as the anaphylaxis reaction. I would call your attention also to the fact that Vaughan and Wheeler seem to have shown that the proteins of the bacterial cell, with the exception of the pneumococcus, may be split up and show the same properties in the same way as egg-white and horse serum. Furthermore, Wells (*Journal of Infectious Diseases*, 1908, p. 454), working with pure proteins, both animal and vegetable, has arrived at the same conclusion in regard to the sensitizing and intoxicating substances in the anaphylaxis reaction being the same. He has shown that one-twentieth of a millionth of a gram of pure egg-white (triple re-crystalized) will sensitize a guinea pig, and that one millionth of a gram will sensitize fatally, and he also finds that "the minimum lethal dose for sensitized guinea pigs is about one-half a milligram when injected intraperitoneally and one-tenth to one-twentieth of a milligram when injected into the circulation." Wells found that the minimum sensitizing and intoxicating doses of unpurified egg-white were respectively about one one-hundredth and one-fifth of that of the pure crystalline egg-white. The very small amounts of both pure and impure egg-white which will sensitize and intoxicate proves that it is the same molecule or two molecules of the same kind. It seems, therefore, that certainly in the case of egg-white and also in the bacterial proteins the same element sensitizes and intoxicates. In the case of horse serum we have no such positive proof, but in all probability the sensitizing substance is euglobulin or closely related to it and the intoxicating agent one of the higher proteins, perhaps an albumin.

The anaphylactic substance usually appears in the serum of the injected animal about the ninth or tenth day on the average. However, guinea pigs may be sensitized by intradural injections in seven days.

Certain important phases of the chemistry of the anaphylaxis reaction are interesting and important, but must be passed at this time. Only a few points additional along this line need to be mentioned. The aromatic radicals of the protein molecule are closely related to species specificity. When these radicals are combined with certain substances such as iodine they may be saturated. Proteins thus saturated are especially weak in their sensitizing and intoxicating power. This suggests, obviously, that these radicals are concerned in the reaction. Digestion with trypsin gradually destroys the sensitizing and intoxicating principles. I would refer those interested in the chemistry of anaphylaxis to an article by Wells in the *Journal of Infectious Diseases*, 1908, p. 449.

The question arises as to whether the anaphylaxis reaction is a specific reaction. It has been shown that guinea pigs sensitized to horse serum are extremely sensitive to horse serum and only slightly so to the sera of the dog, cat, rabbit, hog, sheep, chicken, or man. Conversely, guinea pigs sensitized to any of the foregoing sera are not very susceptible to horse serum, but react best with the specific sera. Guinea pigs sensitized to horse serum or any of the sera above mentioned will not react with proteins of a different nature such as milk or egg-white, and conversely. The reaction is for all practical purposes quite specific. An animal may, however, be in a state of anaphylaxis to several different proteins at the same time if it has received a previous sensitizing injection. I have observed animals anaphylactic to egg-white, milk, and horse serum at the same time.

Guinea pigs sensitized to human milk do not react to cow's milk, and conversely, showing the specificity in this instance. Guinea pigs sensitized to sheep's milk react to cow's milk. This shows that a close relationship of species of animals is not essential, but that the reaction is due to some chemical substance which is common to both. The crossing of various samples of white-of-egg from different animals shows also only a fair degree of specificity.

I now direct your attention to the fact that guinea pigs may be sensitized by feeding them either serum or meat. Rosenau and Anderson fed guinea pigs dried horse meat and successfully sensitized them to horse serum. Likewise, guinea pigs reacted to ox serum on being sensitized to beef. Cooking the meat entirely destroys its sensitizing powers. It has not yet been proven whether it is possible to cause an intoxication by feeding after a certain "period of incubation" subsequent to sensitization by feeding. If such be the case, it has been suggested that an explantion may be furnished for the idiosyncrasies of some individuals in regard to certain articles of diet such as eggs, fish and other sea foods, and perhaps strawberries, pineapples, etc., which always cause serious symptoms of intoxication. The process of sensitization to the proteins of these materials is as yet undetermined, but such must have occurred at some time previous.

Hereditary and Antenatal Transmission of Anaphylactic Substances.—Another interesting and important phase of the anaphylaxis reaction, namely, the question of hereditary and antenatal transmission, must be considered.

One of the first observations made was that the offspring of female guinea pigs sensitized to horse serum were themselves sensitive to horse serum. I have several times confirmed this observation and also noted the same conditions with some other proteins. In the transmission the male is not concerned, the function being entirely maternal. Anaphylaxis is not transmitted beyond the first generation. It has not yet been positively determined whether this anaphylactic substance can be transmitted in a strictly hereditary manner in some cases (*i.e.* present in the ovaries), or whether it is always a case of congenital or antenatal acquirement. There is positive evidence that anaphylaxis is not transmitted to the offspring through the agency of the milk. There is also conclusive evidence to show that anaphylaxis may be transmitted to the young when sensitization is accomplished either before or after the mother has conceived. It is evidently a case of antenatal acquirement in most cases and not true heredity. The question of such a transmission in man should be considered as a possible explanation of those cases of death or severe reaction following what seems to be the first injection of horse serum.

Furthermore, in this connection should be mentioned the proposition of the transmission of anaphylaxis to bacterial proteins from the mother to the young. The proteins of *Bacterium tuberculosis, Bacterium anthracis, Bacillus typhosus, Bacillus coli,* several nonpathogens and yeasts have been examined. We have here a logical and possible explanation of inherited tendencies to definite infectious diseases, as, for example, tuberculosis. There is a possibility that the so-called inherited tendency may be something more definite and specific than just a general weakened condition of the body. We, of course, deny the possibility of an inherited disease in the strict sense of the term, admitting many examples of antenatal or congenital acquirement of certain infections, as, for example, tuberculosis and syphilis.

In the anaphylaxis reaction we have the first example on record of the transmission of a hypersusceptibility to a pathological condition. There are, of course, quite a few diseases in which immunity or antianaphylaxis is transmitted to the offspring.

At this point I would emphasize the fact an individual may become immune by means of a process of hypersusceptibility or anaphylaxis. This phenomenon is undoubtedly of great importance in the prevention and cure of certain infectious diseases. The first injection of a bacterial protein into an animal produces no effect, but the second injection after an interval of time produces the same anaphylactic symtoms as horse serum. If the animal recovers, it is usually immune to further inoculations with the specific bacterial protein. We have in this phenomenon also the explanation of the periods of incubation in some infectious diseases which average from ten to fourteen days. In those having a shorter period, such as pneumonia, the crisis corresponds to the period of sensitization, and in toxic diseases such as diphtheria and tetanus anaphylaxis does not seem to be a factor.

Having thus considered the general principles of the anaphylaxis reaction, we now turn to a practical phase of the subject which has been previously referred to, namely, the cause of hypersensitization to horse serum in man. In the beginning it may be stated that few human experiments have been made. The lack of experimental material of this kind has been a block to medical progress for years. It is not definitely known how man may be sensitized, but it is evident that sensitization does take place. Notwithstanding the fact that it has been shown that guinea pigs may be sensitized by feeding them horse meat, and that in some parts of Europe horse meat is a common article of diet, it does not seem that there are any more deaths or intoxications in those countries than in this country, where we have reason to believe that horse meat is a rare article. Then, again, it is not an uncommon thing for repeated injections to be given in cases of diphtheria or tetanus, but these injections are usually large and, judging from our animal experimentation, may render the individual antianaphylactic or immune to horse serum. Von Pirquet and Schick have recorded instances of intoxication in children with horse serum after intervals of sixteen to fourteen days between injections. The first injection in these cases produced symptoms in from eight to thirteen

days, and was followed by more serious intoxications immediately after the second injection in eight to thirteen days. Currie, Goodall, Raver, *et al.* have also reported many observations of this kind. Man reacts to horse serum eight to thirteen days after the first injection. Guinea pigs do not react to the first injection, and both man and guinea pigs react to the second injection. It is possible that in the cases of fatal results the injection may have been made directly into the circulation. It is also possible that more individuals are sensitized than is commonly thought, and are not fatally intoxicated for the reason that the material was not rapidly absorbed. Rosenau and Anderson have found that dogs, rabbits, and cats occasionally normally react to horse serum. The species of these animals suggest that they may be sensitized by feeding in two instances, but in all probability some unknown chemical substance happens to be present in man and these animals and is responsible for the sensitization. Then again, the possibility of maternal transmission of hypersusceptibility should be borne in mind.

It has also been shown that there is a marked variation in the serum from different horses in regard to the power of sensitization. It may be possible that man may become immune on being fed on a certain protein just the same as by being inoculated, and this would account for the comparatively small number of reactions.

All investigations seem to show that the principal lesion of anaphylaxis is located in the respiratory center. The association of asthma and of anaphylaxis to horse serum is, of course, suggestive. It may be well to bear in mind for this reason that the injection of antiserums derived from the horse is dangerous in asthmatics. We await accurate information on the process of hypersensitization in man.

Before closing I wish to mention the pathology of anaphylaxis and one interesting application of this reaction.

Pathology of Anaphylaxis.—The lesions in the animal are quite pronounced. On opening the body of an animal killed by the second injection of a foreign protein the most observable gross lesions are the extensive congestion and petechiæ, especially throughout the abdomen. This congestion and small hemorrhages are absent in guinea pigs intoxicated by intracranial injections. These things, however, do not seem to be characteristic of the anaphylaxis reaction as they are produced by other agents. Microscopically fatty degeneration and some infiltration are observed in the heart and voluntary muscle fibers, endothelium of blood vessels, and in the nerves. There is a dilatation of the veins and capillaries, especially of the stomach and intestines, with some petechiæ. The adrenals are markedly congested, and there is also some congestion in the region of the medulla oblongata.

The Toxemias of Pregnancy.—A relation of the anaphylaxis reaction to the toxemias of pregnancy has been suggested by Rosenau and Anderson. The similarity of the symptoms and the conditions under which puerperal eclampsia occurs suggest anaphylaxis as an explanation.

The possibility of the mother being sensitized by either the proteins of the placenta or the fetal blood and subsequently being intoxicated thereby has been suggested. It is practically agreed that eclampsia is due to some toxic agent of unknown constitution, and that the placenta is the source of the toxic material. The facts that eclampsia may occur post partum and that the typical convulsive symptoms and pernicious vomiting have occurred in cases of hydatid mole (chorionic myxoma) strongly favor the placenta as the source of the toxic material. Rosenau and Anderson, who probably have investigated this subject more than others to date, call attention to the evidence which has been produced by Martin against the hypothesis of Veit, Weichardt, and others, that through the entrance of the cells of the placenta into the maternal circulation an intoxication was caused either by lysis of the cells and toxin formation or the development of toxic maternal antibodies. Rosenau and Anderson have done some experimentation to determine, first, whether the fetal blood of the guinea pig will sensitize the female guinea pig (pregnant or non-pregnant). All results were negative, which is additional evidence that the toxins are not derived from the fetus. They then proceeded to try the sensitization of the female guinea pig with autolytic extracts of the placenta of other guinea pigs. After twenty-two days these guinea pigs were again injected with placental extract, and in the large majority of cases anaphylactic symptoms resulted with marked convulsions when the material was injected into the circulation. Control animals gave negative results. It seems evident that the mother guinea pig may be sensitized by the autolytic products of her own placenta. We shall await the results of careful experimentation along this line with some eagerness.

DIAGNOSIS AND TREATMENT OF INTERNAL HEMORRHAGE AND OF PULMONARY HEMORRHAGE AS A COMPLICATION OF TUBERCULOSIS.

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The subject of internal hemorrhage is one of great importance and broad range, and to take up the various forms separately would be beyond the scope of this paper. My intention, therefore, is to take the symptoms and treatment of the condition in general, making special reference only to pulmonary bleeding.

When called in to see a case of severe internal bleeding, it is usually a hurry call and we must be prepared to think and act promptly. An inquiry into the following points must be made first: Is there a history of violent trauma, such as a gunshot wound, stab wound, street car or other sudden severe accident. Is the patient as a predisposing cause suffering with any of the following diseases: Typhoid fever, malignant disease of the viscera, peptic ulcer, intestinal parasitic diseases, any of the various forms of anemia, pernicious malaria, hemophilia, aneurysm, or any constitutional disease that might cause hemorrhage? If the patient is a woman careful inquiry as to the time of last menstruation must be noted, on account of ruptured tubal gestation. The diagnosis of hemorrhage is most likely to be confounded with shock, as the two conditions present many symptoms in common, and, moreover, the two are frequently present at the same time, particularly in those cases resulting from a violent trauma. In addition to symptoms, physical signs are of the greatest importance in intraabdominal hemorrhage, and the following points are to be borne in

mind to differentiate shock from hemorrhage: In severe internal bleeding physical examination of the abdomen will reveal a bulging of the flanks, and on percussion there is a flat note, which changes with change of posture of the patient. The abdomen will be prominent, and on percussion give a highly tympanitic note. If the patient is a man there will be a collection of blood in the rectovesical pouch; if a woman, there will be found a collection of blood in the pouch of Douglas. In hemorrhage due to rupture of the spleen, as might occur in anemia, the area of splenic dullness will be greatly increased, but if the spleen is ruptured from a violent traumatism, then of course, in addition to the enlarged area of splenic dullness, the abdomen would present the signs of intraabdominal bleeding as mentioned above. If there are external wounds, the location, depth, direction, and any other characteristic should be noted, and the nature of the instrument causing the injury should be ascertained, and if possible carefully examined. In such injuries as gunshot or stab wounds, probing should never be practised, as the information gained is rarely of any service, while on the other hand serious damage may be done. The nonexistence of external wounds does not exclude internal hemorrhage in severe accidents, as one of the viscera may have been ruptured by torsion, or the trauma may have caused the rupture of an old aneurysm.

Regardless of the cause, the following symptoms of severe internal bleeding are more or less constant, some being pathognomonic:

Respiratory System—Breathing is rapid and shallow, there may be dyspnea, and the phenomenon of air-hunger is always present, and most distressing.

Cutaneous System—The skin is blanched and covered with a cold clammy perspiration.

Gastrointestinal—The mucosa of the mouth and lips is intensely pale, there is an intolerable thirst, and the lips and mouth are dry and parched. Vomiting of a thin dark fluid, which is probably altered blood, is of ill omen and is usually a forerunner of death, and is very persistent. The bowels are lost control of and the same kind of material that is being vomited will be frequently passed.

Circulatory System—The heart sounds are weak and sound distant. The pulse is extremely rapid, with a great loss of tone, the radial impulse being perhaps imperceptible. Examination of the blood shows a great loss in hemoglobin.

Nervous System—There may be frequent attacks of syncope, the mind is apathetic, there is great restlessness, the patient tosses about on the bed, and feels as though he is sinking through space. There are muscular twitchings, and perhaps convulsions. The temperature is subnormal.

Genitourinary System—Urine is voided involuntarily, and greatly diminished in quantity.

Special Senses—There is tinnitus aurium, pupils are dilated and react to light slowly, and there are flashes of light complained of. The pain sense is diminished.

Shock—As the condition of shock is due to a vasomotor paresis, there will be a great many symptoms that closely resemble hemorrhage, as will be seen by the following:

Examination of the abdomen will show no collection of fluid. There may or may not be any evidence of traumatism, as it is to be remembered that a violent mental impression frequently causes shock.

Respiratory System—Breathing is rapid and shallow, and the Cheyne-Stokes type of breathing may be present, which type usually means death.

Nervous System—There will be coma of varying degrees, from a slight transient form to the most profound which may last several days. Delirium is nearly always present and may be severe, so much so as to simulate acute mania.

Gastrointestinal—The lips and mouth are not dry as in hemorrhage. The bowels move involuntarily, or there may be obstinate constipation. There is no thirst as in hemorrhage. Vomiting is always present, and it usually marks the return to consciousness, and is not of the altered-blood appearance.

Circulatory System—The pulse is rapid and weak, there is no loss in hemoglobin.

Genitourinary—Urine is not voided, and when catheterized usually shows albumin.

Temperature is subnormal. Skin is cold and clammy. Mucous membranes are cyanotic.

The treatment of intraabdominal hemorrhage must be prompt and begin on sight of the patient.

The patient is to be first placed in bed with the foot of same slightly elevated. The pulse in my mind is the most important thing to be noted; if as is frequently the case, the pulse is strong, full and bounding, then the rational procedure is to lower blood pressure, thereby giving nature a chance to form a clot; this is best accomplished by giving at once hypodermically 1-50 gr. glonoin. But if the pulse is extremely rapid, and of a low tension, then the rapidly diffusible stimulants are indicated, such as brandy, aromatic spirit of ammonia, or ether to be given hypodermically. Autotransfusion is recommended by some with the idea of driving the blood to the vital centers in the brain at this stage of the treatment, but I am inclined to think that this procedure is not warranted in view of the fact that it will most certainly raise blood pressure, and therefore increase the hemorrhage.

In case the patient exhibits any marked nervous symptoms, ¼ gr. morphine sulphate is to be given hypodermically at once.

Having given the immediate treatment at once as above outlined, the patient is prepared in the usual manner for laparotomy, I say laparotomy as it is understood that we are dealing with a case of severe internal hemorrhage. After exploration of the abdominal cavity has been made, and the damage to vessels or viscera or both has been repaired, which must be done under the minimum amount of anesthetic and in the shortest space of time possible, our treatment changes to the exact reverse of what it has been up to this time.

The indications at this point are to replace with some fluid the amount of blood that has been lost, and to create a peripheral resistance in the blood vessels, thereby raising blood pressure, and to stimulate the heart for the great exertion it is now to undergo. Adrenalin chloride, ergot, and physiological salt solution are the three drugs we must now depend on, together with the adjunct treatment which is of the greatest importance.

As soon as the damage to the viscera has been repaired, before the abdominal wall has been closed up, from one to two pints of physiological salt solution, to which adrenalin chloride solution has been added in the proportion of one dram to the pint, should be given by hypodermoclysis. The best place to introduce the salt solution is in the loose cellular tissues of the pectoral region; the solution should be at a temperature of 110° F. as it enters the body,

and in case the absorption is very slow, another needle should be introduced into the opposite side. For this purpose another apparatus is not necessary, as two rubber tubes with needles attached, can be attached to the same solution jar. While hypodermoclysis in my mind should be the precedure of election, the condition of the patient may be such, being in collapse, that intravenous transfusion is indicated. This operation has the distinct advantage of supplying fluid to the circulation at once, but at the same time it has some dangers that cannot be overlooked. In case the fluid is introduced too rapidly there may be an acute dilation of the heart; if air should accidentally enter the vein that may cause serious trouble, although this is denied by many who have had much experience in this work; great care must be exercised that when introducing the cannula into the vein there is no clot. In intravenous transfusion the adrenalin solution is not mixed with the salt solution as is done in hypodermoclysis, but a hypodermic syringe is loaded with the adrenalin and the needle plunged into the distal extremity of the rubber tubing where it is connected to the cannula and the contents of the syringe injected in such a manner as to occupy about one minute. The solution of salt for transfusion should be at a temperature of 100° F. as it enters the vein.

While the salt solution is being introduced, whether by transfusion or hypodermoclysis, ergot is to be hypodermically injected deeply into the muscles of the thigh. This is a powerful vasoconstrictor, being in this respect identical with adrenalin, but with the great advantage that its effect is of much longer duration, from two to three hours, while that of adrenalin is at the most not over 15 minutes. Adrenalin is also a powerful direct heart stimulant, ergot is not. The injection of salt solution with the adrenalin is to be repeated every two or three hours in quantities of from one to two pints, and the ergot is to be given if indicated.

The above represents the main plan of treatment, but the symptomatic treatment is of great importance, and some of the distressing symptoms can be more or less relieved. In the first place the patient is to be wrapped in blankets and surrounded by hot-water bottles. If the respiration becomes impaired to a great extent strychnine sulphate is to be used in twentieth-grain doses hypodermically, and repeated as frequently as necessary. If vomiting ensues, nothing seems to be of any great benefit, but the sucking of small pieces of ice may do some good, as also the sipping of very hot water every few minutes; a small ice pack placed over the neck will also at times control vomiting when nothing else will. For the nervous symptoms morphine sulphate in ¼ gr. doses is very effective. For the dry and parched lips a mixture of equal parts of glycerin and lemon juice sponged on every few minutes will give much relief. The thirst is a most distressing symptom and nothing does much to relieve it, but sips of hot water may be of some service repeated every ten minutes.

Pulmonary Hemorrhage as a Complication of Tuberculosis.—While I think it practically impossible to give a satisfactory classification of the various types of pulmonary bleeding, there are at least three varieties to which I would invite attention. The first of these is not of as frequent occurrence as we would expect, when we consider the pathological changes that have taken place in the lungs. In this type the bleeding is from a large vessel that has become eroded, which traverses a large tuberculous cavity, and upon whose walls there are frequently found aneurysms.

This, as well as nearly all pulmonary hemorrhages, is not preceded by any premonitory symptoms. The exciting cause may be some violent physical exertion such as horseback riding, running to catch a car, a violent paroxysm of coughing, some great mental emotion, as joy or fear; in some cases there are absolutely no exciting causes, as the patient may be at perfect rest in bed, or may even be asleep. A hemorrhage of this kind is usually fatal in a few minutes, and the treatment is absolutely ineffectual. I have seen one such case as this in which the patient was dead in three minutes.

The second variety includes those cases in which a small vessel has been eroded, and in which the loss of blood may vary from a few ounces to a pint or more, the amount of blood lost depending on the size of the vessel and the blood pressure of the patient. The exciting causes are the same as in the class preceding this, and the symptoms will vary with the amount of hemorrhage. If the loss of blood is small, say an ounce or two, there will be no marked symptoms, other than a rapid high tension pulse, some nervousness, and the expectoration or coughing up of blood. If the loss of blood is great, perhaps a pint or more, then we have the classical symptoms of severe bleeding as mentioned when discussing internal hemorrhage. The treatment in these cases of course must be prompt, and there is usually no difficulty experienced in controlling the situation. An important point in the very beginning is our own personality; we must be able to allay the fright of the patient, reassure him by our manner that we know exactly what the condition is and that all will be well. On the other hand we sometimes come across individuals who have frequently had small hemorrhages and treat the matter very lightly. With these people we must be firm in manner, warn them of their danger, and insist on absolute rest and the carrying out of any and all orders that are given. The treatment first is to put the patient to bed, and enjoin absolute mental and physical rest. In this as well as in all other forms of pulmonary bleeding, our efforts must be first directed towards a lowering of the blood pressure, with the idea that by reducing the velocity of the blood flow we give nature a chance to form a clot at the site of bleeding. No drug in my mind meets this demand better than one of the nitrites, and as amyl nitrite is the most rapid and powerful, 5 minims may be immediately administered by inhalation; this is followed by an immediate fall in blood pressure and, in my experience, a rapid cessation of the bleeding. Morphine sulphate is indicated at this time to allay the nervous symptoms, and one-fourth to one-half grain is to be given hypodermically. Within the next fifteen minutes two ounces of a saturated solution of magnesium sulphate is to be given to produce a free watery evacuation of the bowels, which further depletes the circulation and induces an additional fall in blood pressure. These patients must be kept in bed at perfect rest for at least ten days following a hemorrhage, and should not be allowed up for any purpose whatever. They are to be kept on a light nonstimulating diet, should take a minimum of fluid, and should be given 1-100 gr. nitroglycerin three times a day. They should be thoroughly instructed as to the dangers of mental or physical exertion, and should be particularly warned as to sexual excitement.

So much for the cases of medium severity, but if the hemorrhage is great, say from two pints up, and there are symptoms of severe collapse and danger of immediate death, there is only one thing to do, we know that in hemorrhage of this degree the blood pressure is practically nil, the blood has almost ceased to flow, and that an all-wise provision of nature may have formed a clot, on the holding of which depends our only chance. The only thing to do in these cases is to give some rapidly diffusible stimulant, such as ether or brandy hypodermically, and to transfuse into a vein, preferably the median basilic or the cephalic, a pint of physiological salt solution. The transfusion of the solution must be done with the very greatest care and not too rapidly, because if the solution is introduced too rapidly we may wash away the clot, and with it our last hope. On the other hand, if the clot holds, this method will frequently save patients who are apparently moribund.

The third class of cases are those in which the loss of blood is very small, the only evidence being perhaps a blood-tinged sputum, or at the most only a few drams of free blood.

Hemorrhage of this kind is due to the erosion of small capillaries, and while in itself it will do no great damage, there may be very great harm done by injudicious treatment or advice. If in these cases it were possible to see the bleeding points, and at the same time to see the exact pathological changes that had taken place in every part of both lungs, and if we knew for a certainty that there were no cavities with large unprotected vessels traversing them, that there were no aneurysms existing, and that there was no arteriosclerosis, then the thing to do would be to give some vasoconstrictor such as adrenalin or ergot. But since we cannot be sure of the amount of damage the lungs have sustained as a result of the tuberculous infection, it would seem very dangerous to give drugs whose power to stop hemorrhage depends on their power to constrict the capillaries, because there would most certainly be a rise in blood pressure which might be great enough to cause the rupture of an aneurysm, or an unprotected vessel, and produce an immediately fatal hemorrhage. I think that under these circumstances the treatment of these cases should be the same as those in the preceding class. We should endeavor to lower the blood pressure and trust to nature to form a clot. The adjunct treatment, of course, should be rigidly carried out, such as absolute rest in bed, a light diet, free evacuation of the bowels, and small doses of glonoin.

I might add in conclusion that the lactate and chloride of calcium have both been used in the treatment of hemorrhage, and, according to some observers, with good results. The salts are given in ten to fifteen grain doses by mouth, and their administration should not be continued for more than twenty-four to forty-eight hours, as they actually decrease the coagulability of the blood if given for a longer period. The use of these drugs is, of course, for the purpose of increasing the coagulability of the blood. My own experience with calcium has been disappointing, in the three cases in which I have used it: in one of the cases the recurrence of the bleeding was greater than before.

Gelatin in solution, both internally and intravenously, is used for the same purpose as the calcium salts, some observers reporting good, some bad, and some indifferent results.

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RENAL TUBERCULOSIS.*

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In selecting the subject of Renal Tuberculosis for presentation, I had in mind the fact that there has been a great change in opinion regarding the subject during the past ten years. Perhaps some of the recent utterances of leading men are not known to you all, and I can confess freely that a rather careful study of the literature has brought to me many new notions, and has helped to clear others which I already held. The crux of the matter is this: When I was a student ten years ago, all our pathological and clinical teachers looked upon tuberculosis of the kidney as an ascending process. As it was taught there was first a genital tuberculosis, or a cystitis, then ureteritis, and later pyelitis, and tuberculous nephritis. It shall be my aim to show that the prevailing opinion to-day is that in the great majority of cases the initial tuberculosis is in the kidney, that the ureter and bladder are infected by a descending process, and that the hope of successful treatment lies in this conception of the generation, production, and development of urogenital tuberculosis.

In a critical study of the literature of any subject in medicine we are impressed with the fact that there are two distinct methods of arriving at a knowledge of the pathogenesis and pathology of a disease entity. A disease may be studied from the standpoint of pathologic anatomy as observed in the dead house. With a clear conception of a disease as seen in its end stages it is possible by a posteriori reasoning to arrive at a conception of the whole pathogenic process. However, there is great danger that fallacious reasoning will be used and consequently an incorrect concept be formed.

I am sure that you are all familiar to what extent the medical world was led astray by this method in dealing with suppurative peritonitis. For hundreds of years and after innumerable autopsies on persons dead of peritonitis the true incidence of this malady in most cases was not determined. Only until very recent years did the combined clinical and anatomical methods demonstrate that the principal sources of infection of the peritoneum are the gall-bladder, the appendix, and the Fallopian tubes. By and through the clinical method and still more specifically from the field of operative surgery, has a flood of light been shed upon pathogenesis. Of late this process of clarification has extended to the field of tuberculosis in the genitourinary organs.

From the autopsy room we secure the unfortunate term as it now appears, "genitourinary tuberculosis." This term has been long current, and carried the idea that the disease involved more or less of the entire genitourinary tract from the beginning. And when the primitive lesion was discussed the belief prevailed that the bladder was always the first organ diseased. Rokitansky lent his powerful authority to this view. As late as 1888, Guyon states, "We do not know of a single case of renal tuberculosis primitive and unilateral, without lesions of the same kind in the bladder, seminal vesicles, or other organs." It was believed, therefore, that the tuberculosis was of an ascending character, advancing from the bladder upward and therefore ineradicable. If I have reviewed the literature aright, not until

*Read before the Outagamie County Medical Society, November 10, 1908.

1897 was a case of primary tuberculosis of the kidneys reported. In the *Medical News*, of August, 1897, Dr. A. O. J. Kelly and Dr. D. D. Stewart, published an article on "The Occurrence of Primary tuberculosis of the Kidney, with a Special Reference to a Miliary Form." Little attention was paid to this communication at the time. Not until the now classic experiments of Baumgarten, of Tubingen, in 1901, did clinicians realize that there might still be something to learn about tuberculosis of the genitourinary tract. Baumgarten inoculated the urethræ in rabbits with tuberculosis and caused tuberculous ulceration of the bladder and prostatic urethra, but he was utterly unable to provoke infection of the vasa, testicles, or the upper urinary tract. These experiments were later confirmed by Giani. Baumgarten insisted that the tubercle bacilli never advanced against the current of secretion, but always with it.

What, then, are the possibilities of incidence in renal tuberculosis? Manifestly there are but three ways in which tubercle bacilli can reach such a remote organ as the kidney, viz., (1) by the blood, (2) by ascending the ureter, (3) by direct extension from contiguous organs.

Is there such a thing as a primary hematogenous infection of the kidney? It is much easier to prove that it exists than to prove that it is the usual mode of infection. Campbell, in the January Annals of Surgery, 1908, cites a case, the main features of which are these. A patient, after a long illness, with early signs of kidney involvement, underwent nephrectomy. Several months later he died of acute miliary tuberculosis. The autopsy showed all organs equally affected by miliary type of disease, but there was no old lesion that could be regarded as the source of the present miliary condition or of the former kidney lesion. The inference is therefore obvious that a primary unilateral tuberculosis of the kidney existed, and of hematogenic origin.

Campbell cites the following figures: Vigneron in 250 autopsies on subjects with tuberculosis of the genitourinary tract found 123 cases in which one kidney was intact. In practically all of these cases the lower urinary tract was involved. The same author has had 100 cases of renal tuberculosis in which only 17 had an infection of both kidneys. Tuffier reports 205 surgical cases, of which he believes 99 were unilateral and primary. Israel has a series of 21, of which he believes 16 were unilateral and primary. We may now array alongside these facts and opinions, the one other fact that uncomplicated tuberculosis of the bladder is extremely rare. Hunner reports but two cases from a large pathological experience. One of these was reported by Kelly as a case of primary tuberculosis of the bladder in the *Johns Hopkins Bulletin*, 1903. Dr. Wilhelm Karo, Berlin, at the recent International Congress of Tuberculosis, stated that bladder tuberculosis is nearly always a descending process, and that the antecedent renal tuberculosis is of hematogenous origin. Furthermore, tuberculous cystitis practically never heals when it is the point of attack for either medical or surgical treatment. But in a great majority of cases spontaneous recovery of the bladder follows removal of a primarily tuberculous kidney. These statements of Dr. Karo are his conclusions from a full clinical experience.

The arterial supply is such that the kidney structure is divided into sharply defined systems. This separation is most marked between the anterior and posterior regions, and the upper and lower poles. There is occasionally seen a sharply defined tuberculosis of one pole only. It is conceded by all that tuberculosis once started finds in the kidneys so favorable a nidus that the disease becomes always progressive. However, Mr. Henry Morris reports 7 cases of partial nephrectomy with the following results: In 3 cases total nephrectomy had to follow. Three cases were living and well 2½ years, 3¼ years and 4½ years after the operations. Such results could hardly happen unless we were dealing with primary, uniteral, definitely circumscribed renal tuberculosis of the miliary hematogenous type.

Kidneys removed by the surgeon often show a miliary type of the disease which is not part of a general miliary tuberculosis and which infection could not possibly have been distributed from the ureter. The infection corresponds to the peculiar anatomy of the kidney. The tubercles are most numerous in the cortex when the bacilli have become arrested in the terminals of the renal artery.

In the *Annals of Surgery*, November, 1908, Farrar Cobb reports 8 cases under the title "Acute Hematogenous Infection of one Kidney in Persons Apparently Well." Septic infraction of the kidney, therefore, has become a question with a very live interest, and much of real value in pathogenesis symptomatology and treatment will still be learned.

Is the kidney infected by an ascending process along the ureter? This question was affirmatively answered until quite recently, and there was hardly a thought that any other possibility existed. Let us recall Baumgarten's and Giani's experiments. In no case in the laboratory did a tuberculous infection travel against the current of secretion. Clinicians and pathologists are agreed that the ureter is seldom the seat of a true tuberculous ulceration, but that it suffers from a sclerosing, secondary inflammation.

Until this recent work on primary renal tuberculosis, a case of tuberculosis of the bladder was never cured. Direct surgical treatment was of no avail. Topical applications did no good. Scores of cases are now reported in which one kidney and the bladder were involved, and in which recovery of the bladder took place spontaneously, following extirpation of the diseased kidney. The obvious inference is that the kidney was the primary lesion, and the cystitis a descending process. There are many clinical reasons for believing that in men the disease often extends from the epididymes to the bladder, where it may involve and cause stricture of one or both ureteral orifices which, in turn, causes hydroureter and later infection of the upper urinary tract.

Direct extension from contiguous tissues must be a rare source of tuberculous infection of the kidney. Petois, in 1897, reported a case of renal tuberculosis in a girl of 19, which was the result of direct invasion from vertebral caries. While the tuberculous perinephric abscess from this source must be frequent, it would seem that the capsule of the kidney should present an effectual barrier to the active participation of the renal tissues in the process. The kidney may become a *locus minoris resistentiæ*, and have tuberculosis implanted. Newman has a series of cases in which tubercle has followed trauma. Henrotin, of Chicago, reported a case subsequent to renal calculi, which had been removed years before. There are many instances in which tuberculosis has been engrafted on hydronephrosis.

There is then considerable evidence, and a very widespread clinical notion that renal tuberculosis

is frequently, if not usually, a primary blood infection, and in many cases unilateral. However, primary has reference particularly to the genitourinary system. The actual atrium of infection must be sought in other parts of the body.

Caspar dwells frequently and with great earnestness upon the importance of a persistent acid pyuria as a diagnostic feature of tuberculous nephritis. And even a very mild grade of acid pyuria which does not yield many bacteria on the ordinary culture media should at once be placed under the category of tuberculosis somewhere in the genitourinary system. In fact, pus in the urine, which does not show bacteria in smears is very likely to be caused by a tuberculous process.

After a tuberculous infection is suspected, the hunt for the tubercle bacillus begins. If an acid-resisting bacillus is found in the mixed urines, we must determine whether this organism is the smegma bacillus or the tubercle bacillus. Both organisms are acid resisting, but the smegma bacillus is destained by alcohol and the tubercle bacillus is not. It is often useful to use the Gram stain, as the tubercle bacillus stains by the Gram method, while the smegma bacillus does not. So far as possible the smegma bacillus should be excluded by the use of catheterized specimens from the bladder.

I desire to call attention at this point to some recent work on the staining of the tubercle bacillus in which certain non-acid-fast forms are described. In cold abscesses, for example, it is usually impossible by the most careful search to find tubercle bacilli by means of the Ziehl stain, but when the Gram stain is used these non-acid-fast forms are shown.

Hans Much, who has made the most extensive contributions to this subject, was able experimentally to change an acid-fast form into a non-acid-fast form without changing the virulence of the forms. It is an interesting fact that the more virulent stains are more easily decolorized by acids. (Editorial in the *Journal of the Am. Med. Ass'n*, Oct. 24, 1908.)

Along this line there is a fruitful field for work in tinctorial bacteriology. In canvassing the literature of the subject I have many times come across the statement that pus from the genitourinary tract, which is sterile by the ordinary cultural methods, is often tuberculous, and when subjected to the biological tests, producing typical tubercle in laboratory animals. I believe, therefore, that a refinement of our staining methods would demonstrate the organisms in smears. When we have found the tubercle bacillus in the mixed urines from both kidneys, we are aware that the infection is somewhere in the urinary tract, and the problem to point out its exact location is a most important and difficult task. The modern cystoscope, whether we use the Nitze instrument or the Kelly air inflation-direct method, is essential in bringing the facts to the fore. We first note the extent of bladder involvement. If the infection is not recent the characteristic appearance of ulceration and tubercles present more or less extensively over the bladder mucosa. The ureteral orifice will show a reddened, swollen appearance known as the "bullous edema" of Caspar, or the orifice will be retracted, the golf-hole ureteral orifices of Mr. Hurry Fenwick. The retraction is due quite as often to a secondary sclerosing inflammation as to actual tuberculous involvement of the ureter. It may be possible to secure a working diagnosis with the conditions determined by the cystoscope and with other clinical data. If not, the question of ureteral catheterization must be considered. This is a bit of technique that is not easy nor is it without its dangers to the patient. There has been much abuse of the ureteral catheter, notwithstanding its enthusiastic advocacy by some men who have made it popular. Catheterization of healthy kidneys through known infected bladders is a dare-devil procedure and not to be tolerated. I make this assertion with full knowledge that Howard Kelly advocates double catheterization and practices it with impunity, and states that he has never seen any ill effects. But I note in Hunner's article in the *Johns Hopkins Bulletin*, 1904, Case 2, a patient had both ureters catheterized eight years before. There was no evidence of bladder tuberculosis, nor of either ureter. The urine from left kidney was negative. Unilateral tuberculosis of right kidney was diagnosed and the kidney removed. At the time of the report the patient showed symptoms of infection of the only kidney. Is it not a fair question to ask, Was not the left kidney infected by the ureteral catheter? I believe the practice is dangerous. We know the bacilli are in the bladder, and, in some cases at least, must be carried into the healthy ureter and kidney. The passage of the catheter often causes bleeding. Traumatic bleeding and bacteria constitute too great a risk for the only healthy kidney. Catheterization of the supposedly healthy side is unnecessary. Catheterize the diseased side. While this is draining and the bladder is washed out, what collects in the bladder represents for practical work the urine of the other side. The diseased side will be indicated usually by swelling and tenderness of the diseased kidney.

The presence of tubercle bacilli in the urine is of the highest importance. The absence of the organisms is not so vital. Their presence may give rise to great difficulty in diagnosis, since it must be borne in mind that tubercle bacilli as well as many other organisms may pass through the kidneys without infecting them. Henry Morris performed nephrectomy on a patient having a large tumor in the right renal region. Tubercle bacilli were found in the urine on repeated occasions. No tuberculosis of the kidney could be found, but it was the seat of calculous pyonephrosis. There was a mass of enlarged glands above the left clavicle and the patient subsequently died of tuberculous pleurisy. Tubercle bacilli are often absent in cases of primary renal tuberculosis.

I have had no experience with the Harris instrument. Other than Dr. Harris himself, I have not met an enthusiastic advocate of it. In his hands the instrument must render efficient aid, for he can wield it with the hand of a master.

If both kidneys are infected with the tubercle bacillus we can only wait for death to relieve the burden. A spontaneous cure is so rare that Albarran could successfully challenge the French Surgical Society to produce an indubitable instance. Tuberculosis of the kidney assumes the aspect of a malignant infection. It is with the rarest exceptions progressive. To attempt a cure by climatic and hygienic measures is time lost. If both organs are involved, of course, this is the only method available. When one organ is infected, to postpone surgical intervention is to court the risk of infection of the bladder and sister organ. A seeming cure is sometimes obtained by the process of caseation and final sequestration through obliteration of the ureter.

When we are dealing with a unilateral renal tuberculosis we have an affection incompatible with health, and in the end destructive of life. The disease is located in a paired organ, one of which can be readily spared by the economy. The only reasonable indication seems to me a radical extirpation.

IS GASTROINTESTINAL AUTOINTOXICATION A DISEASE OR ONLY A SYMPTOM?*

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THE interest in gastrointestinal autointoxications is growing and its importance to the physician and surgeon is daily being more generally realized. It requires only a short perusal of the findings of those who have investigated the bacterial flora of the intestines to become convinced that there is a rich field from which trouble may come. Bacteriologists are not agreed as to the number of varieties of microorganisms habitual to and usually present in the bowel. How varied is this intestinal flora may be judged from the estimates given by the bacteriologists who have investigated this question. Matzuschka has isolated forty-four varieties; Miss Tsiklinsky has shown that this number increases when cultivated in a high temperature. As to quantitative figures, Vignalt and Suckdorf estimated that each day the adult body gets rid by the dejecta of from thirty-nine to fifty billions of microbes; Gilbert and Domenici estimate the figure at twelve billions, and state that these figures may be lowered to one hundred and sixty-four millions by an exclusive milk diet. Klein of Amsterdam gives it at eighty-eight hundred billions; but this figure is evidently too high. While it is admitted by all who have busied themselves with the intestinal bacteria, that less than two per cent. of the quantity passed are alive, we must not forget that even these dead germs represent toxins with which the body must deal; and when we further consider that these figures represent nearly two drams by weight of solid bacteria, we can realize what a formidable menace any disturbance of the equilibrium here may constitute, if not in all cases an actual menace to life, certainly one to health and well being. Yet in spite of these factors there are many who hold high rank in the profession who still try to dismiss the subject of gastrointestinal autointoxications by a wave of the hand. In one of the systems of medicine, recently put on the market, under a highly honored editorship, the whole subject is accorded a scant page and a half. Herter's work along this line has certainly placed the subject among those meriting most serious consideration.

The viewpoint indicated by my title is not entirely new, but a fairly comprehensive search of the literature revealed such a paucity of English, and practically nothing in American literature on this aspect, that I feel no need of an apology on my part for its presentation. There is a vast literature on gastrointestinal intoxication but most of it is scattered through the journals; until recently no English text book was available. The capital work of Combé, which was published in Paris in 1907, is now undergoing translation. Then there is Herter's small manual.

Before endeavoring to answer the title, it seems but right that we should have some idea of what is to be considered under gastrointestinal autointoxications. A term that covers the whole tract from the cardia to the anus can be made to include much; but many diseases whose pathology lies in this extensive tract may be excluded from consideration here. We are not now concerned with the acute diseases of this tract, whose clinical picture, etiology, and pathology are so familiar to us all, but rather with chronic conditions, often vague and indefinite in symptomatology, but making the patient so miserable. Herter has proven that these intoxications are responsible for certain forms of pernicious enemia. That the liver plays an important part in these anemias and its relation with indicanuria was realized in a communication to the International Congress, Paris, 1900, by Gilbert and Garnier. Herter does not refer to this in his bibliography.

Sahli recently has stated that indican is present in the urine only when the pancreas is healthy. I want to state that gastrointestinal intoxication is possible without indican and with a perfectly healthy pancreas, or at least so judged to be by the complete digestion of nuclear tissue, as shown by an examination of the feces after a copious meal of underdone sweetbreads. Those who believe that there can be no gastrointestinal autointoxication without indican in the urine will overlook many cases.

There has been no evidence produced that these chronic gastrointestinal intoxications are due to a special pathogenic organism accidentally introduced and stranger to the tract. Our figures have shown that there are more than enough ever present to cause mischief.

What then must occur that one variety or several or all of them become a source of trouble? Why does not everybody suffer from this trouble? This is the pertinent question. Let us go back to our physiology of digestion and review the various juices and their properties, with which the bolus must come in contact on its journey from the mouth to the anus. We will not waste time on the saliva and the gastric juice. In the duodenum, at the site of the common duct, it encounters the bile and pancreatic juices. We were formerly taught that the bile was antiseptic; then we were told that its antiseptic power was only very slight, in fact almost nil and negligible. The question is what variety of bacteria was used to determine the bactericidic power of the bile? The most resisting and then on down through the varieties of lesser resistance. This does not seem to me to have been a wise procedure. Did nature intend this secretion to combat such virulent germs? Would it not be more in keeping with physiological conditions and requirements to test the power of the bile action upon such germs as are habitually present in the bowel? These are the ones that cause the trouble; these are the ones that the antiseptic power of the bile should be judged by. Is it necessary that this antiseptic power kill germs or will nature's purposes be attained if their growth be retarded within certain innocuous limits? This latter would seem to be quite sufficient for health.

Is it then a question of quantity or of quality of bile? The answer still lies in the future; it belongs

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in the domain of the still unknown. Probably both are at fault. The physiology of the liver is far from complete and while the future will add little to the cellular pathology of this organ, its functional pathology is destined to become more and more the subject of research, and with it the bile.

That there is a functional pathology becomes evident when one studies that most masterly article on diabetes by Richardière and Sicard in the "Nouveau traité de Médecine et de Thérapeutique," published under the editorship of Brouardel and Gilbert. In that article the writers refer to the interesting communication of Gilbert, Professor of Therapeutics at Paris, and his pupil, Weill, which appeared in the *Semaine Médicale*, November 15, 1899, "on a diabetes due to chronic hepatic insufficiency." This highly interesting article sheds some important light on liver functions; the gastrointestinal disturbances, such as foul irregular stools, flatulency, and the indicanuria and urobilinuria which are present in this form of diabetes are important to my argument. Under the head of treatment they find occasion to refer to another communication of Gilbert and Carnot, International Medical Congress, Paris, 1900, giving the result of treatment of this form of diabetes, by a liver extract, which resulted in a marked diminution and in some cases the entire disappearance of sugar; but what is more pertinent to my subject is the disappearance by this method of treatment of the gastrointestinal disturbances.

I have studiously avoided a detailed description of this form of diabetes. It is hard to resist dipping into these French views on this disease, so sound and alluring and having so much inherent proof of correctness; but I must stick strictly to my subject, as it was from a study of these writings that the idea came to me that the whole question of gastrointestinal intoxications is a matter of liver function, and led me to search the literature. Before going into the literature, let us see if there are any other proofs that we can bring in support of this contention. In the summer diarrhea of children we give calomel and its action is variously explained as due to an antiseptic action, or to the flushing out of the bowel, ridding it of bacteria and toxins, but entirely disregarding any action that calomel may have on the liver, and a disinfection of the bowel due to an outpouring of bile. I know that this action of calomel is denied by the pharmacologists; but clinical evidence is not to be entirely disregarded. There is still another drug, one that will not involve us in an argument with the pharmacologist; podophyllin. This drug acts well in adults and it has never been endowed with antibacteric powers by the pharmacologists.

Herter has pointed out how difficult it is to obtain anything like a permanent result in the treatment of these conditions. It is then clearly desirable that the reports of liver extract medication be verified by more extended use, and if proven correct, would entirely revolutionize the treatment. I have been unable to find any report of the use of liver extract in this country.

If, then, gastrointestinal intoxications are only a symptom of hepatic insufficiency, our interest in the various bacteria of this tract will become purely academic. If we accept this as a fact, we naturally ask ourselves the next logical question, what causes this liver insufficiency? At present it cannot be answered by more than a shrug of the shoulders. Carnot believes that ascending infections is responsible. I cannot share this opinion, for it certainly seems that something must have preceded to make this possible. Speculation points out a direction in which search may be made for the answer to this question. The products of pathological digestion; what are they? Do they differ from those of normal digestion? If these products differ from the normal how do they affect the economy? Oxalic acid, oxaluria, acetone, ammonium butyrate, cholin, neurine, marcaptan, and hyrogen sulphide; are these causes or results? May we not have from this source leucomains that stimulate or depress certain organs, directly or through central nervous system? This represents a field almost virginal upon which we have practically no information. Dilated stomach has so often been found associated with certain forms of arthritis deformans and chronic rheumatism as to preclude the idea of simple coincidence. If these dilated stomachs, with their illy digested, foul smelling, fermented contents, can give rise to a substance that can produce changes in bone ends and articular surfaces, would it then be such a wild flight of fancy to suspect that from this source might come other deleterious substances?

In spite of the fact that stomachs are being washed every day and analyses of contents are daily made by specialists, these men have contributed practically nothing to this question of the products of pathological digestion. They have contented themselves with making routine examinations of the long known elements, never seeking anything new. I firmly believe that when this chapter shall come to be written in its entirety, then we will know the true etiology of such diseases as uric acid diatheses, arteriosclerosis, gout, diabetes, and obesity.

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424 HALSEY STREET.

Changes in the Spleen and Pancreas in Hepatic Cirrhosis.—A. M. Luzzato, as a result of histological examinations, states that in hepatic cirrhosis there are changes in the pancreas consisting of increase of perilobular and periacinous connective tissue without evidences of inflammation. In advanced cases there is destruction of the acini, but not of islands of cells. In the paronchyma there is necrosis in part due to autodigestion. There is also proliferation of the centroacinous cells and hypertrophy of the acini. There is a true return to the embryonal conditions. There is no relation between the amount of changes and the stage of cirrhotic disease of the liver. In the spleen there is blood stasis and in late cases sclerosis of the follicles. There is no proportion between the intensity of the lesions in the spleen and liver. These findings argue against the supposition that cirrhosis of the liver is a local disease, and in favor of its being a general disease.—*La Riforma Medica.*

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THE POTENTIALITIES OF RADIUM AS A CURATIVE AGENT.

RADIUM has now been employed by the medical profession for a period sufficiently long to warrant the expression of fairly definite opinions as to its merits from a medical standpoint. At first, as is always the case with novel remedies, exaggerated curative powers were claimed for the substance discovered by Madame Curie, assisted by her husband. At the present time it would be quite within the bounds of truth to say that the medical world is divided into two camps so far as views regarding the efficacy of radium as a curative agent are concerned. Among some medical men great scepticism exists with regard to the healing properties of radium. It has been boomed by the lay press, and to a lesser extent by a section of the medical press, as a certain panacea for almost all the physical ills to which flesh is heir. On the other hand, noted pathologists have gone so far as to maintain that there is no single disease to which this type of remedy has been applied in which it also has not been regarded as a failure. Of course both these expressions of opinion err on the side of exaggeration, for while no results have shown that radium is by way of being a universal cure-all, neither have its remedial properties proved wholly abortive.

Much of the prejudice that undoubtedly remains in the minds of many medical men against radium is on account of the unskilful employment of the same. The fact must be borne in mind that the ordinary practitioner is not competent to use radium as it should be used, and if he endeavors to apply it the results will assuredly be unsatisfactory. A man to administer electric treatment, light treatment, or radium effectively must be qualified for his work by proper technical training. Cures have been made by radium in cases of rodent ulcer, and great hopes were built upon radium in the treatment of cancer. In deep-seated cancer it has been of little use and its administration in cases of epithelioma has not always been attended with positive results.

The beta rays emitted by radium are said by Treves to have insufficient penetrative power to be of service in the treatment of malignant disease, but for this reason are valuable for skin affections. Pigmented moles, hairy moles, and birth marks are readily amenable to treatment by radium, and chronic eczema has been found frequently to yield to the same remedy.

The potentialities, then, of radium as a curative agent are partially gauged, but much further knowledge of the subject is required before it would be wise to make dogmatic statements. What is most needed just now is a thorough scientific study of the matter. In England such study is about to be entered upon. The King and Queen of England have always shown themselves peculiarly interested in methods calculated to destroy or restrain cancerous growths, possibly because several of the King's close relations have suffered from malignant disease. The Queen was mainly instrumental in establishing the magnificent light installation for the treatment of certain diseases at the London Hospital; King Edward has now taken the initiative in founding a radium institute in London. It is true that the necessary funds have been found by two rich men, but the suggestion that London should have a radium institute emanated from the King. The intention of those responsible for the evolution of the scheme is that at the institute both necessitous and well-to-do patients will be treated—the former free and the latter at reasonable fees. It is designed for curative as well as research purposes, and in this respect differs from other radium institutes which are intended solely for research.

In order to show the pressing need of scientific investigations into the curative powers of radium, a quotation from some remarks recently made by Sir Frederick Treves will suffice. He said that to administer radium from a tube instead of from a flat surface was ridiculous, on the ground that the operator could not know what he was doing. On the other hand another distinguished English physician, one who was a pioneer in the medicinal use of radium, has stated that in his opinion the administration from the glass tube was the most satisfactory of the present methods. Abbe of this city has also had almost marvelous results from radium treatment, using the remedy in tubes.

Nevertheless, the therapeutic employment of radium, indeed, has hardly advanced beyond the empirical stage. It is known, or at any rate is a matter of common belief among a very large number of the medical profession, that the material particles ejected from the radium, or the waves set up in the ether, have a beneficent influence upon some diseases. It is felt that the potentialities of radium, chemical, physical, and medical, are of great value. The question is how to estimate the amount of its value. These questions the Radium Institute will carefully investigate and it is to be hoped answer successfully. The rarity, and consequently the very high cost of radium has been against its general use. With the exception of certain mines in Bohemia, England is said to be at present the only source of supply of pitchblende from which, after the extraction of uranium, radium is produced. It is proposed to utilize the large quantities of pitchblende known to be in the south of England, and if the endeavor thus to obtain radium in large amounts is successful, the price of the substance will be materially decreased, to the benefit of all concerned.

TUBERCLE BACILLI IN THE CIRCULATING BLOOD.

That tubercle bacilli are often transported by the blood-stream from some local focus of infection has been the common belief of all pathologists; indeed, this phenomenon is the probable explanation of the occurrence of acute miliary tuberculosis in patients suffering from a localized tuberculous inflammation ending in caseation and the discharge of infecting material into some neighboring vessel. On the other hand, the more usual forms of tuberculosis, and especially the chronic pulmonary form, have never been looked upon as diseases accompanied by frequent presence of the bacilli in the circulating blood. It is not surprising, therefore, that a sweeping statement made by Dr. Rosenberger in the *American Journal of Medical Sciences*, for February, 1909, claiming that all forms of tuberculosis are characterized by a bacteriemia, should meet with incredulity. We quote the words of the author in reference to the findings in examining specially prepared blood films in tuberculous patients: "In every case examined tubercle bacilli were found. Sometimes only a few were seen, but they were mostly in large numbers, and clumps of thirty to forty bacilli were not unusual, especially in the cases of acute miliary tuberculosis."

It would seem that other workers should be at least occasionally successful in finding tubercle bacilli in the blood according to the method of Dr. Rosenberger, his technique being simple and his results so uniformly positive. Yet the attempts to corroborate Dr. Rosenberger's findings made in two large hospitals of New York have been uniformly unsuccessful. The article of Dr. Rosenberger, too, does not state whether any control examinations were made with normal blood to exclude the possibility of artefacts being mistaken for tubercle bacilli; anyone who has stained sputum knows that clumps of red stained granules are often found in such specimens, which resemble tubercle bacilli by keeping the red stain in spite of decolorization with acids. Such granules seem to be particles of cell detritus and when the enormous numbers of the "shadows" of red cells that must have been present in the films made according to Dr. Rosenberger's method are remembered, the suspicion is justified that they may have something to do with the microscopic appearances described by that author. Moreover, animal inoculations are, of course, the last means of appeal in demonstrating the presence of tubercle bacilli in tissues; Dr. Rosenberger mentions only two inoculations of this character, a single animal being used in each case!

It is notoriously unsafe to deny the possibility of any achievement in science or human endeavor, and there can be no doubt that the question brought up by the author is of interest to all workers in tuberculosis. The published results, however, require much more corroboration than the author has seen fit to procure or to mention in his article. As the matter stands, one may well class the surprising data given by Dr. Rosenberger among the "important, if true" findings which appear so frequently in modern literature of medicine.

POSTOPERATIVE SITTING POSTURE.

Surgeons no longer insist that a patient should be kept flat on the back for many days after an operation, as it has been abundantly proved that such a position in certain individuals is attended with grave danger of postoperative complications. No graver danger than hypostatic pneumonia can threaten a patient after a successful aseptic operation, and this is precisely the condition to which the flat position in bed predisposes old or very obese individuals. On the other hand, it has been shown that the peritoneum of the upper abdominal cavity absorbs much more rapidly than the pelvic peritoneum, and in case toxic material is present in the peritoneal cavity, the flat position offers a distinct chance for overwhelming the body with the toxins. These and similar conditions are considered by Dr. Willis D. Gatch, who writes on the advantages of the upright position in the *Annals of Surgery* for March, 1909. The difficulty in maintaining the upright position has been, however, that it was effected by simple back rests which did not prevent the patient from sliding down in bed. In such a case, the upper peritoneum was suddenly exposed to the toxic material gathered in the pelvis and the patient was in no way benefited by the temporary upright position. The author thinks hospital wards ought to have a number of beds provided with suitable arrangements for procuring an upright posture for the patient, and he describes a simple device of this sort adopted in the Johns Hopkins Hospital.

Dr. Gatch has found the upright position a distinct advantage not only in peritoneal conditions, for which Fowler first recommended it, but likewise in cases where continuous draining or irrigation is employed, the effect of gravity helping very much the proper continuation of these procedures. Moreover, in many purely medical conditions the device for obtaining an upright position is found extremely useful, patients with advanced heart disease or orthopnea from whatever cause being distinctly benefited by being placed in a comfortable semi-inclined position. Dr. Gatch concludes that in most cases cause must be shown for keeping a patient lying rather than for making him sit up. It certainly seems reasonable to allow the patient to assume the sitting posture much earlier than is usually done.

Intraabdominal Use of Oxygen.

Oxygen as a respiratory stimulant has been quite often used in pneumonia and in cyanosis of whatever nature. Beyond this the gas has not found much popularity either with physicians or with surgeons. That it may be advantageously employed in many surgical conditions is shown, however, by the results obtained by Dr. William S. Bainbridge, described by him in the *Annals of Surgery* for March, 1909. He has employed the gas in a novel way, allowing it to fill the abdominal cavity after laparotomies, the tube carrying the oxygen being inserted into one corner of the wound. The experience with this method in thirty cases showed that oxygen administered in this fashion distinctly

lessened postoperative shock, hemorrhage, nausea, and vomiting; it overcame the dangerous negative pressure in the abdomen resulting from the removal of large tumors; it prevented or diminished the tendency to the formation of adhesions. In a few cases of tuberculous peritonitis it seemed to add to the curative action of simple laparotomy, and in septic peritonitis its use was followed by distinct improvement in the symptoms. Dr. Bainbridge's method consists in ballooning the abdomen with the gas and then closing the wound, thus allowing the tissues to absorb the oxygen gradually. It is, therefore, quite different from "flushing" the abdominal cavity with a large quantity of gas which is allowed to escape freely, or from the employment of hydrogen peroxide which leads to the formation of nascent oxygen within the cavity. Whether the favorable results described by Dr. Bainbridge were due to the method of the administration as much as to the action of the gas itself remains to be shown by further work in the laboratory and on the operating table.

News of the Week.

Sanitation of the Canal Zone.—The chief sanitary officer of the Isthmian Canal Commission, Dr. William C. Gorgas, has presented a report for the year 1908. Among the employees alone the death rate was 13.01 per thousand for the year, a remarkable decrease from 1906 when the rate was 41.37 and from 1907 when it was 28.77. The total number of deaths among employees during the year was 571. It is also particularly interesting to note the decrease in the death rate among the blacks. This was 47.24 in 1906; 33.28 in 1907; and 12.76 in 1908. During the year there were 2,674 American women and children on the isthmus, and among these the death rate was only 9.72. As has been the case in past years a large proportion of deaths were due to pneumonia; but even here there was a large decrease, the figures being 431 deaths in 1906, 328 in 1907, and 93 in 1908. There were 38 deaths from beriberi during the year. The number of cases of malaria is taken as a reliable indication of the general health conditions and of the efficiency of the sanitation. In 1906, out of every thousand employees, 821 were admitted to hospital suffering from malaria; in 1907, 424; and in 1908, 282. In other words, there is now only about one-third the amount of malaria among employees that there was three years ago. It is now more than three years since a known case of yellow fever has developed in the isthmus; the last case of plague occurred in August, 1905.

New York's Death Rate.—For the week ending March 21, the death rate in New York showed, for the first time in many months, an increase over the rate for the corresponding week of the preceding year. The rate for 1908 was 17.46 per thousand, while in 1909 it was 18.07, the total number of deaths being respectively 1,480 and 1,581. There was an increase in the number of deaths from heart disease, pneumonia, tuberculosis, and Bright's disease. Among infants under one year of age there were 305 deaths as against 279 in 1908.

Yellow Fever Decreasing.—The recent epidemic of yellow fever in Barbados is gradually disappearing, fewer cases being reported each day. The local health authorities have been assisted in fighting the disease by Sir Rupert Boyce of the Liverpool School of Tropical Medicine.

Ether as a Fake-Exposer.—A novel experiment was made in Hoboken, recently, according to newspaper story, when a man, arrested for soliciting alms as a deaf mute, and suspected of shamming, was put under the influence of ether in St. Mary's Hospital. His free use of speech while he was recovering from its effects cleared up all doubts as to his ability to hear and speak.

Regulation of Opium Importation.—The recent act of Congress prohibiting the importation of opium except for medicinal purposes becomes effective on April 1, and the Treasury Department has issued rules of the most stringent character to provide for its enforcement. The term "opium" is considered as covering all forms known to the trade. In connection with this law the Bureau of Chemistry is also investigating a number of "opium cures" which are being widely sold, many of which, of course, are only fakes, and contain a dangerous percentage of morphine.

Ambulance Wrecked.—A New York Hospital ambulance responding to a call in West Thirtieth street on March 27, was practically reduced to kindling wood by a collision with a Sixth avenue street car. Both the ambulance surgeon and the driver were slightly hurt.

Class for Consumptives.—The work of the Bellevue Tuberculosis Clinic has been extended somewhat along the lines of the classes for patients which have proved helpful elsewhere in New York and in Boston. A class, at present consisting of fifteen patients, meets each Monday afternoon on the old ferryboat *Southfield*, when progress is reported and encouragement given.

Federal Sanatorium.—A bill providing for the establishment in Colorado of a sanatorium for the treatment of tuberculosis, to be conducted by the Federal Government, was introduced into the House of Representatives recently. The bill provides for an appropriation of $2,500,000 for the purpose.

Improvements at Bellevue Hospital.—Plans have been filed with the Building Department for remodeling and enlarging the Marquand Pavilion, known as Ward 31, of Bellevue Hospital. The improvements include the installation of a new plumbing plant and the inclosing of the verandas with glass partitions. Wards 18 and 25, which connect with the Marquand Pavilion, will also be somewhat remodeled.

Hospital for Ruptured and Crippled.—An appeal for aid for this institution has recently been made, because of a deficit of $29,711 in the running account for the past year. During 1908, 967 patients were treated in the hospital and 12,963 in the dispensary. A total of 340,000 patients have been treated since the establishment of the hospital in 1863.

Children's Free Sanatorium.—Through the generosity of Mrs. A. A. Anderson of New York, the Children's Aid Society has recently been able to establish a sanatorium for the treatment of ill and crippled children on Chappaqua Mountain, Westchester County, N. Y., to be known as the Chappaqua Mountain Sanatorium of the Children's Aid Society. The institution which will be open for patients on June 15, will be in commission during the entire year.

Hospital Legislation.—The New York Legislature is considering a bill providing for the establishment of an ambulance service to cover the entire city of New York, the supervision of the service in Manhattan and the Bronx, except for that which is under the control of the Department of Health, to be placed under the trustees of Bellevue and Allied Hospitals. In the other boroughs the supervision is to be exercised by the Commissioner of Public Charities. The position of director of ambulances is provided for the direct overseeing of the work.

Another bill introduced into the Legislature this year authorizes the Department of Health of New York City to assume exclusive charge and control of hospitals for the treatment of contagious, pestilential, or infectious diseases.

Charitable Bequests.—By the will of the late William Y. Meschter of Norristown, Pa., the following bequests are made: Franklin Reformatory of Inebriates, $200; Pennsylvania Society for the Prevention of Tuberculosis, $300; Medico-Chirurgical Hospital for the endowment of a free bed in memory of his father and mother, $5,000; Methodist Episcopal Hospital, $500.

The promised donation of Mr. William Deering to Wesley Hospital, Chicago, of $55,000 is subject to the raising of a similar amount by the board of directors, the entire $110,000 to be used for the completion of the building, according to the original plan.

Mr. Peter Quackenbush of Paterson, N. J., has donated $40,000 to build a home for the nurses in the Paterson General Hospital, of which he is a director. About a year ago Mr. Quackenbush gave $10,000 to buy the site for the home.

The Bellevue Hospital Alumni Society held its annual banquet at Delmonico's on March 24. Mayor McClellan spoke in praise of the work and devotion of the physicians, and addresses were also made by Dr. J. H. Woodward, president of the society, the Rev. Nehemiah Boynton, Dr. S. Alexander, and Mr. L. F. Brown.

Association of American Physicians.—The twenty-fourth annual meeting of this association will be held in the New Willard Hotel, Washington, D. C., on May 11 and 12, 1909. Dr. Victor C. Vaughan will deliver the president's address and a long and interesting programme has been arranged.

The Florida Medical Association.—The thirty-sixth annual meeting of this association will be held at Pensacola, Fla., on April 7, 8, and 9, 1909. Dr. J. D. Love of Jacksonville will deliver the public oration on the evening of April 7. Dr. J. F. McKinstry, Jr., of Gainesville is the president of the society, and Dr. J. D. Fernandez of Jacksonville, the secretary and treasurer.

Pawtucket (R. I.) Medical Society.—The annual meeting of the society was held on March 18, when the following officers were elected for the ensuing year: *President,* Dr. B. L. Towle; *Vice-President,* Dr. Byron U. Richards; *Secretary,* A. R. V. Fenwick; *Treasurer,* Dr. M. A. Ford; *Delegates to State Medical Society,* Drs. C. A. Stearns and W. F. A. Gillen.

American Academy of Medicine.—The second mid-year meeting of the American Academy of Medicine was held in Chicago, Ill., March 25, at the Auditorium Hotel, it being a conference with academic and medical teachers. In the absence of the president (Dr. Helen C. Putnum) the first vice-president, Dr. Charles S. Sheldon, Madison, Wis., occupied the chair. Dr. Colwell, Secretary of the Council on Medical Education of the American Medical Association, stated the entrance requirements and the didactic and laboratory portions of the medical course of those colleges whose entrance standard requires one or two years of study after the completion of the high school course. Dr. Walter McNab Miller, Columbia, Mo., discussed the question, "Can the third and fourth years of the literary college give any of the subjects in the medical course?" Dr. John L. Heffron, Syracuse, N. Y., read a paper entitled "Can the College Give in the Junior and Senior Years as Elective Any of the Subjects Required of a Student in His First Two Years in a College of Medicine?" These papers were freely discussed by several members. At the afternoon session, Dr. Charles McIntire, Easton, Pa., read a paper entitled "What Are the Underlying Principles Permitting the Accepting of Students to Advanced Standing in a Medical College, and What Method Should be Used to Make These Principles Effective?" Dr. Edward Jackson, Denver, Col., presented a paper entitled "Preliminary and Graduation Requirements for the Medical Course in Terms of Work Done."

Society of Sanitary and Moral Prophylaxis.—At the regular meeting of this Society, on April 8, the general subject for discussion will be: "Blindness of the New-Born and Its Prophylaxis." (1) From the standpoint of the Eye Specialist, by Dr. Charles Stedman Bull; (2) from the standpoint of the Obstetrician, by Dr. James Clifton Edgar; (3) from the standpoint of the Sanitary Officials, by a representative of the Health Department of New York City.

Mississippi County (Ark.) Medical Society.—At the annual meeting of this society, on March 9, the following officers were elected: *President,* Dr. S. A. Lowry of Luxora; *Vice-President,* Dr. H. T. Crawford of Wilson; *Secretary,* Dr. Oleander Howton of Osceola; *Treasurer,* Dr. W. H. Hudson of Luxora; *Delegates to State Society,* Drs. H. C. Dunavant and D. C. Joyner.

Twenty-sixth German Congress for Internal Medicine.—The sessions of this congress will be held in Wiesbaden on April 19 to 22, 1909. Full information as to program, etc., can be obtained from Dr. Emil Pfeiffer, Parkstrasse 13, Wiesbaden.

Sixth French Congress of Gynecology, Obstetrics, and Pediatrics.—The sessions of this congress will be held in Toulouse, France, from September 22 to 27, 1910, under the presidency of Professor Kirmisson, who is also the president of the section of pediatrics. Professor Hartmann will act as president of the section of gynecology, and Professor Rouvier of Algiers of that of obstetrics. Applications for places on the programme should be addressed to the Secretary General, M. Audebert, Professeur de Clinique Obstétricale, 1, place Matabiau, Toulouse.

Medical Legislation in Connecticut.—Among the important bills now before the Connecticut General Assembly is one providing for the establishment of a State colony for epileptics to be maintained at public expense. Another bill makes it unlawful for any public board in the State to compel the vaccination of any infant, or to make vaccination a condition precedent to attendance at any

public or private school. A third bill provides for the registration of those engaged in the practice of optometry.

Philadelphia Municipal Appointments.—Dr. C. A. Groff, for many years an assistant medical inspector, has been appointed assistant chief medical inspector in the Bureau of Health, in succession to Dr. Thomas J. Beatty, deceased, and Dr. William Drayton, Jr., formerly resident physician in the Municipal Hospital, has been appointed assistant medical inspector, in succession to Dr. Groff.

Dr. Alvin W. Hewlett, assistant professor of medicine in Cooper Medical College, San Francisco, has been appointed to succeed Dr. George Dock, as professor of medicine in the University of Michigan.

Dr. Charles Karsner Mills of Philadelphia was the guest of honor at a testimonial dinner in that city on March 13, the occasion marking the fortieth anniversary of his entrance into the medical profession. Addresses were made by Dr. S. Weir Mitchell, Dr. James J. Putnam, Dr. Abraham Jacobi, Dr. William H. Welch, Dr. Charles L. Dana, the Rev. Arthur B. Conger, and Provost Harrison of the University of Pennsylvania. A silver loving cup was presented to Dr. Mills by Dr. W. W. Keen on behalf of those present. Dr. George E. de Schweinitz acted as toastmaster.

Dr. Richard C. Cabot of Boston spoke at Smith College, on March 17, on "The Human Side of Hospital Work."

Hereditary Syphilis and Epilepsy.—Dr. William P. Spratling, 1110 N. Charles street, Baltimore, requests information concerning cases of epilepsy in children in which the cause seems to be cerebral syphilis in either of the parents.

The Late Dr. Murray.—At a regular meeting of the New York Medico-Surgical Society, held at the Hotel Manhattan on the evening of March 20, the following resolutions were unanimously adopted:

Whereas, death has removed from the roll of this society, on February twenty-seventh, one thousand nine hundred and nine, our friend and colleague, Dr. Robert A. Murray, and

Whereas, during the many years of his membership in this society, Dr. Murray has been a most active and enthusiastic supporter of the objects which brought about the organization of this society; and

Whereas, by his regular attendance and active participation in discussions on all subjects brought before the society, as well as by his sociality, he has added much to the interest of our meetings, be it

Resolved, That in the death of our friend and fellow member, the New York Medico-Surgical Society has sustained a great loss in one who, by his sympathy, geniality, and untiring devotion, was endeared to all; be it further

Resolved, That these resolutions be spread in full upon the records of the society, a copy sent to the medical journals of this city for publication, and an engrossed copy transmitted to the family of our deceased colleague.—J. Arthur Booth, M.D., T. K. Tuthill, M.D., John A. Bodine, M.D., Committee.

The following minute was adopted at a meeting of the Northwestern Medical and Surgical Society: The Northwestern Medical and Surgical Society desires to express its deep sense of loss over the demise of its esteemed colleague, Dr. Robert A. Murray, which took place on February 27 last. Dr. Murray had been an enthusiastic member of the society nineteen years. It was his pleasure and pride to be with us, almost without exception, at every meeting.

He was a contributor to scientific medicine; and stimulated literary effort in general and special surgery, and was also a comrade and colleague in all the features which have endeared this Society to its members. His career as an interne in Bellevue Hospital in 1874 and 1875 under Alonzo Clark, James R. Wood, Alfred L. Loomis, Charles A. Budd, Abraham Jacobi, and others; his early professional association with Walter R. Gillette; and his rapidly growing medical practice gave to his membership qualities of a high order; while his happy disposition, his fund of humor, and his youthful geniality have left an indelible impress on all his surviving colleagues of the Society, never to be forgotten.

We desire to inscribe these admirable gifts of attainment and of personality upon the records of this Society and to convey our high appreciation of this esteemed colleague to the members of his family. By your Committee, Edward S. Peck, Henry Ling Taylor.

Obituary Notes.—Dr. Levi Farrow of Hackettstown, N. J., died at his home on March 21, of disease of the kidney, aged 64 years. Dr. Farrow was graduated from the College of Physicians and Surgeons, New York, in 1865.

Dr. Cyril Fulton of Lyons, N. Y., died at his home of pneumonia, on March 22, aged 40 years. Dr. Fulton, who was of Canadian birth and a direct descendant of Robert Fulton, was graduated from McGill University, Medical Department, Montreal, in 1892, and began his practice in New York State in 1895. He was a licentiate of the Royal College of Physicians and Surgeons of Canada, a fellow of the Rochester Academy of Medicine, and a member of the American Medical Association and the Central New York Medical Society.

Dr. Robert Reyburn of Washington, D. C., died at his home on March 25, at the age of 75 years. Dr. Reyburn was graduated from the Philadelphia College of Medicine in 1856, and practised medicine in Philadelphia until 1862, when he entered the United States Army as a surgeon. After his retirement in 1867, he resumed his practice in Washington, and in 1881 was one of the physicians in attendance upon President Garfield after he was shot. He was for some years dean and professor of hygiene and preventive medicine in the medical department of Howard University, and was a member of many scientific societies, and an honorary member of the Société française d'electrothérapie of Paris. He had written a clinical history of the case of President Garfield, as well as many contributions to medical journals.

Dr. Simeon O. Pilling of Hartford, Conn., died at his home on March 17, aged 44 years. Dr. Pilling was a graduate of the medical department of Boston University and served as surgical interne in the Massachusetts Homeopathic Hospital. He had practised in Newburyport, Mass., until his retirement, because of failing health, a short time ago.

Dr. Freeman E. Small of Portland, Me., died in the Maine General Hospital on March 19, aged 54 years. Dr. Small was graduated from Amherst in 1877, and from the Maine Medical School in 1879.

He was a member of the Maine Medical Association, the Cumberland County Association, the Portland Medical Society, and the American Public Health Association.

Dr. JOHN LAWRENCE CLEARY of Kenosha, Wis., died at his home of cancer of the face on March 12, aged 62 years. He was graduated from Pulte Medical College, Cincinnati, in 1878; was a veteran of the Civil War, a member of the State Medical Society, and a charter member of the Kenosha County Medical Society, and was for two terms a member of the Wisconsin State Board of Control.

Dr. THOMAS STERLING BARCLAY of Detroit, Mich., died at his home on March 14, aged 67 years. Dr. Barclay was born in Scotland, and received his education in Glasgow, graduating from the College of Physicians and Surgeons in 1865. In 1867 he removed to Canada, and in 1875 to Detroit, where he had since practised.

Dr. GEORGE A. BIDDLE of Emporia, Kan., died on March 13 of kidney disease, in the 63d year of his age. Dr. Biddle was graduated from the Bellevue Hospital Medical College in 1869, and was one of the oldest physicians in Emporia. He was a veteran of the Civil War, having served in the First Indiana Heavy Artillery.

Dr. F. A. A. BELINGE of San Francisco, Cal., died in the Lane Hospital on March 14, after a long illness. He was graduated from the Cooper Medical College, San Francisco, in 1870, and was a former president of the San Francisco Medico-Chirurgical Society of San Francisco, and a member of the commission on insanity.

Dr. TAPPAN E. FRANCIS of Brookline, Mass., died at his home on March 20. Dr. Francis was born on August 28, 1823, and was graduated from Harvard University in 1844, and from the medical school in 1847. He had practised in Brookline from 1850 until his retirement in 1893. He was a member of the Brookline school committee and trustee of the Brookline public library for many years.

Dr. FERDINAND C. HOTZ of Chicago, Ill., died on March 21 of pneumonia, aged 65 years. Dr. Hotz was born in Germany, and was graduated from the University of Heidelberg in 1865. In 1868 he served as assistant surgeon in Knapp's eye clinic in Heidelberg, and the following year removed to the United States, settling in Chicago, where he became wirely known as an ophthalmologist. He had been surgeon to the Illinois Charitable Eye and Ear Infirmary since 1876, professor of ophthalmology in the Chicago Polyclinic since 1888, and professor of ophthalmology and otology in the Rush Medical College since 1898. He was a member of the American Medical Association, one of the founders and a former president of the Chicago Ophthalmological Society, and a director of the Chicago public library. He had made many contributions to medical literature on ophthalmological subjects.

Dr. THOMAS J. BEATTY died at Philadelphia on March 22 at the age of 48 years. He was graduated from Jefferson Medical College in the class of 1880. He had been a medical inspector of the Bureau of Health, and for some years assistant chief medical inspector.

Dr. J. ORLANDO WHITE died of angina pectoris at Camden, N. J., on March 23 at the age of 62 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1868. He was at one time president of the Camden County Medical Society.

Obituary.

PHINEAS SANBORN CONNER, M.D., LL.D.

CINCINNATI.

DR. P. S. CONNER, who died of apoplexy at his home in Cincinnati on Friday of last week, was for many years one of the leading surgeons of the Ohio Valley. He was born in West Chester, Pa., August 2, 1829, and was graduated in arts from Dartmouth College in 1859. He then studied medicine in Philadelphia, being graduated from the Jefferson Medical College in 1861. Immediately upon graduation he entered the medical corps of the army as assistant surgeon, and served throughout the Civil War, being retired in 1866 with the brevet rank of major. He then began practice in Cincinnati. He was for forty years professor of surgery in the Medical College of Ohio and for more than half that period held the same chair in the Dartmouth Medical College, his lectures being delivered there during the summer. In 1884 his Alma Mater showed her appreciation of his loyal service by conferring upon him the honorary degree of Doctor of Laws. A few days before his death Dr. Conner delivered a memorial address at the Cincinnati Academy of Medicine on the life and works of the late Dr. Reamy, his contemporary and colleague for many years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

TUBERCULOSIS; WASHINGTON CONGRESS, BRITISH DELEGATES REPORT—TROPICAL DISEASES; A BLUE-BOOK, INDIAN BRONCHITIS AND SPIROCHETES, YELLOW FEVER—THE KING'S FUND—DR. WELIAMINOFF, F.R.C.S. (LON.)—OBITUARY.

LONDON, March 12, 1909.

A WHITE paper has been issued containing the report of the British delegates to the International Congress on Tuberculosis, held at Washington last autumn. Of course, you know all about the debates and the information furnished respecting the methods of prevention and so on adopted in your country. You may nevertheless like to learn something of the impression produced on our delegates and their conclusions. They express satisfaction that on so momentous a subject there was practical unanimity of scientific opinion and administrative aspirations, giving a prospect of a rapid extension of preventive measures and a more rapid decline in the mortality. They also find it satisfactory that objections to compulsory notification are rapidly disappearing. Sanitary authorities are thereby enabled to carry out precautionary measures, and patients obtain valuable official and private help, which, without notification, would have been absent, deficient, or belated. Thus the patient will learn how to protect himself from reinfection and his family and fellow workers from infection. The delegates regard compulsory notification as an indispensable step toward the suppression of the disease. They were greatly struck with the extent to which private and public agencies for the prevention of tuberculosis have been successfully coordinated in America and Germany, and they think there is much that is interesting in the cooperation shown, although the principle is not unknown here, but has to some extent been tried in London and other cities. Our delegates seem to have been much pleased with your day and night camps as valuable auxiliaries to hospitals and sanatoria. The chief aim of "the day camps," they say, is educational, though the patients there treated by day and who return to the

city at night commonly show improvement. The night camps" provide for consumptives who are able to work and cannot afford to give it up. After the day's work, instead of going to crowded homes, they pass to the night camps, where the conditions are favorable. They also learn to avoid risk to others. This educational result is of great economic value to the wage earner individually, as well as to the community. This is of the highest importance, considering the protracted course of the disease. The more this knowledge is diffused the more readily will precautions be taken. Educational agencies are largely employed in the United States, and of them the delegates think "traveling tuberculosis exhibits" most popular. They mention that of the Boston association as excellent, with its maps, charts, models of tents and buildings, consumption-breeding tenements, and inexpensive housing conditions recommended. Also the set of 200 slides which has been set up in fifteen cities and seen by 92,000 persons during the present year.

You will naturally suppose that conclusions arrived at with such unanimity will be enforced as far as practicable in the countries represented. Here it may be said that our sanitary authorities are prepared to carry them out, and indeed they have been largely anticipated. The Local Government Board's medical officer has now issued a brief memorandum, which is mostly a supplement to the circular issued last year to Boards of Guardians and other sanitary authorities. In it the conclusions of the congress are pretty fully adopted. Thus the education of the consumptives and their families as to the nature and prevention of tuberculosis is insisted on. Special instruction of friendly societies, trade unions, and other circles is suggested, as well as the Army and Navy. To place the patients in healthful surroundings is more important than drug treatment, and so the dispensary and sanatorium are commended and the best results are to be secured by "active cooperation between voluntary and official workers and agencies"—an echo, this, of the Washington congress, as also is the reference to the "long duration and occasional long latency of the disease," which must entail a continuous effort to suppress its ravages. Dr. Newsholme, however, is optimistic and thinks that "administrative measures will enable sanitary authorities gradually to bring tuberculosis within their control, and to secure that it will become as much a disease of the past in this country as leprosy has become."

A bluebook has been issued containing the report for 1908 of the Advisory Committee for the Tropical Diseases Research Fund, which included contributions from the Imperial Government and various colonies. A grant of £1,333 was made to the London school, £1,000 to that of Liverpool, £750 to the London University as stipend for a professor of protozoology, £100 to Cambridge University for a research studentship in medical entomology, and £400 to the Australian Institute of Tropical Medicine. The volume gives an account of various measures taken against malaria, all of which have been attended with success. Those aimed at the destruction of mosquitos and their breeding places are of the greatest importance, though where this has not been accomplished prevention of access to rooms and houses by wire gauze, etc., must be enforced.

The Society of Tropical Medicine is naturally closely associated with the school, though not identical with it. In the society many men of great experience in the tropics foregather and the proceedings are of wide interest. Last month there was a paper on a form of bronchitis in India which Dr. H. G. Waters found associated with a species of spirochete. At first thought one might feel doubtful whether the spirochetes were pathological and Dr. Waters himself did not at first attach importance to their presence and only accepted the conclusion after careful consideration. His first case was admitted with a temperature of 104°, a cough, with copious expectorations of mucus, and a few rhonchi. No tubercle bacilli or bacteria were found in the sputum, but many spirochetes. Temperature remained high, 102° to 104.5°, for three days, no oral sepsis or other local condition to account for it. In four days it fell to normal and the organisms disappeared, but fourteen days later a relapse occurred and they reappeared in enormous quantities. In the next few days Dr. Waters saw seven more cases in the same district and thought this suggested a specific infection. Dr. C. W. Daniels thought the fact of a series of cases with a definite type of illness was certainly suggestive, but apart from that skepticism would be natural, as one sees spirochetes in so many nonpathogenic discharges and exudates that it might seem possible the organisms were parasites of enlarged and unhealthy bronchi.

Dr. Low was in accord with the previous speaker and remarked that the spirochetes could not be reproduced in cultures, which made it difficult to prove pathogenicity. He asked if pneumococci had been looked for, to which Dr. Waters replied affirmatively.

At the same meeting yellow fever was under discussion. Dr. Faussett MacDonald, in some notes on Barbados, remarked that the island was commonly reported to be exceptionally healthy and it was a question whether yellow fever had ever been met there. Medical opinion was divided about it, some cases being diagnosed differently by the local practitioners. He held a certain group to be pellagra and was supported by Dr. Low, who commented on the exceeding difficulties of the diagnosis of yellow fever.

Then followed a paper on this disease, which every one admitted to be as important as it was interesting. This was by Dr. E. Ribas, Director of the Sanitary Department of San Paulo, Brazil, who said that extensive experiments at San Paulo completely established the accuracy of the American investigators in Cuba. There was no longer room for doubt, he said, that the disease was propagated by *Stegomyia fasciata*, and in all probability by that only. Fomites and other previously suspected agencies have no influence. When San Paulo was quite free from yellow fever he obtained some larvæ and sent them to a city where it was raging. The mosquitos hatched from them were allowed to suck a patient seriously ill and then brought back to San Paulo (360 miles), where they bit him and five other healthy volunteers. Three of these six persons had the fever. The other three escaped. These latter were himself and two other doctors who had worked with him in epidemics and so probably were immune. Dr. Ribas added that every epidemic had been stamped out by the extermination of mosquitos, together with general sanitary measures.

Dr. London Strain said he could personally confirm every statement in the paper. Since the campaign on the lines laid down by Dr. Ribas the cities of Brazil where the mortality was appalling had become prosperous.

Dr. Daniels admitted the *Stegomyia* had great influence, but remarked that yellow fever might disappear when the susceptible population was exhausted, and it had been observed to return at periods of about thirteen years, as in British Guiana.

Dr. Harford asked why Dr. Ribas classed as immune some inhabitants of the city who had not had the disease.

Sir Patrick Manson pronounced the facts in the paper of great value. One peculiarity of yellow fever, he said, was the immunity of the Creole. We know that natives in the tropics are immune to malaria, but that is because they suffered in childhood. Might that be the case with yellow fever? If so, we must consider it endemic.

Dr. Ribas, in reply, said immigrants arriving at Santos during an epidemic were hurried through the port. A stay of four or five hours sufficed for infection. It might be that mosquitos bit natives less freely than newcomers. But these natives had no immunity from other diseases. Cholera was even more fatal to blacks than to European residents in Brazil.

The annual meeting of the King's Hospital Fund was held on Wednesday, when the Prince of Wales, as president, took the chair and made a speech on the subjects mentioned in the report. He remarked that the Act of Incorporation, passed last year, had worked most satisfactorily and smoothly. He felt sure the amalgamation of the Hampstead and Northwest London hospitals would be approved by the charitable public and thought it satisfactory that the building of the combined Orthopedic Hospital will be ready for occupation this year. The committee of inquiry it was intended to appoint on the out-patient system, he decided, upon the advice of the executive committee, to defer until next year, as it will be some time before the evidence on which the report of the Poor Law Commission is based can be issued.

Lord Rothschild, as honorary treasurer, presented the accounts and explained the effect of the Act, which had been carried out successfully respecting the separation of the money into trust and nontrust funds. The former show an increased value of only £1,000, but the latter of £100,000. Since the inauguration of the fund the amount spent on administration, the re-

port shows, has been £1 4s. 8d. per cent. of the total amount received. This seems to me quite enough, considering that nearly all the officers are honorary.

Yesterday Dr. Nicholas Weliaminoff, Privy Councilor of State and Professor of Surgery in the St. Petersburg Academy of Medicine, attended the council meeting of the Royal College of Surgeons and signed the roll. In 1900 he was elected an honorary Fellow, but had been unable to come to England until now, when he is in attendance on the Empress Marie Fédorovna during her visit.

At the same meeting the report of the committee for preparing a new by-law on the admission of women was received and will be further considered at the next meeting. A committee was appointed to consider the bearing on the rights of Fellows and Members of the British Medical Association's petition for a charter.

Mr. Thos. Wakley, editor of the *Lancet*, died on the 5th inst., aged 57. He was the grandson of the founder of the journal, the late Thos. Wakley, M.P., who had two sons, both of whom worked on the paper, and the only son of one of them, Thos. Henry Wakley, F.R.C.S. The late editor had been ill for the last two months. He was educated at Westminster School and Trinity College, Cambridge. Afterward his medical curriculum was fulfilled at St. Thomas's Hospital.

Captain Frederick Hallam Hardy, R.A.M.C., died at Aden on the 8th inst. of sleeping sickness, aged 36. He was on his way home from Nyassaland. He entered the service in 1900 and was appointed Medical Officer in the Central African Protectorate.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

USE OF ARSENICAL COMPOUNDS IN AGRICULTURE—TREATMENT OF FRACTURES BY OPERATIVE REDUCTION WITHOUT FIXATION—TREATMENT OF WOUNDS OF THE CHEST—PREOPERATIVE STERILIZATION BY HOT AIR OF HOLLOW ORGANS SUBJECT TO SEPTICEMIA—SEVERE INTOXICATION WITH NITRATE OF BISMUTH.

PARIS, February 27, 1909.

THE officers of the Academy of Medicine for the year 1909 include for president Dr. Leon Labbé and for vice-president Professor Dieulafoy. A most interesting discussion arose on the employment of arsenical compounds in agriculture. Mr. Charles Monreu, who wrote upon this interesting question, showed how many questions were brought up by the use of arsenic in agriculture. Arsenical compounds are most advantageous for killing insects; they are at the same time powerful insecticides and economical ones, and from an agricultural point of view are an excellent means of defense; unfortunately, their use presents great dangers for the cultivator of the fields, whose life is passed in the midst of an atmosphere of arsenic, and for the consumer constantly exposed to the danger of eating poisoned produce. Each of these classes courts death daily. Therefore, a commission appointed by the Academy of Medicine, having balanced these advantages and disadvantages of the agricultural use of arsenic, has unanimously voted for the prohibition in a radical and absolute manner of the use of arsenic in agriculture. It demands the prohibition of the sale and of the use of arsenic and of its compounds for the destruction of insects.

Monsieur Linossier noted a distinction among the compounds of arsenic. He proposed the prohibition of the use of soluble compounds of arsenic and of arseniate of lead, with tolerance and strict regulation of the use of arsenites and of the arsenate of copper.

Monsieur Armand Gautier, considering that the object of the Academy is above all the defense of the public health, demanded of the Academy that it support the conclusions of the commission, and not allow itself to be influenced by the interests of agriculture alone, however important they may be, since they should be secondary to the interests of the health of the whole people, of which the Academy is the authorized defender. Hanriot and Cazeneuve were partisans of the complete prohibition of the use of arsenic. Weiss, on the contrary, was absolutely opposed to the prohibition of arsenical compounds in agriculture. He believed that we do not find documentary proofs of the danger of manipulation or arsenical compounds. He considered that the prohibition of arsenical compounds would be deplorable, and would make more difficult the position of the agricultural population, by taking away from them the means which are recognized as the most effective insecticides. Consequently he demanded that the Academy decide on further investigation before giving a decision.

Finally, the Academy, in view of the importance of the interests at stake, and thinking that it had not examined sufficiently into the nature, frequency, and gravity of accidents resulting from the use of arsenical products in agriculture, decided that a medical investigation of the subject was in order.

The president of the Society of Surgery, for 1909, is Reynier, its vice-president Routier, and its secretary Broca. An interesting discussion has arisen as to the treatment of fractures by operative reduction without fixation. Willems of Gand is a partisan of reduction of fractures by operation, but only when they are irreducible. He practises reduction after opening the site of fracture by incision, disengages the fragments, puts them in coaptation, and then, instead of fixation by mechanical means, he applies simply an apparatus to maintain the reduction. Walther supported the conclusions of Willems, and is completely of his opinion. Demoulin recalled that the rules for the treatment of fractures mentioned by Willems were long ago brought forward by Hennequin, who applied his apparatus after reduction of fractures with or without operation, and then utilized continuous extension. Thierry believed that when the location of a fracture has been incised it should not be treated by a simple apparatus for keeping the fracture in position. He thought that a mechanical means of keeping the fragments in position, preferably a ligature, is necessary, and for that ligature he makes use of copper or bronze wires. Quénu believes that to accept the operative treatment of simple fractures is not desirable in all cases. In fractures sutures can generally be dispensed with, but in some cases suture is very useful; well placed and with perfect asepsis a bony suture has not the inconveniences attributed to it.

Auvray gave an interesting communication on the treatment of wounds of the chest. This author is in general a partisan of abstinence from surgery in the treatment of wounds of the chest. In such cases medical treatment is generally sufficient to obtain a cure. Still there are cases in which the surgeon must interfere, and the difficulty is exactly to seize the moment in which operation becomes necessary. As to the method of opening the thorax, Auvray believes that resection on one side, for a length of 10 centimeters, is generally sufficient. He insists on the necessity of a systematic search for the pulmonary orifice of exit for the projectile on the posterior surface of the lung, and the posterior half of the internal surface. The exploration of the posterior surface of the lung should be as far as possible a visual one; when this is impossible the finger should be used. Since the wound becomes infected very easily, Auvray thinks that it is best to make at once a counter opening in the pleura at the lowest point. Souligneux believes that wounds of the chest, since they are accompanied by hemorrhage into the pleural cavity (hemothorax), are almost always curable without operation when the hemorrhage is not very abundant, which is generally the case. But in severe cases it is very difficult to know whether to interfere or not. Souligneux believes that whenever this question comes up it should be answered in the affirmative. We must not have recourse to "armed expectancy," a word behind which the surgeon intrenches himself when he allows his patient to die. Rapid intervention is necessary, unaffected by theoretical questions. A large opening of the thorax, such as to permit the collapse of the lung, contributes to the arrest of hemorrhage. We may, then, conclude that in wounds of the chest accompanied by severe hemorrhage operation is better than conservatism. It is better to do an exploratory thoracotomy, which may be enlarged in case of necessity, should a suture of the lung become necessary. In case of hesitation it is always better to operate.

Quénu made an interesting communication on the preoperative sterilization of hollow organs with septic contents by means of hot air. Surgeons who have operated on hollow organs with septic contents, and especially cancers of the uterus and rectum, have been cognizant of grave dangers to the patient operated upon from the presence of the smallest amount of effusion from the contents of the cavity. The means employed up to the present time have been insufficient. Quénu thinks it possible to solve the problem by sterilizing by means of hot air not only the liquid in the cavity, but the walls themselves of the hollow organ. This method he employed lately in a woman having cancer of the uterus. Before proceeding to the extirpation Quénu blew into the cavity of the uterus hot air at 600 degrees. Then he went on to enucleate the uterus by way of the abdomen. This patient recovered perfectly without any complications. After the removal of the uterus bacterial cultures were made from the cor

tents of the uterine cavity and the inoculated tubes remained perfectly sterile.

The officers of the Medical Society of the Hospitals include as president for 1909 Oulment, succeeding Chauffard, president for the preceding year, and for vice-president De Bourmann. Bensuade and Agasse-Lafont made an interesting communication on grave intoxication with subnitrate of bismuth. These authors have seen 15 cases of this intoxication. The symptoms accompanying these intoxications are almost always the same; the attack is very sudden, and begins a few hours after the injection of the bismuth. It is characterized by vertigo, nausea, convulsions, tachycardia, dyspnea, hypothermia, and above all, excessive cyanosis. The evolution is very rapid; generally the case ends in recovery, but at other times the patient dies in convulsions or coma. Of 15 cases four were fatal. The intoxication in these cases is probably due to the production and absorption of the nitrites. The gravity of this accident leads to the question whether the employment of subnitrate of bismuth should not be limited. We know that the injection of subnitrate of bismuth permits of interesting radiological results, and the appearance and frequency of these intoxications with bismuth coincide with the discovery and extension of radiology. It would appear better to replace the subnitrate of bismuth in radiology by carbonate of bismuth, which is much less toxic. In therapeutics we may continue to utilize the marvelous analgesic properties of subnitrate of bismuth without ever giving more than 20 grams per day.

Progress of Medical Science.

Boston Medical and Surgical Journal, March 18, 1909.

Arteriosclerosis.—After a general enumeration of the causes and symptoms of this condition and brief references to two personal cases, George S. C. Badger says that the presence of arteriosclerosis does not always call for treatment, as there may be no symptoms attributed to it, while whatever damages may have been wrought in the vessel walls cannot be cured. But the process may be stayed or at least hindered, and we must begin by cutting out the etiological factor, be it immoderate drinking, overeating, dissipation, or excessive muscular efforts. As to blood pressure, a high pressure may be in some instances a protection against disaster. A falling pressure is an ominous sign. If high pressure causes symptoms we can reduce it by the rapidly acting drugs, such as nitroglycerin, nitrites, aconite, erythrol, tetranitrate, etc., Occasionally vivisection is called for. The iodides are useful but must be long continued. They lower the pressure possibly by lessening the viscosity of the blood. Occasionally vertigo is a prominent symptom and defies all treatment. Above all, the manner of living of the patient must be carefully regulated.

Some New Applications of Electricity and Light in Medicine.—H. W. Van Allen reviews some of the latest applications of these agents, calling attention to the use of the *x*-ray in detecting stones in the urinary tract and in giving a good idea of the position and character of the kidney in the majority of cases. Tuberculous kidney has a characteristic shadow, while cysts, abscesses, and tumors may be detected. Movable kidney, if out of position, may be detected. A new instrument, called the statin, consists of a box lined with *x*-ray light-proof material with an adjustable window and by means of its use fluoroscopic work hitherto dangerous to the operator can be carried out without any harm. All the movable organs can be studied at one's leisure, *e.g.* the heart, lungs, etc. The outline of hollow organs may be made out by the introduction of oxychloride of bismuth, which is opaque to the *x*-ray, and in the same manner also the state of the entire gastrointestinal canal and of the peristaltic mechanism can be traced. The course of old sinuses may be traced by injection with warmed mixtures of bismuth and vaselin. The high-frequency, high-tension current has proven of great value in chronic inflammatory conditions of the joints, muscles, and veins. A modern plan of using electricity is that of autocondensation, in which the actual current does not enter the patient, but is in his immediate neighborhood, and he is charged by induction. It is claimed that in this way the arterial tension is reduced. Light combined with heat is useful in superficial skin conditions, and in local inflammation of bones and joints.

New York Medical Journal, March 20, 1909.

Angina Pectoris and Overfeeding.—Judson Daland reports one case at length, noting the point of interest that the usual causes such as nicotine, alcohol, syphilis, and excessive muscular exertion were all wanting. The changes in the walls of the radial arteries are less than would be expected at the patient's age, 66 years, while the amount of obesity was but moderate. The man, a lawyer, had been accustomed to mental overexertion and the excitement of legal business for many years, and in young manhood had had rheumatism. In addition he was in the habit of bolting large quantities of food rich in proteids and carbohydrates, which caused much metabolic disturbance as indicated by indicanuria, acetonuria, and glycosuria. Regulation of his diet caused a cessation of symptoms for five years, but they reappeared on his relaxation of his prescribed manner of living. It was judged that he had dilatation of both sides of the heart with degeneration of the myocardium. Disease of the coronary arteries is but one of many causes leading up to angina pectoris, but advanced coronary and myocardial changes may coexist without anginoid attacks. Chronic nicotinism generally causes attacks of pseudoangina. The author calls attention to the importance of using bending movements (described in his paper) to determine the reaction and contractile power of the myocardium.

The Excision of Chancre.—G. F. Lydston thinks that the claims of the supporters of the theory that the *Spirochæta pallida* is the essential germ of syphilis have been rather overstated, but he is willing to admit that it is not far from fulfilling the requirements of specificity. Diagnosis must not be based on its presence alone. In regard to the excision of chancre, he calls attention to the caution necessary in deciding on the exact nature of the sore excised, because (1) even in untreated cases the observable symptoms may not develop for weeks, months, or even many years after the initial lesion; (2) no system of medication yet devised can be relied upon to altogether prevent secondary lesions, and (3) excision was tried long ago and found wanting in the prevention of secondary lesions. His own conclusions, based on thirty years' experience, are that excision does not prevent constitutional syphilis, though sometimes it seems to modify the subsequent course of the disease. He does not dare to omit medication in his own practice. To jump at the diagnosis of syphilis from the mere presence of the spirochetes is fallacious. Its presence is an imperative admonition not to cauterize in any way. The deep cauterization recommended by some authors is strongly condemned. The initial lesion should be healed as quickly as possible, as it is always a source of danger to others and there is always danger of a precocious, malignant, or at least a disfiguring syphilis.

Unusual Cases of Bromide Eruption in Children.—F. C. Knowles gives an elaborate exposition of this subject, and adds the histories of four personal cases. His summary is as follows: (1) Bromide eruption may occur in those who are susceptible, independent of the dose of the drug or of the length of administration. The larger the dose or the longer the ingestion, the greater is the chance of an outbreak; (2) in most cases there are practically no constitutional or subjective symptoms; (3) because of the slow elimination the eruption may continue for some weeks after the drug has been discontinued; (4) almost any type of eruption may be present in childhood; the lesions are usually larger and more persistent than in adult life. The extremities and the face are the parts most frequently attacked; the most extensive eruption occurs in the majority of cases on the legs. (5) Lesions have great tendency to occur at points of previous inflammations, such as on vaccination scars, injuries, etc.

Journal of the American Medical Association, March 20, 1909.

Gastrointestinal Disturbances of Arteriosclerosis.—J. J. Gilbride calls attention to the disorders of the digestive tract due to general or localized arteriosclerosis. Within a few months he has treated ten cases of this class, several of which he reports in this paper. The patients are usually over 40 years of age. The symptoms are generally, first, abdominal pain, paroxysmal in the beginning, later becoming continuous, and next to this in frequency is weakness and sometimes loss of weight, the latter being due, in part, to the dieting for the dyspeptic symptoms. Abdominal distention and belching are often present and the association of dyspeptic symptoms with weakness and loss of weight may cause suspicions of malignant gastric disease. The appetite may be normal, increased or decreased, the bowels are variable, the urine is frequently lessened in amount and some patients suffer from vertigo and a few from visual disturbance. It is important to determine the blood pressure, and to some extent this can be estimated by the amount of pressure

necessary to arrest the pulse in the radial. It is advisable also to analyze the gastric contents. The treatment in the cases reported is given as ten drops of tincture of strophanthus three times a day and theobromin sodium salicylate, five grains, three times a day. In one case dilute hydrochloric acid, ten drops three times a day, was also given. An analysis of the conditions in the various cases is given as follows: "The conditions of gastric functions in four of those cases were: Motility increased in three; free hydrochloric acid, a trace in one and absent in two, normal in one; absence of lactic acid in all four, and no Oppler-Boas bacilli found. Peptic digestion was not determined in those cases, but I made an analysis in one other case recently and found peptic digestion to be normal, although hydrochloric acid was absent. In one patient (Case 3) no gastric analysis was made. Weakness and loss of weight are prominent symptoms in some cases. The abdominal aorta was tender in all the cases. The association of pharyngitis in two cases is of interest, as its symptoms had been misleading. Gastroptosis or visceroptosis was present in only one case. In some cases nitroglycerin or the nitrites give relief when other remedies are of no benefit. All of the patients whose cases are reported had been dieted and drugged for dyspepsia without relief."

Neurofibromatosis.—W. Healy reviews the literature of this subject, noting especially the cases with intradural complications. It has been held by certain authorities that the condition is a congenital pathological one, and, though only five or six cases in which the tumors are both peripheral and intracranial have been reported, it has been suggested by Roux that perhaps neurofibromatosis is always both central and peripheral, and that the evolution from benign to malignant growths determines the symptomatology. On the other hand, however, we have reports of cases running a benign course with stationary intracranial symptoms. The symptoms are, of course, those of tumor of the brain in general, which are significant for diagnosis. First, there are often simultaneous, or almost so, involvements of nerves on both sides which preclude the assumption of a single unilateral or even mesial growth. Second, there are apt to be remissions of months' duration which are hard to explain. Death is frequently determined indirectly by involvement of the vagus, causing difficulty of swallowing, etc., and consequent aspiration pneumonia. Healy reports a case which exhibits the rare combination of symptoms of intracranial peripheral involvement and presented also other peculiar symptoms which embarrassed the diagnosis for a while. During four weeks under treatment in the hospital there was no change in the patient's condition, except an increase in the tachycardia, probably due to the vagus involvement. Treatment, here, as in other cases, was unavailing. He has found no record in the literature of operation for the brain tumors, nor could it be expected to succeed, considering the multiplicity of the growths. It was reported, however, in the Chicago Medical Society by Dr. Carl Wagner that the patient came later under his care and that an *x*-ray examination revealed a cerebellar growth, for which he operated and discovered a tumor. The patient did not rally, but succumbed to quickly developing respiratory difficulties, and unfortunately no autopsy was obtained. The case is, however, clearly enough one of the few recorded cases of peripheral plus intracranial neurofibromatosis.

Septal Deviations.—N. M. Black is convinced that not only are dental and jaw irregularities a decided factor in the production of deflected septa, but that complete relief without possibility of return of the condition, when found in conjunction with dental deformities, can be secured only by first correcting the deformity in the superior maxilla. He reviews at some length the literature of the opinions as regards the etiology of septal deviation and its connection with oral and dental irregularities, and says that it is unaccountable to him that while rhinologists practically acknowledge the important part played by irregularities in the upper maxilla in the production of septal deformities, they do not apply that knowledge in the treatment of the conditions. He finds nowhere in the directions for treatment any suggestion for the correction of these deformities. It is far better, in his opinion, to seek first to increase the size of the nasal fossæ before depending solely on the removal of superfluous tissue, however beneficial that may be as a later measure. This widening, so far as his knowledge extends, can only be accomplished by widening the arch of the superior maxilla. This procedure, to be effective in enlarging the base of the nares, must be essentially different from the ordinary expansion for the regulation of the teeth in abnormal position. Such expansion relieves the pressure on the septum, which tends to straighten itself, enlarging the breathing space, and reduces the static congestion, which further adds to the nasal capacity. The turbinates become reduced in size and adenoids rarely fail to become smaller after nasal breathing is established. Black credits the successful results so far in this line solely to Dr. G. V. I. Brown and, while he differs from him somewhat in their explanation, concedes that his theory is probably correct, viz., that it is entirely due to the separation of the median palatal suture. Black thinks that there is also a lowering of the vault, the result of an outward tilting of the alveoli, which pulls the septum down. As to the age when this should be done there is some dispute. Kyle holds that little can be done successfully in the way of widening the nasal space after the seventh year, and deformations of the septum may appear before that age. Gray, on the other hand, says that the intrapalatine sutures are not obliterated until middle life, and, this being the case, widening operations ought to be possible till then. The great reason why septic deformities tend to return is, in the first place, the difficulty of removing sufficient tissue to prevent backward pressure on the septum, and, in the second place, the main etiological factor—some dental or jaw irregularity —is overlooked and goes uncorrected.

Ataxic Arsenical Neuritis.—C. M. Byrnes reports a case of this disease which is of interest on account of its infrequency and also because of its pseudotabetic features and the symptom of loss of osseous sensibility which has been hitherto unreported in this form of neuritis, though common in other forms of neuritis and in tabes. The cause was attributed at first to exposure to fresh paint containing white lead used in house painting, but it was afterward ascertained that it was due to arsenic introduced into a can of baking powder, probably with criminal intent. The loss of the vibratory sense or osseous sensibility is specially noted as occurring in the ataxic form of neuritis. It illustrates a resemblance to tabes. In reviewing 200 cases of neuritis from various causes other than multiple neuritis he has not found one case in which this symptom was present.

Uterine Fibroids and Malignant Disease.—Ellice McDonald has collected and tabulated, as regards the incidence of occurrence of malignancy, 700 cases of uterine fibroids. The tables show that adenocarcinoma of the fundus occurred in 20, or 2.9 per cent.; squamous carcinoma of the cervix in 6, or 0.8 per cent.; sarcoma in 7, or 1 per cent., and chorioepithelioma in 2, or 0.3 per cent.; the total number in the whole 700 being 35, or 5 per cent. The relative frequency of adenocarcinoma is thus seen to be much greater with fibroids than that of squamous carcinoma and the author does not accept an etiological relation between this latter form and fibromyomata, but considers them accidental. While a common etiological factor may partly explain the association of adenocarcinoma and fibroid tumors, it is probable that the fibroid has some part in causing this association. The tendency of pathologists has been to doubt the possibility of a sarcoma arising from a uterine myoma, but most now admit its occurrence. It is the form of malignancy most likely to be overlooked, as shown by Winter's figures, and that author estimates that systematic search would reveal sarcoma in about 4 per cent. of these growths. This is not borne out by McDonald's tables, in which microscopic examination was made in all cases. The two cases of chorioepithelioma malignum are supposed to be the only ones so far reported of this form as a complication of fibroids, and are of interest chiefly on account of their rarity. In the whole number of malignant growths there was only one, a squamous carcinoma, occurring in a patient under forty, and their frequency increased with each decade after that, being 5 per cent. in the fifth, 12.7 per cent. in the sixth, and 23.8 per cent. in the seventh. In view of this large percentage of occurrence of fatal disease among patients with fibroid tumors, and the great increase of such complications after the age of 40, it seems wise for a physician to advise the removal of such growths after that age. The probabilities are that malignant change will occur in one case in 20 between 30 and 40, in one in every 8 between 50 and 60, and in every 4 between 60 and 70. Were there any certain way of determining the advent of malignancy the danger might be less, but who can say how soon any fibroid may undergo this change? The smoldering fire should not merely be watched until the house is in flames.

The Lancet, March 13, 1909.

Tabes Dorsalis with Unilateral Anesthesia; a Contribution to the Pathogenesis of the Disease.—The illustrated paper of H. T. Thompson opens with a discussion of the current theories as to the pathology of tabes and

then considers the nature of the sensory changes in the disease. He says that these changes are not due to changes in the peripheral nerves, nor to a coarse lesion of the posterior roots. On comparing these changes with those due to lesions of the secondary sensory system, the similarity between them is noticeable. The separation of painful from thermal sensibility, the disassociation of the sense of passive positive from tactile sensibility are found both in tabes and in intramedullary lesions from various causes. The separation of the pain of deep pressure from the recognition of the pressure itself and its association with the loss of cutaneous pain are characteristic of both tabes and the lesions of secondary sensory neurons. Consequently we must conclude that in tabes the sensory loss is similar in character to that met with in lesions of the secondary sensory system. In tabes the primary sensory neurons are alone affected. The primary change in the disease begins in the synaptic junctions, between the primary and secondary neurons. Hence tabetic lesions must be considered as a degeneration of the pericellular network around the cells of the secondary sensory neurons. The lesion at the synaptic junctions above referred to explains how it is possible that the various tactile and painful, thermal, etc., sensations may be affected, alone or in conjunction. A gradual affection of the first synaptic junction would explain the characteristic delay in response to stimulation, which is more often present in tabes than in any other sensory affection. The author does not believe that meningeal thickening around the posterior nerve roots is a causal factor in tabes. The initial lesion rather lies within the cord itself. The paper concludes with an interesting history of the case of a woman of 51 years, in whom the anesthesia was unilateral, so that a comparison with normal sensibility could be accurately made. In addition, the psychophysical examinations were made under favorable conditions, and as the patient died shortly after from heart failure, due to syphilitic mesaortitis, it was possible to examine the cord. Full pathological findings are given.

Hydrochloric Acid in the Gastric Contents of Cancer.—The paper of S. M. Copeman and H. W. Hake is a reply to criticisms of B. Moore on a previous contribution of the joint authors, and must be read by those interested in the argument. It does not lend itself to abstracting.

Medical Ionization: Its Uses and Possibilities.—After explaining ionization, its method of application, and the tissue changes which it causes, N. S. Finzi says that ions may be used for general or local effects or for both. The general effects are about the same as those following the internal administration of the various drugs, but ionized drugs act more slowly and continue acting much longer, owing to their being only gradually disengaged from the combination which they form in the tissues into which they are driven. For purely general effects oral administration of the drug ionized as much as possible by being dissolved in a large quantity of water will, on account of its duplicity, be generally used. Many ions used for local medication pass into the system and exert constitutional effects. Purely local therapy may be directed toward the skin or the deeper parts, such as joints, muscles, and tendons. Another local use is to extract ions from the tissues, *e.g.* uric acid ions in gout. The author describes the simple galvanic apparatus required and its methods of application. He enumerates the various remedies used in this way and the lesions to which the method is applicable.

British Medical Journal, March 13, 1909.

A Case in Which Enterospasm Was a Pronounced Feature, Necessitating Abdominal Section Four Times Within Ten Months.—C. W. Dean refers to a case previously reported by a colleague under the title, "The Reality of Enterospasm and Its Mimicry of Appendicitis," and then gives notes of the case of his own patient, who was a woman of 28 years. Laparotomy was performed four times in less than ten months, a cyst of the ovary was removed at one operation; enterotomy at another; four inches of small gut removed at a third, and seven inches at a fourth. The ultimate result was that the patient is now in excellent health and feels perfectly well. The symptoms in all the attacks were those of acute abdominal pain and intestinal obstruction and were in each case urgent. At the final operation a loop of small gut was found tightly strangulated by an adhesion which had formed after one of the previous operations, and had become slightly gangrenous. In the author's view enterospasm accounts for many of those instances in which the acute symptoms simulate gastric ulcer or obstruction, symptoms perhaps not classical, but of such urgency as to allow of no delay, but in which nothing has been found on abdominal section to justify operation.

Diagnosis and Treatment of Chronic Ulcer of the Stomach and Duodenum.—Alexis Thompson analyzes 50 personal cases, in which the existence of ulcer was demonstrated on operation. The ulcer was in the pyloric ring, or antrum in 16, on the lesser curvature in 12, and in the first part of the duodenum in 17. In the remaining 5 there was more than one ulcer, one being in the duodenum in all of them. Thirty were in males and 20 in females. Age ranged from 21 to 67 years. The average for the onset of gastic ulcer was 32 years and for duodenal ulcer 38 years. In 3 there was no pain, in 3 little or no pain (all these involved the duodenum); in 8, more or less constant pain. In 4, there was an hour-glass contraction. In 10, pain was relieved by taking food. Tenderness over the epigastrium was present in 16, vomiting in 42, and hematemesis in 29, and in 11 there was also hemorrhage from the bowels. Constipation was almost universal and peristalsis was visible in 5. The author believes that in the majority of instances a differential diagnosis is possible between the two localities referred to in the title. He says that the chronic ulcer can be cured only by surgery and he advises operation because the ulcer will not get well otherwise, because the ulcer and its complications are the cause of considerable suffering and prevent the patient from working, and because the ulcer may become dangerous to life through starvation, hemorrhage, perforation, and transformation into cancer. The choice of operation lies between resection and gastroenterostomy. The author's operative results are as follows: Resection of stomach, 3 cases, with one death. Of the survivors, one well three years and three months later, one well two and a third years later, but with occasional pain and flatulence; gastroenterotomies, 47 with three operation deaths, two due to a bad vicious circle and one to septic peritonitis. Of the operation survivors, one was lost sight of, one died from each of the following: Exaphthalmogoitre, gastric cancer, urinary sepsis with enlarged prostate, and two from what their own doctors reported as acute enteritis. The remaining 38 patients are under regular observation, and all have done well.

Primary Diffuse Pneumococcic Peritonitis Treatment by Drainage and Pneumococcic Vaccine; Recovery.—H. B. Robinson's patient was a girl of 8 years with a tuberculous family history, who had a habit of holding her water for long periods. She was suddenly seized with abdominal symptoms suggestive of peritonitis with a boggy feeling for rectum on the right side and in Douglas's pouch. To the surgeon the condition suggested a perforative peritonitis due probably to a gangrenous appendix. The peritonitis was found to be typical, but the appendix was normal. For forty-eight hours after the operation the course was uneventful, but then her temperature began to rise and two days later it was proved that the peritoneal effusion was a pure culture of the pneumococcus and the vaccine treatment was begun, with happy results. She left the hospital well in about six or seven weeks. The diagnosis of this special form of peritonitis can hardly be made without the aid of bacteriology.

Berliner klinische Wochenschrift, March 1 and 8, 1909.

Frequency of Tuberculosis at Autopsies.—Beitzke has carefully examined 1,100 bodies, 397 of them belonging to children under fifteen years of age and 703 to adults, for signs of active, latent, or cured tubercular infection. Of the children, 13.6 per cent. proved to be tubercular: if infants under one week, all of whom were free from the infection, are excluded, 27.3 per cent. of the others showed signs of the disease. The percentage of tuberculous children under one year is quite small; it increases with the increase of age, and between six and fifteen years almost two-thirds of the children proved to be affected. On the other hand, the mortality from tuberculosis among children diminished with age, the lesions in the older ones being mostly of local character and but rarely the cause of death. Of adults, 58.2 per cent. proved to be tuberculous, the greatest number falling between the ages of sixteen and thirty. Of all the bodies, with the exception of infants under seven days, 51.4 per cent. proved to be tuberculous, 16.9 per cent. dying of the infection. While these figures are very high, yet they do not justify the statement of Naegeli that every adult is or was tuberculous. One might say correctly, however, that of the bodies reaching the autopsy table in a large city the great majority show signs of tuberculous infection. Comparison with earlier figures shows that the mortality from tuberculosis in such cities as Berlin has greatly diminished in the last ten years. So far as the general population is concerned, it remains true, however, that about one-half of all men show signs of tubercular disease at some time of their lives

Resection of the Hip-Joint for Tuberculosis.—König says that early resection of the hip-joint for tuberculosis has lost its popularity since the introduction of various orthopedic measures of treating the disease. There remain, however, a number of cases in which operative treatment is to be preferred to immobilization; the mere ease with which orthopedic treatment may be applied should not serve as an excuse for persisting in such treatment in the presence of extensive destruction of bone, with the formation of abscesses and fistulæ. The aim of every resection about the hip-joint should be to remove the diseased tissues completely; the failure of old surgeons in treating the disease was often due to the failure of fulfilling this important indication. König has treated altogether 568 cases of tuberculosis of the hip, 457 of whom were treated in the conservative manner from the beginning, but in 173 operation had to be done at a later date. Of those treated to the end by conservative measures 114 recovered function enough to be able to go about without the help of crutches or canes. Of the 274 patients on whom early resection was performed 66 were cured; that is, were enabled to walk well and showed no fistulæ. In quite a number of cases the results were excellent, the patients being able to walk long distances without difficulty. The mortality was greater among those who underwent resection, but this is explained by the greater severity of the pathological process in such cases and by the dangers of the operation in itself. As compared with resection of the hip for non-tuberculous osteomyelitis, the prognosis in cases of tuberculosis is much more unfavorable. Yet the above results show that resection of tuberculous hips in well-selected cases is a perfectly justifiable and successful operation.

Münchener medizinische Wochenschrift, March 2 and 9, 1909.

Effects of Laparatomy Upon the Lungs and Heart.—Lichtenberg has carefully examined one hundred patients before and after laparotomy in reference to the condition of their lungs and heart. Thirty-five patients showed pulmonary complications as a result of the laparotomy, while thirty-eight others developed a bronchitis. Only twenty-seven remained without any pulmonary or bronchial disturbance after the operation. Blood pressure fell in all patients who were operated upon under general anesthesia, remaining below the usual height for several days; the use of local anesthesia usually led to a rise in blood pressure. Lichtenberg concludes that pulmonary complications are much more frequent after an operation than is usually thought; the frequent rise in temperature after aseptic surgical procedures is probably due to such complications in a great number of cases. The lungs begin to show signs of such complications within two or three days after the operation. This fact shows that post-operative pneumonia is not due to the anesthetic, but must be referred to other causes, such as embolism.

Salt in Diet.—Mendel says that in the past it was thought that salt was quite an indifferent part of the diet, taking no part in metabolism and simply serving to make up for the amount excreted by the kidneys. It has been now shown, on the other hand, that salt can produce an edema or anasarca in the presence of diseased kidneys; such edema may be made to disappear with the cutting off of the salt in the diet and be made to reappear again on addition of salt. Even with normal kidneys susceptible persons may show water retention on great increase of salt in their daily food. The primary event in this cycle is the retention of salt, which is followed by the retention of water in the tissues; in healthy organisms, however, such retention is soon followed by copious secretion of fluids from all secreting glands. This fact has been proved by giving large saline infusions in animals, and it may be utilized in treating such conditions as peritonitis or a toxemia arising from any source. Abundant infusions of saline should be practised so that the current of fluids from the tissues is much more rapid than usual; such infusions may in this way lead to rapid detoxication of the organism. Salt retention alone, however, does not lead to the transudation of fluids into the tissues; it is followed by edema only if the blood-vessels have been damaged by some toxin, and in acute nephritis, which is so often accompanied by edema, the usual etiological factor such as an acute infection gives rise to such damage. In chronic nephritis the albuminuria of long duration gives rise to insufficient nutrition of the vessel walls, and as soon as salt retention occurs water is taken up from the vessels by the tissues.

Psychoneuroses and Gastric Disturbances.—Fleiner says that even in the normal animal the interdependence of psychic and digestive functions is very important. In disease this relation is often the overwhelming factor in the production of symptoms and their nature. The pathological changes may be quite similar in a number of cases, all different in their symptomatology because of the difference in the psychical natures of the patients. Strong characters often endure the results of anatomical and functional changes in such a manner that the disease in them is really latent; asthenic individuals present a variety of symptoms differing almost with each individual patient. To help these patients one must remember that they are to be treated, not their disease. Digestive and reproductive functions and organs, with their disturbances, stand in such close relations to the psychic life of the patient because they are closely connected with the self-preservatoin of the individual and the continuation of the race, two elemental forces in an animal. The usual explanation of the etiological relations between digestive disturbances and neuroses, which depends upon the continuous irritation of the nervous system by stimuli from the digestive organs carried by vagas and sympathetic nerves, is true only in the minority of cases. The opposite is often true in so-called nervous disturbances of digestive function, the state and changes in the central nervous system being primarily responsible for the digestive neuroses. Fear, anguish, shock, psychic phenomena of most varied nature have an extremely important effect upon the motor, secretory and digestive functions of the stomach and intestines. Indeed, one can say that there are no primary nervous dyspepsias; instead, there exist only functional disturbances of gastric and intestinal functions of psychogenetic character. Once such diagnosis is assured, the treatment must be psychotherapeutic; medicines and other measures are only adjuvants. The frequency of such psychogenetic disturbances of the digestive function is shown by the fact that one-third of Fleiner's patients may be classed in this category.

Bacilli Carriers.—Liefmann says that the danger of chronic bacilli carriers has been somewhat overestimated. Statistical studies show that only 4.11 per cent. of typhoid fever cases are due to infection through such individuals. He had placed a number of bacilli carriers together in one large apartment of an institution; no transmission occurred to inmates in other apartments until a fresh case of typhoid fever was placed among the bacilli carriers. The management of bacilli carriers should consist mainly in instructing them of the danger of transmitting disease and of the necessity of caring for the proper disposal of their excreta. Isolation is possible only in cases of insane persons; it is otherwise justifiable only when the carriers of bacilli are employed in industries connected with the preparation and transportation of food. Operations, such as removal of the gall-bladder, have proved useless. Liefmann has tried the soured milk, prepared with Bulgarian bacilli, and recommended by Metschnikoff, in the treatment of three chronic bacilli carriers. Within a few weeks the typhoid bacilli disappeared from the feces. The author urges others to try this measure for ridding the gastrointestinal tract of typhoid bacilli in persons harboring them and not presenting any symptoms of typhoid fever.

Visual Auras of Epilepsy.—A. Rodiet and F. Cans describe the different kinds of aura preceding epileptic attacks which may be referred to the eyes. They include troubles of accommodation photopsia, amolyopia, and ocular tension, followed by complete blindness for a short time. There are motor auras, including convulsive movements of the eyes, nystagmus, and winking. There are sessory auras, consisting of painful feelings in the eyes. Another type of aura consists of the seeing of colors, the inability to distinguish colors, macropsia and micropsia, seeing of lights and stars. There may be difficulty of accommodation. Personages are reproduced by the eye that are causes of fear to the patient, dressed in peculiar ways and colors. The faces grimace at the patient. Others see themselves surrounded with flames from which they must escape, or globes of fire pass before them and objects scintillate. Again, the patient sees blood. The authors cite six interesting cases, and end with the statement that these visions, colored or not, are generally frightful, and the expression and gestures of the patient indicate severe fright. Motions of defense may result in injury to other persons, and account for impulsive acts of which the patient is unconscious, but which make the epileptic dangerous to his surroundings. Such attacks are often followed by delirium.—*Archives de Neurologie.*

Book Reviews.

Essentials of Dietetics in Health and Disease. A Text-book for Nurses and a Practical Dietary Guide for the Household. By Amy Elizabeth Pope, Author with Anna Caroline Maxwell, of "Practical Nursing," and Instructor in Practical Nursing and Dietetics in the Presbyterian Hospital School of Nursing; Instructor in Dietetics in the Schools of Nursing of the New York Hospital, Mt. Sinai Hospital and Smith's Infirmary, Staten Island; and Mary L. Carpenter, Director of Domestic Science of the Public Schools, Saratoga Springs, New York. New York and London: G. P. Putnam's Sons, 1908.

The first part of this volume is occupied with the Principles of Dietetics, and contains chapters on: Food; digestion and absorption; milk and milk derivatives; eggs; fish; meat; plant foods; dietaries; feeding of infants and children; and diet in disease. The remainder of the book is taken up with numerous recipes. The work is written in a simple and lucid style, and should be useful to the class of readers for whom it is prepared. The practical portions of the book are, we think, superior to the more scientific sections; these latter, indeed, are occasionally inaccurate. For example, the opening sentence of the book is "Food is the chief factor in maintaining life"; we are inclined to think that oxygen occupies the chief position. It is also stated that there is one per cent. of hydrochloric acid in the gastric juice; most authorities give it as 2 or 3 parts in a thousand. The section on chemical abbreviations is unnecessary in a book of this description, and instead of correcting it in a future edition, it would be better to omit it.

Grundriss der psychiatrischen Diagnostik nebst einem Anhang, enthaltend die für den Psychiater wichtigsten Gesetzesbestimmungen und eine Uebersicht der gebräuchlichsten Schlafmittel. Von Prof. Dr. Raecke, Privatdozent und Oberazt der psychiatrischen und Nervenklinik in Kiel. Mit 11 Textfiguren. Berlin: August Hirschwald, 1908.

This is a small book intended, as its title indicates, to be merely a guide in diagnosis of mental disorders. Methods employed in neurological examinations are also outlined where they have a bearing on these disorders. The writer gives first a carefully prepared scheme for the anamnesis, comprising the heredity, development, and later life of the patient, and the further etiology, inception, and development of the psychosis; then the physical examination of the patient, and finally the mental examination. These general investigations comprise one hundred pages, and the special part, devoted to the diagnosis of the special forms of mental disorder and to the hypnotics most commonly employed in these diseases, occupies the remaining thirty-seven pages. The classification followed is that of Binswanger and Siemerling. Professor Siemerling writes the preface, and stamps the book with his approval. The examinations, both psychic and somatic, as outlined, are very thorough and along the lines of recent scientific investigation.

Gynecology and Abdominal Surgery. Edited by Howard A. Kelly, M.D., F.R.C.S. (Hon. Edin.), Professor of Gynecologic Surgery at the Johns Hopkins University; Gynecologist to the Johns Hopkins Hospital, Baltimore; and Charles P. Noble, M.D., S.D., Clinical Professor of Gynecology at the Woman's Medical College, Philadelphia; Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Illustrated by Hermann Becker, Max Brodel, and others. Volume II. Philadelphia and London: W. B. Saunders Company, 1908.

The final volume of this handsome work contains chapters on Complications following operations, by G. B. Miller; Cesarean section and Porro-cesarean section, by J. F. W. Ross; Operations during pregnancy, by R. C. Norris; The operative treatment of sepsis in the child-bearing period, by B. C. Hirst; Extrauterine pregnancy, by J. W. Williams; Diseases of the female breast, by J. C. Bloodgood; Operations upon the gall-bladder, bile-ducts, and liver, by A. J. Ochsner; Operations upon the stomach, by B. G. A. Moynihan; Pyloroplasty, by J. M. T. Finney; Intestinal surgery, by J. B. Murphy; Operations for diseases of the vermiform appendix, by H. A. Kelly and E. Hurdon; Surgery of the Pancreas, by E. L. Opie; Surgical treatment of diseases of the pancreas, by S. H. Watts; Operations upon the spleen, by H. A. Kelly; Tuberculosis of the peritoneum, by G. B. Johnston; Penetrating wounds of the abdomen, by F. W. McRae; Hernia, by G. L. Hunner; Operations for inguinal hernia in men, by E. Martin; Use of drainage in abdominal and pelvic surgery, by B. M. Anspach; Surgery of the ureter, by H. A. Kelly, and Surgery of the Kidney, by C. T. Noble and B. M. Anspach. It is impossible to give an adequate idea of the contents of this volume; but each chapter is good of its kind, and many of the contributors are well known as authorities on their respective subjects, and noted for their literary ability as well as for their ripe knowledge and technical skill. The result is that in these volumes we have a series of monographs of value to the gynecologist and to the surgeon. It may be remarked, however, that Hirst's chapter on The Operative Treatment of Sepsis in the Child-bearing Period, is practically taken verbatim from his text-book on Obstetrics; and the same criticism applies almost equally to Williams' chapter on Extrauterine Pregnancy. Possibly this is all right, and doubtless when arranged between authors, editors, and publishers it is legally honest; but it is hardly fair to the purchasers of an expensive work to hand them, in two of the most important chapters, virtual reprints of what they are exceedingly likely to have already on their shelves. Most men have a decided objection to paying twice for the same article, literary or otherwise, and especially do they dislike to be given old articles in what they are led to believe is an up-to-date publication. We made a similar criticism on one of the chapters in the former volume. Bloodgood's contribution on Diseases of the Female Breast is one of the best in the volume, but he makes the term "abdominal" very elastic when he includes supraclavicular dissection and operation.

A Manual of Obstetrical Technique as Applied to Private Practice, with a Chapter on Abortion, Premature Labor, and Curettage. By Joseph Brown Cooke, M.D., Adjunct Professor of Obstetrics in the New York Polyclinic Medical School and Hospital, etc. Illustrated. Sixth edition, enlarged and fully revised. Philadelphia and London: J. B. Lippincott Co., 1908.

Reviewing a book which has gone through six editions in a comparatively short space of ten years, may be regarded as a rather difficult task. Its faults have probably all been noted by previous reviewers and their suggestions adopted, if considered suitable, by the author. In the present instance we find a work which in its sixth edition has been carefully rewritten and a variety of changes incorporated. The book is addressed primarily to the younger practitioners of medicine, who have had their theory in college and have perhaps witnessed a few cases of delivery in a maternity hospital. Their knowledge may be difficult to apply in private practice for obvious reasons. The writer has attempted to reach this class by eliminating the hospital idea and by bringing forward not the methods practiced at maternity institutions, but those which may be developed in the homes of the patients. Whatever favorable comment has been passed on previous editions may likewise be accorded to the present. The chapters on version, forceps, mutilating operations, and the induction of premature labor have been rewritten and extended. There are many commendable features in the book, although exception may be taken to some of the author's individual statements. Thus the recommendations accorded to the Tarnier forceps as an instrument to be purchased by a beginner, must be regarded as of doubtful value, the experience of many being that it is a highly dangerous instrument in the hands of any but the most experienced. Another statement which seems to require modification is that a woman during the eighth month of pregnancy, may be permitted to extend her walking to an average of six miles daily. There are many very valuable suggestions in the book for the conduct of pregnancy and labor and the entire subject matter is presented in concise and readily understood form. The illustrations are also worthy of comment, being entirely free from attempts at "artistic" effect.

A Manual of Prescribing; For Students and Practitioners of Medicine. By C. R. Marshall, M.D., Professor of Materia Medica and Therapeutics in the University of St. Andrews, Assistant Physician to the Dundee Royal Infirmary. London: J. & A. Churchill; Philadelphia: P. Blakiston's Son & Co., 1908.

This is the most solid and complete work on prescriptions and prescription writing that we have seen in a long time. It is written from the standpoint of the medical practitioner, hence it is not a treatise on dispensing. It contains very important chapters on incompatibility, and examples of incompatibility; the latter of these two chapters has full notes on all the prescriptions employed. There are two appendices to aid those readers who are unfamiliar with the Latin names of drugs and their preparations, and the names of medicinal forms; etc. An English-Latin vocabulary is also added for reference. The work is unusually accurate, and can be recommended to medical students as a safe guide.

Pharmacology. The Action and Uses of Drugs. By Maurice Vejux Tyrode, M.D., Instructor of Pharmacology in the Medical School of Harvard University. Philadelphia: P. Blakiston's Son & Co., 1908.

In this volume the author supplies the medical student with a small and concise text-book containing the essentials of pharmacology. Facts only are given, and scientific discussions on doubtful points are avoided. The general action of drugs is emphasized, but mention is also made of their uses and applications, together with the preparations and doses. Medical students and general practitioners will find the book useful for review purposes

Report from the Pathological Department, Central Indiana Hospital for Insane, 1903-1906. Indianapolis: Wm. B. Burford, 1908.

This is a volume of nearly four hundred pages. It comprises a summary of three years' work in the pathological department of this insane hospital; and consists chiefly of the clinical reports combined with the gross and microscopical findings in 147 autopsies performed during that time. The older mental classification is adhered to. There is apparently no special original work.

High-Frequency Currents. By Frederick Finch Strong, M.D., Instructor in Electro-Therapeutics at Tuft's College Medical School, Boston. With 183 illustrations in the text. New York: Rebman Company, 1908.

Dr. Strong defines high-frequency currents as electrical vibrations, artificially produced, which bear a certain relation to the currents which traverse the nerves in the maintenance of life in the human body. Being vibrations, rather than flowing streams of electrical particles, as he says, the high-frequency currents pass through the human organism without sensation. The development of these currents is ascribed to d'Arsonval and Ouidin, while their practical application has been mainly from the work of Tesla and Elihu Thomson; and the development of technique by the author, himself, who for ten years has been engaged in a clinical and laboratory study of high-frequency currents of various types. The present work is devoted mainly to the physical laws and methods of using various apparatus for the production and application of high-frequency currents. In this he has gone into most minute details and shows a thorough knowledge of the subject. Less than thirty-five pages of the book are devoted to actual therapy; but sufficient is outlined to indicate a greater optimism on the part of the writer than the teachings of clinical experience and pathology permit most of us to possess. We are willing to acknowledge, however, the usefulness of high-frequency currents in certain metabolic and other disorders and in some nervous affections, while expressing some doubt as to their utility in infectious and malignant diseases. Again, some patients may object to the time lost and trouble incurred in obtaining treatment by high-frequency currents. For example, to relieve and abort acute coryza the writer recommends Tesla vacuum treatment with a metal electrode over the solar plexus and vacuum electrode in the nostrils; and he states that "ten-minute treatments, given at intervals of three hours so long as the acute symptoms remain, should be given daily for a week after the attack has subsided. It is well," also, he says, "to terminate each seance with a five-minute application of (the author's) high-frequency wave current applied with electrodes at the base of the brain and over the solar plexus." All for an attack of acute coryza. The author believes, however, thoroughly in the wide therapeutical application of high-frequency currents, and will soon publish, he says, a treatise on the subject.

Applied Surgical Anatomy, Regionally Presented, for the Use of Students and Practitioners of Medicine, by George Woolsey, A.B., M.D.; Professor of Anatomy and Clinical Surgery in the Cornell University Medical College, Surgeon to Bellevue Hospital, Associate Surgeon to the Presbyterian Hospital, Fellow of the American Surgical Association and of the New York Academy of Medicine. Second Edition, enlarged and thoroughly revised, with 200 illustrations, including 59 plates, mostly colored. New York and Philadelphia: Lea & Febiger, 1908.

In spite of the number of recent works on surgical anatomy, it is not surprising to see a second edition of this book; for from its first appearance it was recognized as combining in an unusual degree the two important features of accuracy of statement and clearness of expression. The second edition represents a careful revision; and the subject matter has been elaborated where it seemed necessary. The sections on cerebral localization, craniocerebral topography, abdominal viscera, pelvic viscera, and spinal cord have been rewritten or amplified. There is an admirable summary of the present knowledge of the parathyroids. Altogether the volume has been enlarged by about eighty pages and almost the same number of illustrations. The work is of equal value to the surgeon, the general practitioner, and the student; it is not only surgical anatomy, but also anatomical surgery and anatomy applied to medicine (as well as to surgery). It is a most useful and satisfactory volume.

The Therapeutics of the Circulation. Eight Lectures Delivered in the Spring of 1905 in the Physiological Laboratory of the University of London. By Lauder Brunton, Kt., M.D., D.Sc., LL.D. (Edin.), LL.D. (Aberd.), F.R.C.P., F.R.S., Consulting Physician to St. Bartholomew's Hospital. Published under the auspices of the University of London. With 240 illustrations. Philadelphia: P. Blakiston's Son & Co., 1908.

It is always a privilege to hear a lecture by Sir Lauder Brunton, at least so say those who have enjoyed it, and we can well believe it when we know the pleasure of reading any of his lectures on a subject in therapeutics. In this charming book are eight lectures delivered in the spring of 1905 in the physiological laboratory of the University of London, in accordance with the general purpose expressed in the establishment of the laboratory, "to present the results of recent investigations by the investigators themselves, orally and with experimental demonstration in the lecture-room, and outside the lecture-room by monographs approved by the university." The lectures are said to be on the therapeutics of the circulation, but the author is well along in the course before he refers in any but the most cursory way to the question of treatment. He begins with the physiology of the circulation, including the methods and instruments employed in the measurement of the blood pressure. Then comes a consideration of the pathology of the circulation, followed by a discussion of valvular diseases, and finally the lecturer takes up the method of treatment in cardiac diseases. The reader has no regrets over this division of subjects, and the delay in coming to the title subject, for the section on physiology especially is most interesting and instructive. The author was a pupil of Kronecker, to whom he dedicates the book, and his work contains many references to the views of this physiologist which are not familiar to all American students of the circulation. Among the various sphygmomanometers pictured and described we note Janeway's, but the author does not appear to be familiar with the simple and ingenious device of Bishop of New York. The book is throughout most practical and instructive, yet withal as entertaining as a novel.

Vaccine Therapy and the Opsonic Method of Treatment. A Short Compendium for General Practitioners, Students, and Others. By R. W. Allen, M.D., B.S. (Lond.); Late Pathologist to the Royal Eye Hospital; Late Gull Student of Pathology, Guy's Hospital. Second Edition. Philadelphia: P. Blakiston's Son & Co., 1908.

The author here presents the latest evidence in favor of the modern opsonic treatment of disease. He shows enthusiasm throughout, and is an evidently ardent supporter of these much disputed methods. In the present state of our knowledge we believe that a more conservative attitude would be in greater accord with the facts, but enthusiasm is necessary when investigating new ideas and trying them thoroughly.

The first chapter deals with the nature of opsonins, their site of formation, and their fate in the organism. The following chapters give the general principles involved in vaccine therapy, the regulation of dosage, the methods of raising the index, and the determination of the negative and positive phases. The question of the accuracy of the method of estimating the opsonic content of the blood is taken up, and the writer acknowledges the difficulty and delicacy of the operations. The following chapters deal with the preparation of the various vaccines for tuberculosis, staphylococcus, and streptococcus infections, gonorrheal, catarrhal, typhoid, and other diseases. The author throughout shows that he is conversant with his subject, and that he believes that future medical practice will employ these methods to replace those now in use.

L'examen fonctionnel de l'intestin. Par le Prof. Dr. A. Schmidt. Traduit par le Dr. R. S. Kolbé. Paris: Vigot Frères, 1909.

Schmidt's work on the functional examination of the intestine by means of his test diet is quite well known. The present book is an excellent translation of the original. A few drawings have been added to the text and increase its value.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held February 26, 1909.

DR. H. SEYMOUR HOUGHTON IN THE CHAIR.

A Study of Eunuchoidism in Its Various Aspects, and Its Bearings to Allied Pathological States.—Dr. B. ONUF presented a communication on this subject. Eunuchoidism, he said, bore a close relation to eunuchism, symptomatically, as well as etiologically. In both cases the symptoms were due to persistent loss of internal secretion of the testes, sustained at any early age, or congenital. Eunuchism was brought about by the removal or destruction of the testes by mechanical means; eunuchoidism by traumatism or pathological processes affecting the testes more or less directly, or through nervous influence. Cryptorchidism also might give rise to eunuchoidism, with loss, in some cases seemingly with preservation, of the fertilizing faculty. Eunuchoidism might be either congenital or acquired. The known congenital cases were pseudohermaphroditic states associated with testicular aplasia or hyperplasia, cryptorchidism, anorchidia, and congenital atrophy of the testes. A sharp line between anorchidia and congenital atrophy probably did not exist, anorchidia being, according to LeDentu, probably an atrophy of the testes acquired at a very early period of fetal development. Eunuchoidism might also be hereditary (Sainton, Onuf), and might be transmitted through females. The cases of acquired eunuchoidism were mostly those of acquired atrophy of the testes, namely, traumatism of the testis or epididymis, including torsion of the spermatic cord; hereditary syphilis affecting the testis (Dupré); orchitis of the acute infectious diseases, particularly mumps and, according to Wolbarst, malaria (perhaps also smallpox); injury or diseases of the nervous centers or nerves controlling the nutrition of the testis, *i.e.* lesions involving the spermatic plexus or lumbospinal cord, or lesions of the neck or the occiput, cerebellum or cervical sympathetic. Eunuchoid facies with, to all appearances, normal sexual organs, might be due to disease of the so-called interstitial gland of the testis, with preservation of the external secretion, containing the spermatozoa; in other words, it might represent a philogenetic reversal of type, such as was seen in the Indian race and many Eastern people. Regarding power of fertilization and vitality of the offspring, the histories of the married cases of eunuchoidism showed on the one hand an expected result, *i.e.* a large percentage of sterility associated usually with complete absence of emissions on the part of the eunuchoid husbands; on the other hand, the relative frequency of abortion in those cases in which fertilization was alleged to have occurred, pointed to a lack of vitality of the offspring. Regarding the ultimate viability of living offspring of eunuchoids, the figures did not give definite information. Both power of procreation and vitality of offspring, however, apparently depended to a great extent on the degree of sexual hypoplasia or atrophy, as would naturally be expected. Nevertheless, conclusions as to the power of procreation and vitality of offspring from the size of the sexual organs and particularly of the testes were by no means reliable. The sexuality of eunuchoids was gauged predominantly by the degree of testicular hypoplasia or atrophy accompanying it. The more marked the latter, the greater the loss of sexual desire, sexual potency, and power of fertilization; but the impairment of sexual desire and potency seemed to depend more on the degree of reduction in size of the penis, than on that of the testes. No case presented unquestionable aberrations in the domain of the sexual psyche other than those due to absence or diminution of the sexual [illegible] Actual perversion of sexual [illegible] particularly in the direction of homosexual feeling [illegible] attraction toward the same sex, was not proven in any of the cases, although one case was slightly suggestive of psychic hermaphrodisia while, in another case, erotogenic factors seemed to cause disgust or aversion rather than erotism. The general mental traits of eunuchoids of marked degree were child-like simplicity, effeminacy of manner, child-like emotivity, domestic inclinations, lack of courage, to which there were notable exceptions, however, even in the marked cases. So far as the speaker's opportunities of observation went, which, though unusually favorable as to the number of cases seen, were subjected to certain restrictions, applying also to the sexual psyche, he said he was unable to substantiate even for the sexually typically cases of eunuchoidism, as a class, the low moral qualities attributed by many authors to eunuchs, in spite of the close affinity of one class to the other, and in no case were general ethical shortcomings found that did not come within physiological boundaries. Neither had he been able to confirm in two personally observed cases of eunuchoidism from accidental traumatism, the low mental and particularly the low ethical standard claimed for eunuchs. In none of the cases of eunuchoidism under observation was any psychosis stated, but two cases were reported as imbeciles to the immigration authorities. Eunuchoidism in a certain class constituted a social menace, chiefly in relation to matrimony and because of the possibility of the hereditary transmission of the defect.

The Further Separation of Antitoxin from Its Associated Proteins in Horse Serum.—Dr. EDWIN J. BANZHAF read this paper. He said that the observation of Stark, who showed that when egg albumin was heated for one hour at 56° C. a portion of it was converted into a body which, because of its precipitation and solution reactions, and also because its composition was obviously a globulin, excited his curiosity as to the resulting conditions in antitoxic horse serum. In this observation citrated plasma and partially purified antitoxin solutions were heated. With this in view, he carried out a large series of experiments with results that were rather gratifying as to further purifying the antitoxin at least 50 per cent. more than by the former methods. This was extremely interesting from the scientific standpoint in that it opened a new field for further investigation, which might throw some light on the chemical characteristics and the nature of the antitoxins. Soon after the protective and curative value of diphtheritic antitoxin serum was assured, investigators attempted to isolate the active agent. The earlier attempts included precipitating the proteins of the antitoxin serum with practically all known protein precipitants. Later the investigators confined their attempts to precipitating the globulins containing the antitoxin with saturated magnesium sulphate and with half saturation of ammonium sulphate. Attempts to isolate and establish the non-protein nature of antitoxin from the standpoint of its digestibility with trypsin had so far failed. The methods which had been proposed for the partial isolation and concentration of antitoxin were for the most part tedious and peculiar. The earlier investigators located the protein which carried the antitoxin and noted the globulin-like characters of this active agent. None of these methods, however, was practical for therapeutic use. He said that Park's suggestion of fractioning the globulins in the serum with ammonium sulphate was taken up by Gibson and himself with very satisfactory results. In the high fraction giving a concentration separating the remaining unconverted albumin from this series, the increase of antitoxic units per gram protein, was 60 per cent after six hours' heating, increasing to to 78 per cent. after forty-eight hours. The seventy-two-hour heating showed an increase of 73 per cent. over the native serum. Citrated

plasma under the same conditions gave practically the same results. Gibson's antitoxic globulin solution (blood alkalinity) containing only that globulin in saturated sodium chloride solution was heated under the same conditions. The potency loss was 5 per cent. for the six-hour period, and an increasing loss up to 23 per cent. for the seventy-two-hour period. The soluble globulin converted into an insoluble condition (in saturated sodium chloride solution) was 30 per cent. after six hours' heating, increasing up to 47 per cent. after seventy-two hours. The increase of antitoxic units per gram proteid was 37 per cent. after six hours' heating, increasing up to 53 per cent. for the twenty-four hours. This work which was being carried out further was practical and scientifically important, and might throw some light on the chemical characteristics and the nature of the antitoxins.

The Value of the Milk Free Diet and Enteroslysis in Typhoid Fever.—Dr. Robert Coleman Kemp read this paper and said that he would endeavor to demonstrate that the milk free diet in typhoid fever, first suggested by A. Seibert, was based upon absolutely scientific facts. In addition to the changes in the lymph glands of the small intestine, notably of the ileum, in about one-third of the cases the glandular elements of the large intestine were involved; and in all cases an acute catarrhal condition existed throughout the small and large intestine. This important feature seemed to have been lost sight of when the question of a correct diet was brought up for consideration. In discussing the diet in typhoid fever, he especially desired all to keep in mind the disturbances of the functions of the gastrointestinal tract, the presence of the universal intestinal catarrh, and the condition of general infection. During the past few years there had been practically three methods of diet advocated in typhoid fever, viz., (1) the full diet (rich albuminous); (2) milk diet, with milk, or fermented milk, as a basis; (3) fluid diet without milk, by means of strained soups. As the result of the use of the milk free diet in typhoid fever, Dr. Kemp said he had noted the tympanites and temperature lessened when the milk was withheld, and increased when milk was again administered. With milk free diet, his patients had had much less tympanites, the temperature had been much lower, and the disease had run a milder course. In fact, by this method, combined with rectal irrigation and the ingestion of large quantities of water, the temperatures had kept generally below 102.5° F., so that the friction bath (Brand), or the Nauheim bath could be omitted. The following, constituting milk free diet, were of service: strained rice, barley, oatmeal, and chicken broths. Strained thin pea, potato, or vegetable soups could be occasionally given for variety. From one quart to a quart and a half, as the maximum amount of the broths, should be given during the twenty-four hours in divided doses every three or four hours, the last feeding no later than 9 P. M. In marked nephritis he omitted the chicken broth. Gelatin had a certain value as a food. Voit had shown that though it did not build up new tissue, it might diminish tissue waste. He gave stout people no gelatinous food. Gelatin lessened the tendency to hemorrhage, but was contraindicated where there was thrombosis. A large quantity of water should be administered, to which should be added dilute sulphuric or nitromuriatic acid, rendering the water slightly acid to the taste; this caused a stimulation of the gastric secretion. When the temperature reached 102.5° F. he stopped all nourishment, giving only water, three or four quarts in the twenty-four hours, as an aid to elimination through the kidneys; he flushed the bowels more frequently and employed alcohol and water sponging. As to stimulants, he found strychnine and camphorated oil preferable to alcohol.

With regard to the value of intestinal irrigation in typhoid fever, certain scientific facts should be remembered: (1) Fatal autoinfection could occur with constipation; Holt had reported such cases; (2) the stool consisted in large part of bacteria, many millions in number; (3) bowel movements occurred even after the withholding of food, and they consisted chiefly of bacteria, mucus, epithelia, etc.; (4) If, after operation, a portion of the intestine was made to terminate in a blind pocket, accumulation might occur therein and even ulceration and perforation result, though no food remnants entered the pocket. Though the bowels might have been supposedly thoroughly cleansed by catharsis, and only water or soluble broths had been administered, it was surprising the amount of material cleared out by enteroclysis. He believed that the use of enteroclysis was one of the most important features in the treatment of typhoid fever. The only contraindications were hemorrhage and peritonitis. By the irrigations, contents of the small intestine were emptied into the large intestine, and this in turn cleared out; absorption from accumulation in the colon and rectum was prevented, and hence toxemia was lessened and the temperature was reduced; gas, if present, was removed from the bowel; the large intestine was kept clean, and elimination of the toxins, through the diuretic action of the injections on the kidneys, was promoted.

Dr. A. Seibert said that he had followed the method described by Dr. Kemp for the last twenty years; during this time he had never given a typhoid fever patient milk, nor had he given an infant or young child, suffering from enteritis milk in any shape or form; in such cases he never gave mother's milk, pasteurized or sterilized milk until the enteritis had been cured. The success of certain treatments in certain diseases depended largely upon the selection of the cases. To prove his position taken in regard to the giving of milk in typhoid fever, he said that if one used the milk-free diet for a certain period of time, and then administered milk, even in small quantities, the fever and pulse would go up, only to come down when the milk was omitted; one could make the temperature and pulse go up and down by adding milk, or leaving it out of the diet. Leaving milk out of the diet in typhoid fever was practically a prophylactic measure, because it prevented the formation of toxins. Milk was one of the best foods for the typhoid bacillus, but a poison to the patient. Twenty years ago he used a catheter to irrigate a typhoid fever patient; a hemorrhage resulted and he had never used a catheter or tube since. The buttocks of the patient were elevated and plain water was allowed to run into the intestine; the nozzle of the syringe was only one inch through the anus. This method of irrigation he used twice a day, and without any inconvenience on the part of the patient.

THE WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held February 8, 1909.

Dr. William Linder in the Chair.

Demonstration of Roentgen Plates of Stomach.—Dr. Charles Eastmond of Brooklyn demonstrated a series of plates showing the facility of diagnosis of gastroptosis by this means.

Demonstration of Corset for Splanchnoptosis.—Dr. A. Ernest Gallant of Manhattan made this demonstration. He said that on a careful review of 7,266 case histories, he had treated 456 for virceral ptoses. These were found in both sexes, at nearly all ages, and especially in young nulliparæ and women who had borne children. In a large proportion the lower part of the face was deeply furrowed and drawn and the attitude was that of one lacking in muscular vigor, with shoulders stooping and a doubled-up way of sitting. In nulliparæ there was an absence of fat, the hips were narrow and unequal;

there was a long, slender waist, a hollow epigastrium, protuberant hypogastrium, scoliotic back and a disproportion between the length of trunk and legs. Of the several ectopic viscera, the most prominent and easily palpable was the kidney. This either gave rise to no symptoms, or when prolapsed on the right side, and compressed by corsets and waistbands, produced Dietl's crises, or when descending intermittently on the right side induced hydronephrosis, or slight descent of a chronically congested right kidney dragged on or compressed the bile duct and caused acute jaundice, or acute traumatic dislocation of the kidney, chiefly the left, produced hematuria. The most frequent and important of the visceral ptoses was that of the stomach and colon, insidious in development, detrimental to health, frequently overlooked, intractable to treatment, damaging to other viscera, dragging down the liver, spleen, and heart, interfering with respiration, circulation, alimentation, nutrition, and excrementition. Surgical treatment was to be resorted to only as the last resort. All except 1 per cent. of the cases of symptomatic movable kidneys could be cured symptomatically by wearing a corset. The three most powerful agents at one's disposal for visceral replacement were posture, massage, and exercise. In the most severe cases it was necessary to keep the patient in bed for several weeks. During this time use was made of the stock binder to afford support. The use of a corset laced tightly at the waist, while it served to relieve kidney symptoms, viz., Dietl's crises, hydronephrosis, jaundice, and hematuria, on the other hand, it intensified the gastritis, constipation, malnutrition, etc., of enteroptotic origin. The corset to be effective had to be made to order, with the following essential features: it had to conform to the latest fashion; at the bottom, the front steels had to overlap the upper half-inch of the symphysis pubis; it had to reach down low and fit very snugly around the hips, stretching very tightly across from one anterior superior spine to the other, to flatten and reduce the hypogastrium to a minimum; to prevent constriction, the circumference was to be equal to that of the natural waist, with a well-marked incurving of the sides at the waist, to support the kidney, to prevent the corset slipping upward, and to afford a fashionable outline to the figure; at the back and sides, the upper portion had to accurately fit the thorax, while in front ample room had to be provided for the replaced stomach, as any pressure on the epigastrium induced unbearable pain and discomfort. Below the waist the corset had to be inelastic and inflexible, while above the waist it permitted free play to every motion of the trunk. For thin women, with hips deficient in fat, hair pads had to be stitched inside the lower part of the corset. The one lace was inserted at the first eyelet above the waistline and continued down to the bottom of the corset. In the upper part a thin, flat, hat elastic was inserted, and loosely drawn enough to keep the garment in close contact with the thorax. The corset had to be ordered, fitted, and adjusted with the same care and attention to detail as an orthopedic apparatus. After wrapping the corset loosely around the body,, the patient was to lie down on the bed, flex the legs to a right angle, and while in this position to massage the abdomen, stroking upward, for ten minutes. She was then to draw the corset well down over the hips and to fasten in front, beginning with the lowest hook. Without lowering the hips, she was to draw in the lace at the back as tightly as possible, tying it at the back close to the last eyelet. The corset was not to be pulled down after the front had been fastened, and the hips were not to be lowered; nor the patient to stand or sit up until the back lacing was drawn as tightly as it could be drawn. The tests of a properly fitted and adjusted corset were the front steels always overlapped the upper border of the symphysis; the lower or suprapubic area was flattened and fitted so snugly that when lying down the fingers could be barely inserted between the corset and the bone. The replaced stomach was noticeably prominent within the upper portion of the corset and caused a distinct bulging of the epigastrium. On rising, sitting, or walking, the corset did not hitch upward. The contraindications to the use of the corset were: when the kidney was not replaceable above the waist line; when the stomach was held down below the umbilicus by peritoneal adhesions; in the presence of pus tubes or tumor in the pelvis or abdomen.

Demonstration of the Rose Bandage.—Dr. Adolph Bonner of Brooklyn demonstrated this method of relieving abdominal ptoses by means of a properly applied support of adhesive plaster.

The Diagnosis and Treatment of Gastroptosis.—Dr. Joseph Merzbach of Brooklyn read this paper. Following the method of Virchow in seeking an anatomico-pathological basis for the science of medicine, efforts had been made to give an anatomical foundation for the protean group of symptoms grouped under the designation "nervous dyspepsia." Kussmaul had been the first to point out the difference between functional or apparently functional disorders and displacements of the abdominal organs. He had been followed by Glénard, Meinert, and many others, some of whom had gone too far in emphasizing the significance of these malpositions. The difficulty of forming a clear judgment about these conditions and their interdependence, and apportioning the proper share to anatomical influences on the one side and nervous impressions on the other, was explained on three grounds, as follows: First, the difficulty of defining the exact boundary between a neurosis and organic lesions; second, the fact that a neurosis and organic lesions were frequently associated, and third, the uncertainty as to the exact position of the stomach. It had been supposed that the greater curvature of the stomach represented the lowest part of this organ, until some recent radioscopic investigations had shown that in the upright position the lowest part of the stomach was the pyloric region, which was horizontal, with the cardiac portion in a vertical position. Although other investigations had been at variance with these, it was nevertheless certain that the normal stomach was such a rare event that its occurrence might be considered pathological. The speaker excluded from consideration the acute gastroptosis that occurred physiologically in connection with the act of digestion, or as the result of overfilled intestines. Gastroptosis caused by pressure from above, as through an empysema or a left-sided pleuritic exudate, could, of course, be diagnosticated only in patients the position of whose stomachs had been known previous to the occurrence of the pulmonary condition. The speaker next mentioned the more important of the many etiological factors of chronic gastroptosis. The view of Glénard that the primary cause was a weakening of the hepatocolonic ligament had been abandoned, and it was generally acknowledged that congenital predisposition favored the occurrence of a gastroptosis. The most important of the exciting factors were the pressure by corsets and the weight of skirts fastened around the waist. The liver was not only subjected to anatomical change, but also tended, as the result of this pressure, to force the stomach downward and to the left. Other factors were frequent parturition without the necessary post-puerperal cure, acute diseases producing atony, insufficient and improper nutrition, inflammatory adhesions, and physical and mental overexertion. The frequent occurrence of gastroptosis among school teachers showed that continued mental strain was an etiological factor of great importance. It was especially in this class of cases that were found the profound disturbances of the nervous system which were usually associated with marked displacement of the abdominal viscera. In fact, a great many

patients came for persistent severe hemicrania, or objective and subjective vertigo, palpitation of the heart, sachy cardia, presternal pressure and precardial pain, backaches, and other symptoms. In other cases the digestive complaints predominated, ranging from a mere postprandial discomfort to a most excruciating pain in the epigastrium or some lower point. Appetite was usually lessened, nausea occurred frequently, and vomiting very rarely. The gastric chemism varied from hyperacidity to normal and sub or anacidity. Motility was not much impaired. This was decreased in proportion to the degree of constipation which was nearly a constant concomitant of splanchnoptosis. In addition to these there were an array of complaints, partaking at times more of the character of hysteria; at others, of neurastheria, and sometimes of hypochondriasis. It was this constant intermingling of functional disturbances with evidences of an organic lesion that surrounded the recognition of splanchnoptosis with some difficulty. The statement of the patient that he felt something moving about in his abdomen was not to be relied upon in the formation of a diagnosis. In reaching this, inspection was of value in the case of a very thin abdomen. In this case there was seen not infrequently the lesser curvature bulge forward below an epigastric space that was sunken in; the greater curvature appeared with greater or less distinctness below the umbilicus for a varying distance. Palpation was not satisfactory. Percussion was looked upon by many as a difficult and misleading method. The difficulties were only in the differentiation between the colonic and gastric resonance. Until the acoustic differences could be appreciated it was a matter of patience to determine the position of the greater and lesser curvatures and the pyloric end. When the splashing sound was heard, its extent gave the outlines of the stomach with fair accuracy. One frequently succeeded in obtaining splashing after the patient had taken one or two glasses of water. Insufflation of the stomach with air or CO_2 had been abandoned by the speaker, not only because of the discomfort it caused, but also because it was dangerous, and at any rate unnecessary on account of the sufficiency of other methods for diagnostic purposes. Transillumination of the stomach by means of Einhorn's lamp was not absolutely reliable, and was only occasionally used as a control of the findings obtained through other channels. The Roentgen rays gave such unimpeachable results that they promised to rank among the foremost means for the recognition of gastric displacements. The defect that they necessitated the introduction of a large quantity of bismuth (℥i to ℥ii) which by its weight stretched the stomach beyond its norm, would probably be remedied sooner or later by some modification of the ray medium. The diagnosis of a displaced kidney, of a prolapsed liver, the evidence of a dislocated colon or a cardioptosia aided in the recognition of the changed position of the stomach. In differential diagnosis from dilatation of the stomach it was noted that in gastroptosis the size of the stomach was normal or even subnormal, while it was increased in dilatation. In the latter there were stagnation and fermentation which were absent in simple displacement. The prognosis of gastroptosis was excellent provided it was not associated with marked atony and dilatation. The speaker had seen the position of the stomach improved, but had never observed a return to absolutely normal anatomical relations. The preventive treatment was more important than the curative. It was the duty of physicians to insist upon a long rest after the acute diseases affecting children, for the heart was not the only muscle attacked by atony. In seeking to protect the growing girl from the baneful effects of corsets and skirt bands fastened around the waist, fashion was an adversary to be encountered, and had always come out victorious in the battles waged against it by physicians. The straight-front corset was the less deleterious. Gymnastic exercises during childhood and adolescence were important. One of the most important preventive measures was a sufficient amount of rest after childbirth, the duration of which was to depend in each individual case upon the tone of the uterus and of the abdominal muscles. If the patient was compelled to rise before the normal tone was restored, she was to be provided with a proper abdominal supporting bandage. Of curative measures rest was the most important: absolute rest of body and mind in the severe types, and one to two hours' rest after the midday meal in those of a milder character. Where the finances of the patient permitted, sojourn in a well-managed sanatorium, of which there were but very few in this country, was desirable. The rest was to be combined with hydrotherapeutic measures, as the tepid pack, the cold sponge and rub, a short douch to the abdomen, the cold compress, and so forth. Careful and mild massage aided in strengthening the abdominal muscles and in hastening the sluggish passage of food in the stomach and intestines. The effect of electricity in the form of the galvanic or faradic current was mainly that of a transient suggestion. A mild vibratory massage was sometimes helpful in overcoming the constipation. The most important factor in overcoming the intestinal sluggishness was diet, which could not be of a schematic character in a condition in which the digestive capacity varied within such wide limits. The patients could never be cured unless their constipation was overcome by other means than medicines. As regards diet: milk, if well borne, was to be given in small quantities not exceeding four ounces at a time. Cream was better, when given in mashed potatoes, spinach mixed with carrots, or in cereals, or with cocoa. Toast was advisable because it permitted the ample addition of butter. Bacon was useful. In patients in whom the evidences of atony were not marked, the addition of raw fruit, broiled meats, graham bread, honey, etc., proved useful. Boiled and stewed fruit were well assimilated, even in a weakened digestion. The meals were to be prescribed in such a manner as to allow the accumulation of adipose tissue that would benefit the mesenteric support in the most marked manner. Stronger muscles and a larger amount of fat gave the abdominal organs the natural support to which they were entitled. For anorexia and discomfort after meals, psychotherapy was to be resorted to before drugs. Strychnine in small doses with or without dilute hydrochloric acid was sometimes useful as an appetizer. The same indication was fulfilled by tincture of nux vomica alone or in combination with the fluid extract of condurango. Bromides, valerianates, or both were required very frequently. Hydrastis canadensis that had been recommended by Dr. Fuhs had been employed in some cases of splanchnoptosis with atony, with good results. Of the laxatives, only the mildest were to be used, when necessary; of these, cascara sagrada, phenolphthalein, and Carlsbad salts were the best. The mechanical modes of treatment, provided that they really supported the abdominal organs not only in the horizontal but also in the perpendicular position, were at any rate but temporary expedients, and were to be used only until the normal equilibrium was obtained. When they were worn, exercise had to be insisted upon, lest the bandage or belt injured the patient more than it benefited him. Among the mechanical supports pregnancy occupied at least the position of a temporary aid. In cases of splanchnoptosis associated with lesions in other parts of the body, particularly with affections of the pelvic organs, it was the opinion of conservative gynecologists that rest and general treatment were to be tried before resorting to the knife (leaving aside acute suppurative cases, in which operation was indicated as a matter of course). In those cases there were noticed frequently not only the disappearance of chronic exudates and an improved position of the

ovaries, but synchronously a great improvement in the displacement of the abdominal organs. In splanchnoptosia associated with perineal and cervical lacerations the plastic operation not infrequently remedied the higher condition. It was difficult to decide whether to postpone the operation until the abdominal condition had improved or to undertake the treatment of both conditions at the same time.

Dr. Jacob Fuhs of Brooklyn said that the most frequent cases seen were the bad ones, in which the stomach mostly was displaced. In the ptosis of some single organ there was usually some other etiological element besides lack of support. In the case of the stomach it could be adhesions forcing the organ down from above, or a pyloric stenosis causing stagnation of the stomach contents. The recognition of a displaced stomach in the early stages was not easy. In a case of gastroptosis one could frequently feel organs behind the stomach better than usually. Thus an endurated pancreas could be readily felt, and also the pulsations of the aorta. Most of the patients had no bulging abdomen in spite of the gastroptosis. It was necessary to feed the patients up, beginning with one-quarter of a pound of butter a day and rapidly increasing the amount to one-half a pound a day. School teachers suffering from gastroptosis were to lie down for a couple of hours every day after their work and to spend most of Saturday and Sunday in bed. A vacation of from four to six weeks was better. Ptosis did not go on to dilatation except when there was pyloric stenosis. Operation was to be resorted to only in the extreme cases with dilatation.

NEW YORK ACADEMY OF MEDICINE

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held February 25, 1909

DR. JOHN O. POLAK IN THE CHAIR.

A Case of Hermaphroditism.—Dr. S. M. Brickner presented an individual, forty-eight years old, who was born in Sweden and supposed to have been a girl at birth; female attire was used until the age of ten years, when male attire was donned and he had continued to live as a male ever since. His build was distinctly that of a woman, but the pelvis was of the male type. The breasts were large and pendulous. The skin was soft, and the hair very fine. He had a well developed prepuce, and a rather long clitoris, within which was a small fold but no urethra. The urethra was situated one and a half inches below the insertion of the clitoris, while below the urethra was the perineum of about one and a half inches extent. Each side of the fold contained a movable body, either testicle or ovary. Just below the urethra and where the entrance to the vestibule would be in a normally built woman was a blind pouch with a distinctly constrictor action.

Struma Ovarii Colloides.—Dr. Robert T. Frank presented this specimen. Only twelve such cases had been reported in literature. Dr. F. C. Wood, at the January meeting of the New York Pathological Society, presented such a specimen, with several others intermediate in form. The specimen was a tumor, the size of a peach, containing the following tissues: There was one molar tooth with a smaller piece of bone attached; the bone had Haversian systems. There was found also a corpus luteum, perfectly normal, and the sole representative of ovarian tissue. The rest of the tumor was composed of colloid material. It could not be differentiated in section from the ordinary colloid goiter; it was like a normal thyroid gland in a few areas. Macroscopical and microscopical drawings were presented. It was at first thought that these tumors were due to metastases of either normal or malignant thyroid tissue. Normal thyroids had been found to produce metastases in bone; in one instance, in the jaw, and in another in the skull. After complete removal, they recurred. In a study of dermoids by Pick, six out of twenty-one contained thyroid tissue. The interpretation was that this was a part of a teratoma, or compound tumor, in which thyroid tissue had overgrown the rest, and was the only tissue to develop. This was not unusual. There were all transitions between a dermoid containing thyroid tissue and teratoma containing various structures besides thyroid tissue; in some cases almost nothing but thyroid had been found. Walthard had noted three such cases. In one-half of the cases ascites was present.

Electric Light Equipment for Operating in Private Houses.—Dr. LeRoy Broun presented this outfit. The arrangement was a box, 15″ x 18″ and 18″ deep. The complete weight was thirty-two pounds. It contained a large spool having five hundred feet of electric light cable. In another partition was an aluminum reflector with four thirty-two candle-power lights; also one thirty-two candle-power hand light and reflector. The attachment socket for both of these reflectors was on the flange of the spool, and wired to the inside of the long cable. The outside end was provided with a screw plug and could be unwound at will to reach the source of electricity, being long enough to reach two-thirds of a long block and over. The weight was so small that the box could be readily placed in a carriage and carried anywhere.

Tuberculosis and Pregnancy.—Dr. Charles C. Trembley of Saranac Lake, N. Y., read this paper. A compilation of the histories of tuberculous women who had borne children revealed an astonishing number who attributed the onset of their symptoms to pregnancy or childbirth and, without doubt, the number could be greatly augmented by further investigation. Only by careful questioning was evidence elicited of cough, expectoration, afternoon rise of temperature, and slight hemoptysis, occurring several months previous. Conflicting opinions were advanced by authorities as to the period during which the initial symptoms most frequently appeared. His personal observations led him to believe that the puerperium exhibited a predominant number, although any stage might witness its onset. Whenever the primary symptoms became apparent during the early months of pregnancy, it was undoubtedly due to the nausea, loss of appetite, and the mental and physical depression so frequently associated; should the active symptoms continue, it resulted either in premature delivery or the birth of an ill-nourished child. The puerperal manifestations of tuberculosis were fairly uniform. For the first few days the patient complained of lassitude and exhibited but little interest in her surroundings, was irritable, had little or no desire for food; the temperature might be normal. Generally about the third or fourth day, though occasionally not until the tenth or twelfth day, the temperature rose suddenly to 103° or 104°, with a concomitant rise in the pulse rate, frequently preceded by a chill, with the lochia normal. The temperature records then showed from 99° to 100° in the morning to 101° to 103° in the afternoon. The subjective symptoms were entirely disproportionate to the temperature and pulse. It sometimes happened that the patient was unaware of any elevation of temperature. There was practically a normal differential count, with only a moderate leucocytosis which accompanied pregnancy. In the next few days a slight, catchy, dry cough made its appearance and commonly at this time, slight lancinating pains on deep respiration suggested pleuritic invasion. Before bacilli could be demonstrated in the sputum, the von Pirquet or Moro test might serve in diagnosis.

The following observations were based upon a review of 240 cases, nearly all being between the ages of 25 and 36. There were 113 multiparæ, and 127 who were primiparæ or had had a miscarriage. A positive history of tuberculosis originating or at least distinctly recognizable

after the birth of the child or during pregnancy was given in 151, or 63 per cent.; 103 showed their first symptoms during the puerperium. The predominant diagnosis of the puerperal onset of tuberculosis appeared to be bronchitis. Although 42 cases were recorded as having had a miscarriage, in only 3 cases did the history even suspiciously point to this as a starting point, and two of these were forced to resume their daily routine of work after having been in bed only one or two days. A history irrespective of pregnancy was given in 89, or 37 per cent. Of the 151 patients which showed their first symptoms during pregnancy or the puerperium, 44, or 29 per cent. were I-para; 68, or 45 per cent., were II-para, and 39, or 26 per cent., were III-para. Of these at present 80, or 53 per cent., were dead, and 71, or 47 per cent., were living. Of the 81 not traced to pregnancy or the puerperium, 30, or 34 per cent., were I-para; 41, or 46 per cent., were II-para, and 18, or 20 per cent., were III-para. Of these at present, 36, or 41 per cent., were dead and 53, or 59 per cent., were living. As regards condition on arrival in the mountains, the definite cases exhibited 29 per cent. of incipient and 71 per cent. of advanced and far advanced, the indefinite showing 34 per cent. of incipient and 66 per cent. of advanced and far advanced. The cases definitely traced showed 53 per cent. of deaths, and those not attributable to pregnancy showed only 41 per cent. This large percentage of deaths after pregnancy would seem to indicate that in these cases the protective influence noted during pregnancy had been removed, leaving a condition of lowered resistance to the action of the tubercle bacillus. Regarding the serious effect of pregnancy when occurring in the course of a tubercular process, in each and every case it was a menace to the future health of the woman. In permitting a phthisical woman who became pregnant to proceed to term, the physician must face a two fold problem: first, in regard to the effect upon the mother; and second, in regard to the effect upon the child. Among 45 cases of labor occurring in women known to have tuberculosis before fecundation took place, 27, or 60 per cent., died and two were still under observation and probably would die within the year. The children of tuberculous women were ill nourished, marasmic, and presented a strumous diathesis. The only rational course to pursue where pregnancy occurred in tuberculous women, and where it was recognized during the early months, was the radical method of intervention. The only cases that should call for hestitation were, (1) those which had been discharged as cured and had remained absolutely without symptoms for at least one year; (2) cases in the terminal stage with progressive signs; (3) serious dissemination complicating the pulmonary lesions.

The following results were based upon a series of 29 cases of therapeutic abortion which had come under his observation and exhibited striking contrast to the cases allowed to complete their pregnancy. They represented all stages of the disease, and all but one were induced before the fifth month. Of the cases considered, 3 were very active cases of an advanced type; 6 were mildly progressive cases of an advanced type; 4 were mildly progressive cases of an early type; 5 were quiescent incipient types, and 11 were quiescent advanced and far advanced. Of these, 11 were induced during the second month; 14 during the third month; 3 during the fourth month; and 1 during the sixth month. In only one instance was there a relapse as a result of the abortion, and this case quickly recuperated. Eighteen cases showed a gain of from 2 to 8 pounds within five weeks afterwards; five remained stationary, and six lost from 1 to 5 pounds. Of the total cases, eight had died, three as the result of childbirth.

Dr. Trembley concluded as follows: 1. Pregnancy was an etiological factor to be considered in the tuberculosis problem. 2. During the puerperium the disease showed its greatest activity although any month of pregnancy might witness its onset. 3. Mortality was greater among women showing their first symptoms during the puerperium than among those showing onset irrespective of pregnancy. 4. Mortality was greater among phthisical women who subsequently passed through labor than among phthisical women in general. 5. A tuberculous woman might conceive during any stage or phase of the disease. 6. Latent, quiescent, or arrested tuberculosis was almost invariably rendered active by a completed pregnancy. 7. Occurring in the course of more or less active tubercular disease, it almost invariably resulted in rapid progression, and frequently terminated fatally. 8. Patients should be instructed as to the detrimental results of pregnancy. 9. The offspring of tubercular women were generally weak and displayed a strumous diathesis. 10. When a phthisical woman was allowed to complete her pregnancy she should have the benefit of climatic treatment and the child should be separated from the mother at once. 11. Abortion should be practised in every instance when pregnancy was recognized in the early months, since it would enhance the woman's chances of recovery; but in the later months generalization was not feasible; each case must be considered individually. 12. Mortality and percentage of relapses were practically nil when abortion was induced before the end of the third month. 13. Premature delivery should not be considered in the later months of pregnancy unless the patient's condition absolutely demanded it. 14. Cases apparently cured having remained without symptoms or signs for at least one year, might be allowed to go to term, but should be under careful supervision. 15. In all cases allowed to complete their pregnancy, the labor should be terminated rapidly and with as little exertion as possible on the part of the woman.

Dr. Charles Jewett said he was especially gratified that Dr. Trembley took so definite a stand on the question of early interference; with few exceptions, Dr. Jewett believed that pregnancy complicated with tuberculosis should be terminated early in the disease if any benefit was to be expected. Intervention was most urgently necessary in cases of laryngeal tuberculosis. The operation was a simple one and involved little or no tax upon the woman. With the exception of certain localized processes, tuberculosis was likely to prove a serious complication of pregnancy. In a large proportion of cases the disease took on a more active course in the later months and especially was this true of the puerperium. Lactation was also recognized as a danger period, but this could be eliminated. The tuberculous woman was not permitted to nurse. Termination of the pregnancy in the later months, with the exception of certain grave complications of the disease, or when demanded in the interest of the child, was, as a rule, useless. It was believed by many authorities that premature labor was not so well borne as spontaneous labor at term. There was, however, a wide difference of opinion on the question of therapeutic abortion in tuberculous women. Nearly half the recent writers were opposed to it at any period and under any conditions. While admitting the pernicious influence of the disease they denied that it was retarded by abortion. In looking over his histories Dr. Jewett said he was surprised at the comparatively small number of cases of pregnancy with tuberculosis that had fallen under his care, and he reported three cases occurring within the year. While he recognized the difficulty of formulating rules for all cases he thought that, in most instances, at least of beginning tuberculosis, the interest of the mother would best be served by terminating the pregnancy in the first three months.

Dr. J. Clifton Edgar said he did not believe that such a large collection of cases had ever been reported as occurring in the experience of one person; Bossi said that he had only been called upon to face this question twenty

times regarding intervention in pregnancy. There seemed to have been quite a difference of opinion as to what course to pursue in these cases. Pinard in Paris observed spontaneous resolution of the tuberculosis during pregnancy. On the other hand Lancereaux claimed that non-hereditary cases of tuberculosis had developed as the result of pregnancy and the lowered vitality which occurred with it. It seemed to Dr. Edgar that Pinard's statement was in line with the superstition and tradition that existed, that pregnancy had a tendency to better the condition of the tuberculous woman. The latent or cured or directly hereditary cases of tuberculosis were more liable to suffer from the effects of pregnancy than the non-tuberculous. Two-thirds of the cases of incipient tuberculosis could be cured by proper environment and proper hygiene; therefore, why not treat the pregnant cases as one would the non-pregnant? Dr. Edgar said that he had always taken the stand that pregnancy complicating tuberculosis was a threat or menace. He dissented with the statement that interference with pregnancy in advanced states of tuberculosis was contraindicated, and he reported two cases to uphold this view. It was a good plan to give an easier labor by cutting off one or two weeks of gestation. The labor itself should be made as easy as possible by shortening the second stage with the forceps and by the use of anesthesia combined with oxygen.

Dr. Edwin B. Cragin said that for several years he had taught that it was best to take the radical ground advocated by Dr. Trembley, so far as tuberculosis and early pregnancy was concerned. If there was an active tuberculous process, pregnancy should be terminated at once. There were a certain number of cases in the later months of pregnancy where, in the interest of the mother, the life of the child should be sacrificed; he said he had seen such cases in which the women were going down hill rapidly, and where the additional discomfort of increased pressure and increased disturbance of respiration because of the enlarged size of the abdomen was apparently sapping the life of the women. At the same time, he believed that all were bound to meet with surprises and find that some women with the tuberculosis arrested perhaps, would go safely through their pregnancy in spite of the fact that they had been advised against doing so. Many cases would be much benefited by inducing labor a little early, as at eight and one-half months, thus lessening the severity of the labor by having a smaller child. While in the early months of pregnancy he made no exception to the advisability of inducing therapeutic abortion in active tuberculosis, in the later months one must use judgment.

Dr. James A. Miller said he believed Dr. Trembley's position was a perfectly tenable one. The patient who went through with pregnancy was probably going through the hardest kind of work; therefore, pregnancy should be interrupted at the earliest possible moment in all cases not able to stand such work. There were two classes of cases regarding which it was difficult to make up one's mind as to what course to pursue. First, the early cases that were apparently cured; with these cases he thought it would be much safer and better to wait even longer than one year, as recommended by Dr. Trembley, before allowing pregnancy to occur. Second, those cases which were advanced but had become arrested for a time varying from two, three, six or even eight years. There were cases in which the lesions were very advanced and which gave marked signs in the chest and yet might go without symptoms for years. It was perfectly safe to allow such cases to go to term. However, the only basis they could use in guiding them was, what were the patients able to do? What was the measure of their resistance? With regard to tuberculin, when this agent was used the patients were much less liable to have relapses and they were more liable to be able to take up the routine strain of daily life.

Dr. H. N. Vineberg said he was surprised at the radical attitude taken by Dr. Trembley and reported cases in which harm and not good was done by emptying the uterus in cases of tuberculosis complicated by pregnancy. Another case was reported in which non-interference was followed by good results.

Dr. Brainerd Hunt Whitbeck thought that they should consider more the outlook for the child born of tuberculous parents, especially the advanced cases. The chances of a child born of a mother with advanced tuberculosis developing tuberculosis was comparatively large.

Dr. S. M. Brickner said that it was often surprising the manner in which a tuberculous woman would go through pregnancy, and suffer no reaction whatever, and he reported such a case. He offered a suggestion, based upon a purely theoretical assumption, that during pregnancy the thyroid gland increased in size, and it seemed possible that the secretion which was poured out during pregnancy had an inhibitive effect upon the development of tuberculosis during pregnancy; but this effect ceased during the puerperium and the pulmonary disease, therefore, was allowed to proceed with its ravages. It might be well to give thyroid extract, beginning its use at the ninth month of pregnancy. A point first suggested by Brown and based upon the theory that labor was the equivalent of tremendous manual work which caused an outbreak of tuberculosis, called for delivery at or near full term. After dilating the cervix sufficiently, forceps should be applied and labor terminated as rapidly as possible in order to save the woman as much physical work as possible. Dr. Brickner was opposed to this procedure because in primiparous women it was a hazardous undertaking, while in the multiparous woman the second stage of labor was usually short and not so much physical work was involved to cause an increase in the pulmonary disease.

Dr. William S. Stone said that one of the best papers upon this subject had been written by von Rosthorn, who did not take the radical position of Dr. Trembley. It was possible to individualize in a certain number of these cases; for example, in those cases which had had evidence of a mild process prior to the pregnancy, or in those cases in which the symptoms at present showed a condition that was localized within a small pumonary area; in other words, the decision should depend upon the careful examination made by a medical man rather than an obstetrician. The laryngeal cases were notably the worst type. The cases with hemorrhages were often not the worst ones. v. Rosthorn thought that it was very important to do everything possible to render the labor easy; the extra exertion of labor, particularly the extra respiratory efforts, had a very deleterious influence. Therefore, the suggestion made of bringing the labor on one or two weeks early seemed to be worthy of consideration.

Dr Trembley closed the discussion. He believed that in suitable cases, those who took the tuberculin treatment were less liable to have relapses than those who did not take it. The only way to arrive at a definite conclusion was to have an expression from both the obstetricians and the physiologists, because they looked at this subject from different points of view.

Study of Medicine in Far East.—The objection shown by the Court at Pekin to accept the aid of European surgeons during the illness of China's late rulers does not seem to be shared by the people of Hanoi in Indo-China. Here it seems that the French have established with considerable success a school of medicine. There are ninety students enrolled, some studying the science from the human standpoint, some qualifying as veterinary surgeons, while a number of young women have entered as obstetric students. One lady who has qualified has been signally successful in charge of a hospital for the poor at Phuly. Eight out of ten of the students come from Cochin-China.—*London Globe*

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Infantilism. By C. A. Herter, M.D. 12mo, 118 pages; cloth, 90 cents. The Macmillan Co., New York, N. Y.

The Surgery of the Ear. By Samuel J. Kopetsky, M.D. 8vo, 368 pages; cloth; illustrated. Rebman Co., New York.

Proceedings of the American Medico-Psychological Association, at the 63d annual meeting held in Washington, D. C., May 7-10, 1907. 8vo, 259 pages; paper. Amer. Medico-Psychological Association, Poughkeepsie, N. Y.

Diagnose und Therapie des Ekzems. Von Dr. S. Jessner. 8vo, 96 pages; paper. M. 2.50. Curt Kabitzsch (A. Stuber's Verlag), Würzburg, Germany.

Medizinische Logik—Kritik der aerztlichen Erkenntniss. Von Dr. W. Bieganski, Autorisierte Übersetzung nach der zweiten Original-Auflage, Von Dr. Q. Fabian. 8vo, 237 pages; paper. Curt Kabitzsch (A. Stuber's Verlag), Würzburg, Germany. Brosch, M. 4.50; Geb., M. 5.50.

General Surgery. By Ehrich Lexer, M.D. 8vo, 1042 pages; cloth; illustrated. D. Appleton & Company, New York.

Anatomy, Descriptive and Surgical. By Henry Gray, F.R.S. Seventeenth Edition. 4to, 1614 pages; cloth; illustrated. Lea & Febiger, Philadelphia.

Diseases of the Skin and Eruptive Fevers. By Jay Frank Schamberg, A.B., M.D. 8vo, 534 pages; cloth; illustrated; $3.00 net. W. B. Saunders Company, Philadelphia.

Gynecology and Abdominal Surgery. By Howard A. Kelly, M.D., F.R.C.S. (Hon. Edin.), and Charles P. Noble, M.D., S.D. 8vo, 862 pages; cloth; illustrated; $8.00 net. W. B. Saunders Company, Philadelphia.

Medical Gynecology. By Samuel Wyllis Bandler, M.D. Large 8vo, 676 pages, illustrated; cloth; $5.00 net. W. B. Saunders Company, Philadelphia.

Golden Rules of Dietetics. By A. L. Benedict, A.M., M.D., Buffalo. 8vo, 407 pages; cloth. C. V. Mosby Med. Book Pub. Co., St. Louis.

Bericht Ueber den XIV. Internationalen Kongress fur Hygiene und Demographie. 8vo, 640 pages, illustrated; paper. August Hirschwald, Berlin.

Quains Elements of Anatomy. Embryology. By T. H. Bryce. 4to, 275 pages, illustrated; cloth; $3.00 net. Longmans, Green & Co., New York.

Studies from the Laboratory for Medical Research, Department of Surgery, Columbia University. 8vo, 596 pages, illustrated; cloth.

Medical and Veterinary Zoology, Trematoda and Trematode Diseases. By Ch. Wardell Stiles and Albert Hassall. 8vo, 401 pages; paper. Government Printing Office, Washington.

Upsala Läkareforenings Fordhandlingar. By Silas Lindqvist. 8vo, 135 pages; paper. C. J. Lundstrom, Upsala.

Transactions of the Florida Medical Association. 8vo, 304 pages, illustrated; paper. The Drew Press, Jacksonville.

Clinical Bacteriology and Hematology for Practitioners. By W. D'Este, M.D., B.Sc. (Lond). 8vo, 252 pages; cloth; illustrated; $2.00 net. P. Blakiston's Son & Co., Philadelphia.

Der Theoretische Nährwert des Alkohols. Von Prof. Dr. Max Kassowitz. 8vo, 58 pages; paper; 1 mark. Verlag von Julius Springer, Berlin, Germany.

Diagnose und Therapie der Gonorrhœ beim Manne. Von Dr. S. Jessner, 8vo, 164 pages; paper; 3 marks. Curt Kabitzsch (A. Stuber's Verlag), Würzburg.

Diseases of the Nose and Throat. By Cornelius Godfrey Coakley, A.M., M.D. 8vo, 604 pages; cloth; illustrated. Lea & Febiger, Philadelphia.

Emergency Surgery. By John W. Sluss, A.M., M.D. 12mo, 692 pages; leather; illustrated; $3.50 net. P. Blakiston's Son & Co., Philadelphia.

General Pathology. By Dr. Ernst Ziegler. 8vo, 781 pages; cloth; illustrated; $5.50. William Wood & Company, New York.

Proceedings of the Royal Society of Medicine, Vol. II. No. 1. 8vo; paper; 7 shillings and 6 pence; illustrated. Longmans, Green & Co., London, England.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending March 27, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	527	199
Diphtheria	354	41
Measles	913	27
Scarlet Fever	415	17
Smallpox	—	—
Varicella	221	—
Typhoid Fever	20	5
Whooping Cough	63	10
Cerebrospinal Meningitis	9	8
Malarial Fever	—	—
Totals	2522	307

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending March 26, 1909:

		CASES	DEATHS
SMALLPOX—UNITED STATES.			
Alabama, Montgomery	Mar. 5–12	..	1
California, San Francisco	Feb. 27–Mar. 6	1	..
Kansas, Topeka	Feb. 27–Mar. 13	18	..
Kentucky, Covington	Mar. 6–13	2	..
Massachusetts, New Bedford	Mar. 6–13	1	..
Missouri, Liberty	Jan. 15–Mar. 11	20	..
Montana, Butte	Jan. 2–9	2	..
	Mar. 2–9	1	..
Nebraska, South Omaha	Feb. 20–27	5	..
Tennessee, Memphis	Feb. 27–Mar. 13	33	1
Nashville	Mar. 6–13	2	..
Texas, El Paso	May 2–9	2	..
San Antonio	Mar. 6–13	2	..
Utah, Salt Lake City	Feb. 1–28	85	..
Washington, Camas	Dec. 29–Mar. 8	18	..
Wisconsin, Appleton	Mar. 1–13	1	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Jan. 16–Feb. 3	10	5
SMALLPOX—FOREIGN.			
Africa, Tripoli	Feb. 13–Mar. 6	11	3
Arabia, Aden	Feb. 1–15	..	7
Brazil, Bahia	Jan. 16–Feb. 13	53	5
Para	Feb. 13–27	2	1
Pernambuco	Jan. 1–31	..	35
Rio Janeiro	Jan. 18–Feb. 14	121	82
Canada, Halifax	Feb. 26–Mar. 6	6	..
Vancouver	Feb. 1–28	3	..
Yarmouth	Mar. 7–20	28	..
China, Hongkong	Jan. 2–23	3	2
Cuba, Cienfuegos	Feb. 28–Mar. 6	1	..
Ecuador, Guamonto	Feb. 15	..	Present
France, Nice	Jan. 1–31	1	..
Paris	Feb. 13–20	3	..
Great Britain, Bristol	Feb. 20–27	1	1
India, Bombay	Feb. 9–16	..	14
Calcutta	Jan. 30–Feb. 6	..	202
Madras	Feb. 6–12	..	3
Indo-China, Saigon	Jan. 23–30	2	1
Italy, Catania	Feb. 21–Mar. 7	5	..
Naples	Feb. 21–28	20	3
Palermo	Jan. 30–27	8	2
Japan, Kobe	Feb. 6–13	4	1
Java, Batavia	Jan. 23–Feb. 6	7	..
Mexico, Guadalajara	Feb. 18–25	..	2
Monterey	Feb. 28–Mar. 7	..	1
Russia, Odessa	Oct. 31–Feb. 13	37	8
Reval	Jan. 1–31	1	..
Riga	Feb. 13–20	1	..
St. Petersburg	Feb. 6–13	5	1
Warsaw	Jan. 9–16	..	6
YELLOW FEVER.			
Barbados, General	Feb. 25–Mar. 5	2	..
Bridgetown	Feb. 25–Mar. 5	1	..
Spightstown	Feb. 25–Mar. 5	1	..
Brazil, Bahia	Jan. 16–Feb. 13	51	16
Manaos	Jan. 30–Feb. 20	..	5
Para	Feb. 6–27	..	11
Ecuador, Guayquil	Jan. 8–Feb. 6	..	10
Mexico, Merida, vicinity	Mar. 6–13	1	1
CHOLERA—INSULAR.			
Philippine Islands, Provinces	Jan. 16–Feb. 6	361	214
CHOLERA—FOREIGN.			
China, Hongkong	Dec. 26–Jan. 16	2	2
India, Bombay	Feb. 9–16	..	2
Calcutta	Jan. 31–Feb. 6	..	12
Madras	Feb. 6–12	..	1
Rangoon	Jan. 31–Feb. 6	13	..
Russia, Jaroslav	Mar. 1	..	Present
St. Petersburg	Mar. 1–5	50	19
PLAGUE.			
Brazil, Bahia	Jan. 16–Feb. 13	22	13
Rio de Janeiro	Jan. 17–Feb. 14	13	5
China, Hongkong	Dec. 26–Jan. 2	1	1
Chile, Iquique	Feb. 1	12	..
Ecuador, Babahoyo	Feb. 15	3	..
Guayaquil	Jan. 8–Feb. 6	..	17
Milagro	Jan. 18	1	..
Nisag	Feb. 15	7	..
India, Bombay	Feb. 9–16	..	45
Calcutta	Jan. 31–Feb. 6	10	..
Rangoon	Jan. 31–Feb. 6	..	14

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Original Articles.

THE CAMMIDGE REACTION IN DISEASES OF THE PANCREAS.*

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THE "pancreatic test or reaction," as is well-known, is based upon Cammidge's[1] studies of the urine in disease of the pancreas. The studies indicate, Cammidge believes, that in inflammatory lesions of this organ there is excreted by the kidneys a substance which, on hydrolysis, yields a body giving the reactions of a pentose, and that such a substance is, as a rule, not found in lesions of other organs. The pentosazone precipitate which he obtains by a somewhat elaborate, though easily mastered, technique, consists of golden yellow crystals, exceedingly fine and hairlike in form, arranged in sheaves and rosettes. They are to be distinguished from glucosazone crystals by their appearance under the microscope, their ready solubility in 33 per cent. sulphuric acid and their melting point—about 160 C. To them Cammidge has given the name of "pancreatic reaction crystals," and he believes that their presence in the urine, *i.e.* a positive "pancreatic reaction," is "strongly suggestive of inflammatory disease of the pancreas." During the past 15 months Cammidge's pancreatic test has been applied in all cases of suspected pancreatic disease, of cholelithiasis, of cholecystitis, and of diabetes, admitted to my wards in the Presbyterian Hospital. A table has been prepared giving the results obtained in all cases in the hospital in which the test has been employed. It includes a number of miscellaneous diseases and the findings in a few urinary specimens from individuals presumably healthy.

A study of the clinical histories of the cases giving a positive reaction elicits the following facts:

Although the clinical histories in Cases 1 and 2 were those of cholelithiasis, the diagnosis could not be confirmed in the absence of operation or autopsy. In Cases 3 and 4 a stone was found in the common duct in one at operation—the pancreas is not mentioned; in the second a calculus was found in the common duct, ½ cm. from the ampulla; at autopsy also a chronic pancreatitis, a suppurative cholangitis and hepatitis.

Two of the five cases of diabetes came to autopsy. In one of them there was a widespread hyaline degeneration of the islands of Langerhans and an increase of interstitial tissue. In the second there was fibrosis of the islands of Langerhans and a chronic interstitial pancreatitis. In the case of carcinoma of the pancreas a chronic pancreatitis was also found at autopsy. In the two cases of acute hemorrhagic pancreatitis the diagnosis was confirmed at operation; one of these recovered.

CAMMIDGE'S "C PANCREATIC REACTION"

TOTAL NUMBER OF CASES, FIFTY ONE

Cases	Diagnosis	No.	Positive	Negative
1– 2	Cholelithiasis	2	2	
3– 4	Cholelithiasis and cholecystitis	2	2	
5– 9	Diabetes	5	5	
10	Carcinoma of pancreas with chronic pancreatitis	1	1	
11 12	Acute pancreatitis	2	2	
13	Nepro-lithiasis not confirmed at autopsy	1	1	
		13	13	

Total Cases, 13
Positive Reactions, 13

Cases	Diagnosis	No.	Positive	Negative
1–5	Cholelithiasis	5	0	5
6–13	Cholecystitis	8	0	8
14	Suppurative peripancreatitis, cholelithiasis, cholecystitis	1	0	1
15	Tumor of head of pancreas, of doubtful character	1	0	1
16–17	Diabetes	2	0	2
18	Cholangitis	1	0	1
19–21	Hepatic cirrhosis	3	0	3
22	Perforating duodenal ulcer	1	0	1
23	Gastric ulcer	1	0	1
24	Neurasthenia	1	0	1
25	Intestinal obstruction	1	0	1
26 27	Exophthalmic goitre	2	0	2
28	Vesical calculus	1	0	1
29	Pyonephrosis	1	0	1
30	Chronic endocarditis	1	0	1
31	Chronic portal thrombosis	1	0	1
32–34	Undiagnosed	3	0	3
35–38	Normal	4	0	4
		38	0	38

Total Cases, 38.
Negative Reactions, 38.

In Case 13 the clinical diagnosis was nepholithiasis; at operation no stone was present in the kidney (left) or in the portion of the ureter explored. In the clinical history the pain is described as being present in the back and just below the left costal arch, not radiating. There was no blood in the urine macroscopically or microscopically. The case did not come under my personal observation, but the supposition of the existence of a pancreatic lithiasis, with an associated chronic pancreatitis, should be entertained.

In the thirteen cases giving positive reactions, an inflammatory lesion of the pancreas was *demonstrated* at autopsy in four; in two, at operation (Cases 11 and 12). In two of the thirteen cases gallstones were found in the common duct, one being associated with chronic pancreatitis; the condition of the pancreas at operation in the second case is not stated.

The details of the study of the 38 cases giving negative reactions are as follows:

In Cases 1 and 2 the diagnosis of cholelithiasis could not be confirmed in the absence of operation

*Read at a meeting of the Surgical Section of the New York Academy of Medicine March 5, 1909, Discussion on Acute and Chronic Pancreatitis

or autopsy. In Cases 3, 4, and 5 a cholelithiasis was found at operation; in one of these a single calculus was present in the common duct and one in the hepatic duct; the condition of the pancreas is not stated. In the second case a single large calculus was found in the gall bladder; the ducts and pancreas are stated to have been normal. In the third, a suppurative cholecystitis was associated with the cholelithiasis. The gall bladder contained much thick pus and many stones; the condition of the ducts and pancreas is not stated. There were eight cases in which a clinical diagnosis of cholecystitis was made. Five occurred in the course of typhoid fever and recovered without operation. In the sixth case of cholecystitis the gall-bladder was palpable; recovery without operation. In Case 12 there were no stones in the gall-bladder or ducts at operation; the head of the pancreas is stated to have been indurated. In Case 13 the gall-bladder and all ducts were free from stones; the statement in regard to the pancreas is that it was "rather hard." A case of great interest (No. 14), and the only one among those giving a negative reaction in which a lesion of the pancreas was demonstrated at autopsy, was an acute suppurative peripancreatis associated with cholecystitis and cholelithiasis. Extensive interstitial changes also were found in the pancreas at autopsy. Dr. Opie regards the case as primarily one of acute hæmorrhagic pancreatitis. There was a single case (No. 15) of tumor of the head of the pancreas, of doubtful nature in the absence of autopsy. In Case 18 the pancreas was found to be normal at autopsy. The diagnoses in the remaining cases are given in the table.

In the thirty-four cases giving negative reactions, two came to autopsy, and an inflammatory lesion of the pancreas was demonstrated in one of these; in the second the pancreas was found to be normal. In the remaining four of the thirty-eight cases the urine tested was from individuals presumably healthy.

Cammidge's[2] latest report on the "pancreatic reaction" is to the effect that in 800 specimens of urine examined by his method there was found evidence of disease of the pancreas in all cases where a positive reaction was obtained, and it was possible subsequently to examine the condition of the gland. A positive reaction was never observed either with a normal urine or in any case in which it was not probable that there was some pancreatic "mischief."

Cammidge's findings in eighty-three specimens of urine from forty-eight cases of diabetes are of interest. In thirty-six cases (75 per cent.) there was a positive reaction, suggestive, as he believes, of their pancreatic origin. In twelve cases the reaction was negative. Four of them came to autopsy. In one the pancreas was found to be normal both macroscopically and microscopically; in two the pancreas was stated to be normal, and in the fourth case the gland was not examined.

The cases of diabetes studied in the Presbyterian Hospital series are too few to be of value. The percentage (71) of positive reactions closely corresponds with that observed by Cammidge. Cecil,[7] in his recent exhaustive study of ninety cases of diabetes mellitus, found anatomical lesions of the pancreas in 88 per cent.

Watson,[3] in a late paper on "The Clinical Value of the Pancreatic Reaction in the Urine, Based on Over 250 Analyses," gives a variety of diseases in which he obtained a positive reaction, but in his conclusion states that "if certain facts," which he relates, "are kept in view, and this urinary reaction is carefully studied along with other clinical features of a case," he is convinced that Cammidge's test will prove of great value in the diagnosis of pancreatic disease.

Schroeder's[4] conclusions, based upon a study of 85 cases in which 110 chemical analyses were made, are as follows:

"1. It has been proved that inflammatory and destructive diseases of the pancreas may give rise to the appearance of certain, as yet undefined, bodies in the urine, belonging possibly to the sugars or related compounds.

"2. The reaction is not pathognomonic for disease of the pancreas, in the clinical sense. Extensive clinical observations on the urine in pancreatic and other diseases must finally determine the value of the pancreatic reaction."

Goodman,[5] in a paper of February, 1909, gives the results of the study of sixty-two cases of various abdominal diseases and disorders, including four cases of *experimental* pancreatitis, one of acute pancreatitis, two of chronic pancreatitis, one of carcinoma of the pancreas, one of carcinoma of the stomach and pancreas, four of cholecystitis, two of cholelithiasis, fourteen of diabetes, and ten of cirrhosis of the liver. His conclusions are that the test is of much value and "marks a decided advance in the diagnosis of pancreatic disease."

Eloesses,[6] in an exhaustive study of diseases of the pancreas, largely from Czerny's Clinic, reports the findings in the urine in sixteen cases where Cammidge's test was employed. The diagnoses were confirmed at operation or autopsy. Positive reactions were obtained in four cases of chronic pancreatitis, in two of carcinoma of the pancreas, in one of cancer of the gall-bladder with metastases in the pancreas, in one case of cholelithiasis (stone in the common duct) associated with a pancreatitis, in one of cholelithiasis (stone in the gall-bladder), in one of cholelithiasis, the site of the calculus not stated; in one of carcinoma of the stomach with metatases in the liver; in one case of sarcoma of the retroperitoneal glands the reaction was positive to the earlier Cammidge tests, known as "A" and "B" tests, but which have now been discarded by Cammidge. Negative results were obtained in one case of hepatic cirrhosis and in one case in which the clinical diagnosis was pancreatitis. At autopsy, however, a carcinoma of the intestine was found; the pancreas was normal. Negative reactions were also observed in two cases of dilated stomach.

Turning from clinical to experimental evidence of the value of the "pancreatic reaction," the literature contains the studies of the urine in experimental pancreatitis, by Eichler,[8] Sailer, Speese and Goodman. Eichler's conclusions, based upon positive reactions, obtained from the urine in three cases of acute pancreatitis artificially produced in dogs, are open to the objection of a possibly faulty technique. Sailer and Speece,[9] Speece and Goodman,[10] employing Cammidge's improved C. test, obtained results which, while not conclusive, are highly suggestive of the value of the "pancreatic reaction."

In conclusion, a review of the studies, to the present date, of the urine both in clinical and experimental pancreatic disease, indicates that, while the "pancreatic reaction" is not pathognomonic of, it is strongly suggestive of inflammatory and destructive lesions of the pancreas, and is of much assistance in diagnosis in association with other clinical evidence of disease of this organ.

It gives me pleasure to express my indebtedness to Dr. Meakins and his assistants in the laboratory, and to Dr. Lamb, for their cooperation in the study and assistance in the preparation of the tables.

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THE RATIONAL TREATMENT OF TABES DORSALIS IN RELATION TO ITS PATHOGENESIS.*

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Empirical treatment may succeed in curing disease when the factors are quite simple. Conspicuous examples are found in the curing of malaria by quinine, of secondary syphilis by mercury, and in a certain degree, the amelioration of tuberculosis by out-door life in a good climate; but many a patient has been made most uncomfortable by quinine, syphilitics have been seriously injured by mercury, and it is notorious that consumptives have often failed to receive benefit from life in the open air. All of us now know that these drawbacks and failures were due to a lack of understanding of the precise relationship of the remedy we were employing to counteract the cause of the patient's disorder.

It is to such lack of knowledge that must be attributed many failures in the treatment of tabes dorsalis by mercury. Now that the syphilitic nature of the tabetic process is beyond question, therapeutists are again inquiring why mercury failed in the past, and whether it cannot succeed in the present and future.

To comprehend the issue the pathogenesis of tables dorsalis must be understood. Nageotte's researches [1] showed as early as 1894 a constancy of lesions in the radicular nerve at the point where it receives its meningeal sheaths. These lesions correspond to one or other stage of the granulomatous process, varying as they do from simple round-cell infiltration to granuloma, and even breaking down with formation of cavities. They are due to primary chronic meningitis, evidenced by the lymphocytosis found on spinal puncture during life, and post mortem when skilfully looked for, although the tendency of the process to resolution and fibrous tissue formation leaves only a slight thickening in the membrane already fibrous by nature.[2]

The changes in the cord are consecutive to this. That this is so is proved by similar changes of the posterior column after disease or experimental section of individual roots, and by the change occurring in the mechanical affections of the radicular nerves,[3] due to the increased intraspinal pressure caused by the growth of cerebral tumors.

The noxa falls upon the root fasciculi very disparately; and this corresponds to the disparate nature of the sensory troubles [2] which do not preponderate so much as formerly supposed upon the fibers which subserve the sense of attitudes and of muscular movement. Moreover, Roux [4] has shown that degenerations of the sympathetic fibers always occur in tabes, and that these are quite homologous with the degenerations produced by experimental section of the spinal roots as well as by central destruction of the intermediolateral column.[5]

The chronic meningitis responsible for the disease of the posterior roots and the consecutive degeneration of the posterior columns of the cord implicates also the anterior roots which, however, may effectively regenerate, while the posterior roots can do so only as far as their entry into the spinal cord at Obersteiner's ring where they no longer possess a neurilemma sheath.[6] Hence the sensory loss persists, while the motor loss often recovers. When severed, however, cicatrization of the lesion prevents the passage of the regenerating fibers, and a muscular atrophy persists; and indeed 20 per cent. of tabetics present muscular atrophies, as recent clinical observations have shown.[7]

The Argyle-Robertson pupil and the lymphocytoses of the cerebrospinal fluid are strong evidences of syphilis.[8] The latter is found in the secondary stage in 40 per cent. of cases,[9] and irritations of the nerves which pierce the meninges are not uncommon in this late secondary stage, and may even occur during the roseola. More careful investigation is now revealing a syphilitic etiology of many a neuralgia and palsy, more especially of the sciatic nerve [10] and of the face.[11] Now these are usually quickly removed by mercury in whatever way administered; but in the tertiary stage the therapy is less certain.[12] It would seem that the resistance of the host is impaired, sometimes to the point of hopelessness, as in dementia paralytica, which is now conclusively shown by the Wassermann[13] test to be syphilitic and not parasyphilitic. It is to other causes, therefore, than the nature of the noxa that we must ascribe the failure until now of specific therapy. I believe these are mainly three: (1) Faulty methods of administration; (2) hasty generalization, and (3) overexpectation.

To give mercury by inunction is to give it in uncertain doses, and to make it inconvenient and often annoying for the patient; and this does not conduce to a psychical attitude which favors an immunizing process.[14] Salivation and insufficient dose are equally undesirable. When given through the mouth, not only is its absorption uncertain, but that of food is interfered with, and nutrition must suffer. It is only by inserting mercury directly into the body in known quantities that we can commensurately antidote the noxa of syphilis with the minimum of injury to the patient's tissues. Hence, it is only by this method that it is fair to judge the specific therapy of tabes and paresis; and recent results have justified the hopefulness of the scientific pharmacologist with respect to this, for numerous cases and cures are being reported.[15]

Now do not misunderstand this statement. Recollect that no one expects a cured consumptive to grow a new lung, for destroyed lung tissue is replaced by cicatrix; the phthisis is, however, cured,

*Read by invitation before the Tri-State Medical Association at Charleston, S. C., February 17, 1909.

although the patient's breathing may continue more or less embarrassed. Similarly with the tabetic, although sclerosis cannot be substituted by nerve fibers, yet the tabes may cease by an arrest of the inflammation which has caused it. The locomotor ataxia, however, due to the destruction of certain nerve paths, will be recovered from only in so far as the patient retains sufficient nerve paths to re-educate. Muscular atrophies of long duration will probably persist, for impenetrable scars are probably present. Trophic changes in joints, ligaments, muscles, and skin, in so far as they are secondary to root-nerve degenerations, will remain in *statu quo ante*. But the invasion of the inflammatory process will cease; the patient is recovered, though not restored. If he has been allowed to proceed to the pitch of incapacity, he may be compared to a case in which the papilloedema produced by intracranial tumor has continued long enough to cause blindness before the intervention of the surgeon has been invoked, however successfully, to remove the neoplasm. The patient is cured, though blind. As much may be said for the recovered consumptive incapacitated by dyspnea.

The moral of the foregoing is the imperative need of early diagnosis of the sometimes fleeting and obscure neuralgia, vertigo, mictional, and gastric difficulties, etc., which so often precede locomotor symptoms of tabes dorsalis. A careful neurological diagnosis, sometimes including examination of cerebrospinal fluid, would enable us to anticipate many a locomotor ataxia. Of course, the Wassermann reaction will enable us to dispense with much neurodiagnostic lore and skill; but the installation for this is very complicated, and therefore not available except in certain large centers; and in any case, a certain knowledge of neurological signs is required before one can even suspect an incipient tabes or paresis.

Noguchi[16] has recently discovered a very simple reaction of the cerebrospinal fluid, which he believes to be pathognomonic, of dementia paralytica at least. I have no experience with the method, but it is certain that if it will reveal paresis, it will reveal tabes equally well. Noguchi claims that his test succeeds in a larger percentage than that depending upon the Bordet-Gengout principle. It is as follows: To 0.1 c.c. of spinal fluid in a tube of not over 1 cm. diameter, add 0.5 c.c. of 10 per cent. butyric acid; heat till bubbling, and while hot add 1 c.c. of 4 per cent. sodium hydrate solution. The paretic fluid, in a few moments, becomes flocculent, whereas, normal fluids are only opalescent or cloudy, the flocculence does not depend upon the quantity of the cloudiness, but is characteristic of metasyphilis.

When the diagnosis is made, the manner of treatment outlined will remove from the radicular nerves the infiltrations and exudates caused by the lues. If intervention is early, absorbtion occurs without cicatrix; and the lost conductivity of the nerve fibers, which always precedes destruction, is quickly restored. The invasion of other regions is forestalled, and the general health of the patient is improved.

Time lacks to insist upon the accessory, though essential, hygienic and dietetic factors of successful treatment; but they cannot be too strongly insisted upon. I give all my patients a dietary and an elastic time table by which to regulate their day; and I prescribe their exercise, in order that this essential metabolic regulizer may be procured without undue fatigue.

It would seem inevitable that if this treatment can arrest the tabetic process, it should not fail to put an end to the inflammatory invasion which determines dementia paralytica; for it is clear that the two processes are etiologically and pathogenically the same, differing only in locality. The future will show whether this expectation is realizable in practice. It would seem that the problem is one of diagnosis, early enough to anticipate the loss of resistance due to the massive invasion of the encephalon in paresis.

In this diagnosis, as well as in the prognosis, psychometric methods are of great assistance, as will be shown by cases I shall report elsewhere.[17] Some pathologists will reply to this belief by calling the cases which recover cerebral syphilis, diffuse, arteriosclerotic or gummatous; but the research of Ladame[18] has shown the impossibility of drawing the histotological line between diffuse syphilis and paresis. Moreover, neurological surgeons know how resistant are gummata of the brain to antiluetic treatment; while syphilitic arteritis is irremediable after sclerosis has occurred. So that the therapeutic difference does not seem very distinct; and we must fall back upon the unequivocal evidence of the serum reaction, which declares that paresis is syphilis, and as such must be amenable to a specific therapy, as I maintain. We have only to find the pharmacodynamic way; and it is in order to appeal to the practical trials which will eventuate in a precise method *secundum artem* that I seize the agreeable duty of presenting, as I see them, the main trends of progress in the effective therapeusis of the hitherto hopeless Frascatorian encephalitic and spinal meningitides.

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Hospital Practice vs. Private Practice.—According to Gee, the main advantage of hospital practice is the opportunity it affords for examining the bodies of patients after death; while the main advantage of private practice is that you know so much more of your patients during life than you can ever discover about hospital patients, who are only transient.

THE THREE URETERAL ISTHMUSES.

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In the present blooming of ureteral therapeusis, both medical and surgical, it may be well to pause to consider some of the simple but fundamental matters in regard to the ureter. During the past dozen years I have devoted special attention to the *form* of the ureter in animals and man, examining 800. I injected about two hundred ureters of man and animals with air, fluids, liquid paraffin (for corrosion anatomy), red lead and starch. Many were x-rayed. The result of the above investigations is that the human ureter possesses practically three constant uretral constrictions and three constant ureteral expansions. For practical reference I termed these constrictions and expansions the three *ureteral isthmuses* and the three *ureteral dilatations*. The object of this paper is to present the utility of our knowledge in regard to the three *ureteral isthmuses* in the practice of medicine.

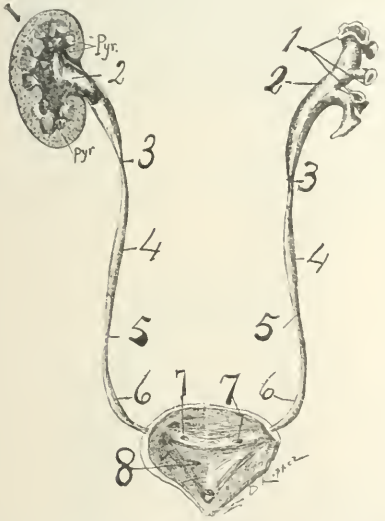

Fig. 1.—The three ureteral isthmuses; the three ureteral dilatations, and the normal course of the ureters; pr, renal pyramids. 1, ureteral calyces; 2, ureteral pelvis (proximal ureteral dilatation); 3, proximal ureteral isthmus; 4, middle ureteral dilatation (lumbar spindle); 5, middle ureteral isthmus; 6, pelvic ureteral dilatation (pelvic spindle); 7, distal ureteral isthmus; 8, trigone. This illustration is a composite drawing of several hundred ureters.

The Three Ureteral Isthmuses (marked 3, 5 and 7 in the figures).—What I termed years ago the three ureteral isthmuses are of the first and foremost importance in the practice of urology. They are the most important landmarks in the ureter. The human ureter presents practically three constant ureteral isthmuses. These ureteral isthmuses or sphincters are periodically rhythmically, functionating structures which allow the intermittent passage of quantities of urine. The erect attitude tells man's story of ureteral isthmuses. The ureteral isthmuses are of both hereditary and mechanical origin, due to the medial projection of the distal renal pole flexing the ureter, the ventral projection of the iliac vessels flexing the ureter on the pelvic margin in the erect attitude, and the obstructing of the urine by the bladder wall. The ureteral isthmuses, so far as their mechanical origin is involved, are due to flexion, angulation of the ureter by adjacent structures. Besides the sphincterial structure of the bladder, the powerful periureteral sheath separating the ureter and bladder and vesical valve aids in perpetuating the three constant ureteral isthmuses. The three ureteral isthmuses marked by primal agencies (kidney pole, iliac vessels, sphincterial bladder wall) are practically constant. In caliber the proximal ureteral isthmus is the minimum, the middle is the maximum, and the distal ureteral isthmus is the medium. The three ureteral isthmuses are significantly important anatomically, physiologically and pathologicall (Besides the three major ureteral isthmuses minor indistinct ureteral isthmuses may exist which possess no special anatomical, physiological, clinical or pathological signification.) The middle and distal ureteral isthmuses possess an age relation due to blood supply from the utero-ovarian artery, while the proximal ureteral isthmuses possess no age relation. The most important factors in ureteral obstruction (or hydroureter) are these three ureteral isthmuses—proximal, middle and distal. They are significant as regards obstruction by calculus or flexion, angulation, torsion. The ureteral isthmuses possess thicker and more powerful walls of fibrous, muscular and elastic tissue than the other ureteral segments. In diseases of the ureters as ureteritis, the three chief points of tenderness on pressure are located at these isthmuses. The three ureteral isthmuses cause the three ureteral dilatations—proximal, middle and distal. The ureteral isthmus are subject to flexion, torsion, ureteritis, hydroureter, stricture, tuberculosis, calculus, malignancy, obstruction by débris, blood clot.

The Proximal Ureteral Isthmus (marked 3 in figures).—This is located at the junction of the pelvic and lumbar ureteral segments, adjacent to the distal renal pole. It is the narrowest point of the ureter. It is the ureteral neck or proximal ureteral constriction. It is the proximal sphincter of the ureter. It is due to angulation or flexion of the ureter by the distal renal pole. In many ureters the proximal ureteral isthmus is fixed firmly to the distal renal pole by connective tissue and may lie in a renal groove, hence it flexes with the movements of the distal renal pole. It may become constricted in renal rotation or renal torsion. Important ideas are associated with the proximal ureteral isthmus, viz., (*a*) It corresponds to the elbow-shaped curve of the ureter adjacent to the distal renal pole. I shall call this proximal ureteral flexure or curve—*flexura renisurcteris*. (*b*) The ureter (calyces and pelvis) is extensively dilated proximal to the proximal ureteral isthmus. (*c*) The lumen of the proximal ureteral isthmus is considerably narrower than the adjacent proximal or distal ureteral portions. On account of the erect attitude of man the proximal ureteral isthmus varies in its distance from the distal renal pole ($1\frac{1}{2}$ to 3 inches). It possesses abundant connective tissue, is a powerful thick-walled isthmus averaging 1/12 of an inch in diameter. It is situated at the junction of the ureteral pelvis and ureter proper. Perhaps 60 per cent. of all calculi lodge at the proximal ureteral isthmus and its flexion or torsion is the chief factor in producing hydroureter (of the ureteral calyces and pelvis).

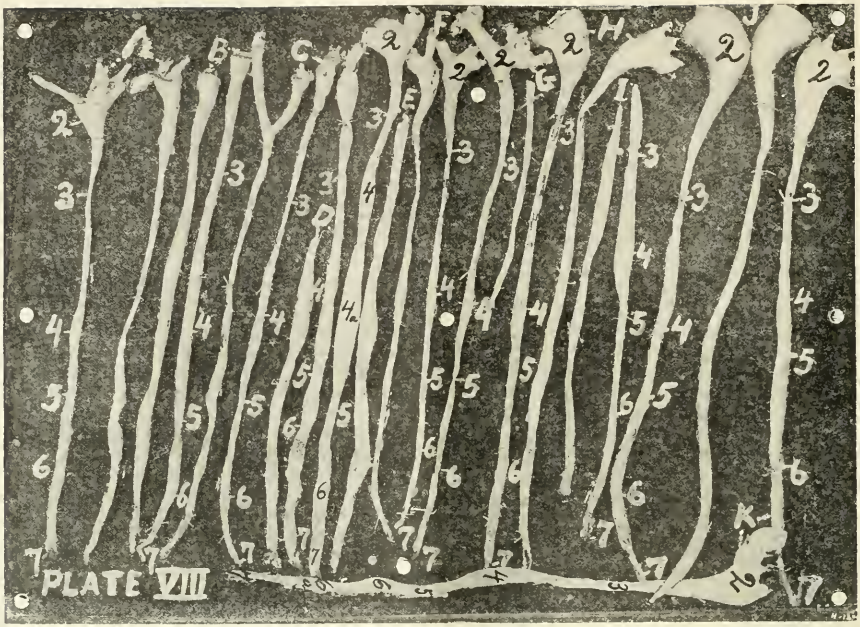

FIG. 2.—Paraffin distended ureters, demonstrating the isthmuses (and dilatations) in 21 human ureters and 1 from a beaver. These ureters I secured in consecutive autopsies without selection. They demonstrate the extensive range of variation in caliber of both ureteral isthmuses and ureteral dilatations. A represents the right and left ureters of a man middle age; B represents right and left ureters of man of 37 years; C exposes the right (partially duplicate) and the left ureter of a man 75 years of age; D shows right (minus pelvis and calyces) and left ureters of man 28 years; E presents right and left (minus pelvis and calyces) ureters of man of 55 years; F indicates the right and left ureters of man of 46 years; G illustrates right ureter of man, unknown age; it also shows a segment of a beaver's ureter (minus pelvis and calyces) presenting constrictions and dilatations; H illustrates the right and left ureters of man of 65 years; I right and left ureters (minus pelvis and calyces) of a woman of 31 years; J right and left ureters of man of 58 years; K right and left (lying at the foot of the picture) ureters of man of 58 years.

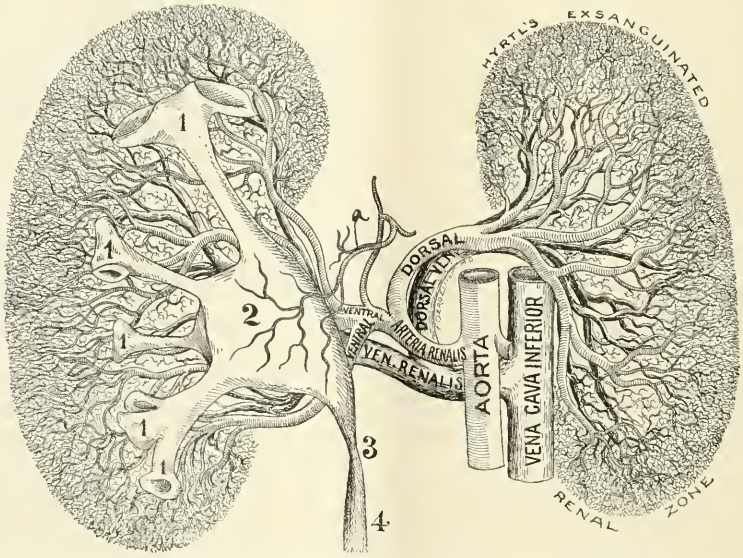

FIG. 3.—Corrosion specimen. The ureteral and renal vascular specimen was injected with liquid paraffin and corroded with HNO_3 for 4 weeks. The specimen represents the renal vascular blades opened like a book, and on the ventral blade like a picture on a page, lies the ureteral calyces and pelvis. This specimen presents quite faithfully the circulation, the kidney, calyces ,and pelvis. The two renal vascular blades are opened like a book. The corrosion was on the left kidney and the larger vascular blade is the ventral one. The vasomotor nerves accompanying the urinary tract may be estimated by the fact that a rich plexiform net-work of nerves ensheaths the arteries, the calyces, pelvis and ureter proper. When the renal vascular blades are shut like a book their thin edges come in contact, but do not anastomose. The edges of the vascular blades are what I term the exsanguinated renal zone of Hyrti, who discovered it in 1868, and we, at present, employ it for incising the kidney to gain entrance to the interior of the calyces and pelvis with minimum hemorrhage. The proximal ureteral isthmus marked 3 is distinct. (The proximal ureteral dilatations marked 1 and 2 are evident.)

Obstruction, flexion, torsion at the proximal ureteral isthmus produce what I have termed the "swan-shaped" ureter (*i.e.*, dilatation of the ureteral calyces and pelvis in the form of the neck and body of a swan), not infrequently found in autopsy. The proximal ureteral isthmus is practically constant for all ages and sexes in erect animals. It offers a slightly increased resistance to the introduction of the ureteral catheter. It may be a point or an inch in length. The malinsertion of the proximal ureteral isthmus in the ureteral pelvis is the cause of considerable dilatation of the ureteral pelvis and calyces, offering mechanicophysiological obstruction to the evacuation of the calyces and pelvis. The proximal ureteral isthmus is the most significant of all ureteral isthmuses. It is the greatest ureteral *landmark* (which is a point for consideration—anatomical, physiological and pathological). Its thick fibrous wall, lack of elastic and muscular tissue and diminutive lumen tell the story of the most dominant point of ureteral obstruction. On account of the greater length of the *vasa renalia dextra*, endowing the right kidney with extensive range of motion and the consequent frequent opportunity of the right proximal ureteral isthmus to flexion or torsion enforces the dominating ureteral obstruction, hydroureter (of calyces and pelvis) on the right. In ureteral obstructions, hydroureter, the proximal ureterial isthmus does not dilate in proportion to other ureteral segments (the ureteral dilatations or spindles). The proximal ureteral isthmus enhances the dimension of the proximal

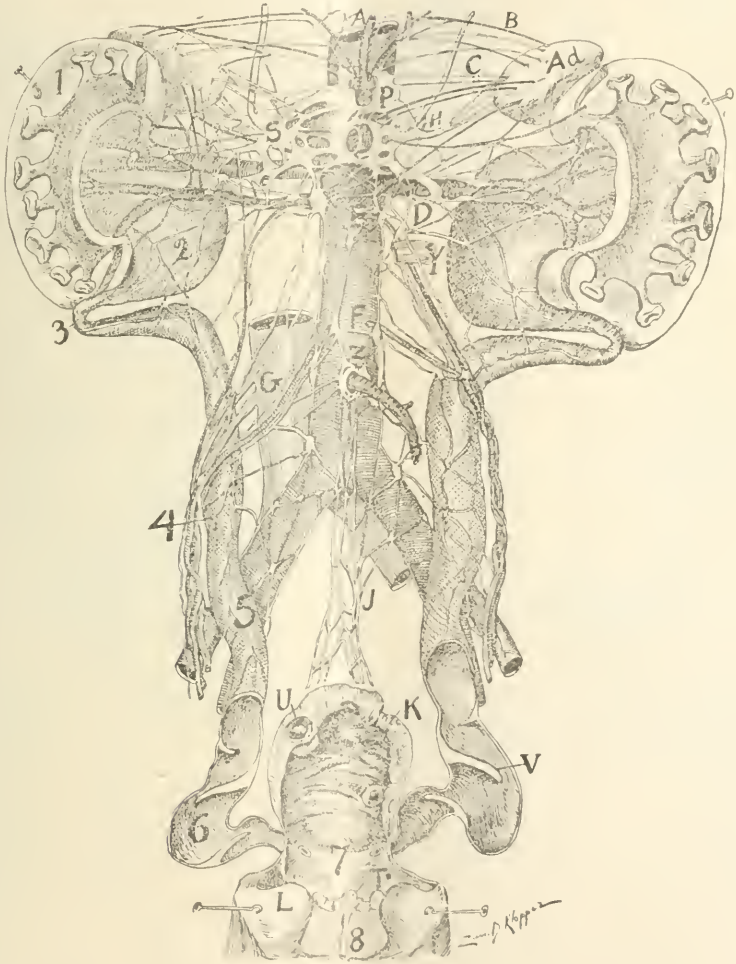

FIG. 4.—This specimen was secured at an autopsy and was drawn under alcohol from nature. It is what I term the "swan-shaped" ureter, i.e. the ureteral pelvis dilates in the shape of the neck and body of a swan. The most indelible impression secured from this specimen is the persistent nondilatable proximal ureteral isthmus (3); the middle isthmus (5) yields the most among the 3 isthmuses; the 3 ureteral dilatations (1-2, 4, 6) are marked, especially 1 and 2; the ureteral pelvis is dilated relatively more than the calyces. The proximal ureteral isthmus was firmly fixed by connective tissue in distinct renal grooves on the distal renal pole. Note the ureteral valves at V. This specimen is accompanied by the vasomotor (sympathetic) nerve, which ensheaths vessels and ducts, ruling their peristalsis. The arteria renalis presents duplicity. From this specimen it is evident that the adrenals and kidney receive enormous nerve supply from abdominal brain.

ureteral dilatation (calyces and pelvis). To demonstrate the proximal ureteral isthmus one need only free the ureter by dissection during surgical procedure or autopsy, but especially distend the ureter with air or fluid or prepare it by injection of liquid paraffin for corrosion anatomy, whence it is indeli-

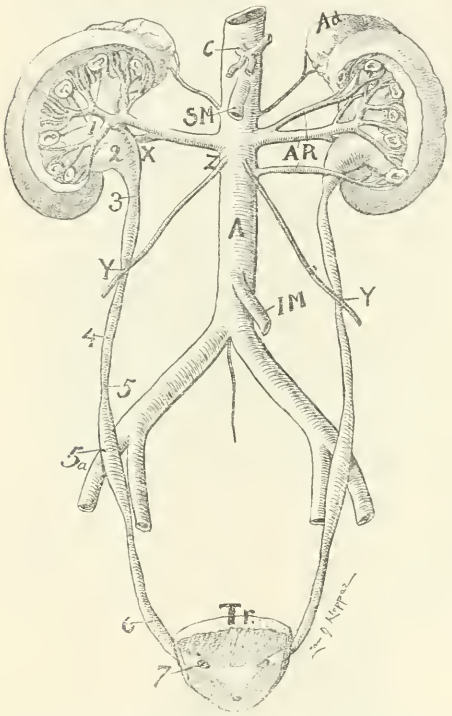

Fig. 5.—This specimen I secured from an autopsy and carefully injected ureters and vessels. I then dissected it and Dr. Klopper drew it exactly from nature. The middle isthmus (5) may not always be located exactly on the iliac vessels as in this figure; the dilated ureteral spindle (5a) occupies the ureteroiliac crossing. The right accessory renal vessel crosses the right ureter on the proximal side of the right proximal ureteral isthmus, which exposes to the danger of hydroureter due to compression.

bly microscopically evident. There can be but slight doubt that many surgeons, unfamiliar with the form of the ureter, have not infrequently mistaken the normal proximal ureteral isthmus for a pathological ureteral stricture. During the distalward or ventralward movements of the kidney by torsion or flexion of the kidney the proximal ureteral isthmus is liable to potential flexion or torsion (periodic) potential hydroureter. During ureteritis the edema or hypertrophic condition of the mucosa of the proximal ureteral isthmus is liable to cause partial or complete obstruction to the urinary stream, inducing gradual or rapid distention of the proximal ureteral dilatation. The proximal ureteral isthmus produces the proximal ureteral dilatation (calyces and pelvis). The proximal ureteral isthmus is subject to flexion, torsion, calculus, ureteritis, catarrh, tuberculosis, obstruction by debris, blood clots, malignancy.

The Middle Ureteral Isthmus (marked 5 in figures).—This is located at the point where the ureter crosses the *vasa iliaca communia*. It averages 1/7 of an inch in diameter and obstructs relatively few ureteral calculi. There is a distinct flexion or angulation of the ureter in erect animals where it crosses the common iliac vessels. The middle ureteral isthmus I shall term *flexura iliaca ureteris*. The middle ureteral isthmus is the middle ureteral sphincter or constriction and is relatively thick-walled, consequently it dilates in proportion less in ureteral obstruction, hydroureter, than the adjacent proximal (lumbar) and distal (pelvic) dilatation. The middle ureteral isthmus is a secondary landmark in ureteral isthmuses. It is nourished by an artery from the iliac vessel. It has an age relation due to the supply from the uteroovarian artery. The middle ureteral isthmus offers a slightly increased obstruction to the introduction of the ureteral catheter. The right middle ureteral isthmus crosses the *arteria iliaca externa*. The left middle ureteral isthmus crosses the *arteria iliaca communis*. The middle ureteral isthmus is the most accessible point of the ureter for palpation, being in the region of the sacroiliac joint. The middle ureteral isthmus causes the middle ureteral dilatation.

The middle ureteral isthmus is subject to calculus, catarrh, ureteritis, tuberculosis, obstruction by débris, blood clot, malignancy.

The Distal Ureteral Isthmus (marked 7 in the figures).—This is located at the point where the ureter traverses the urinary vesical wall. Possessing liberal connective tissue it is a powerful thick-walled isthmus, averaging one-tenth of an inch in diameter. It is the second significant ureteral isth

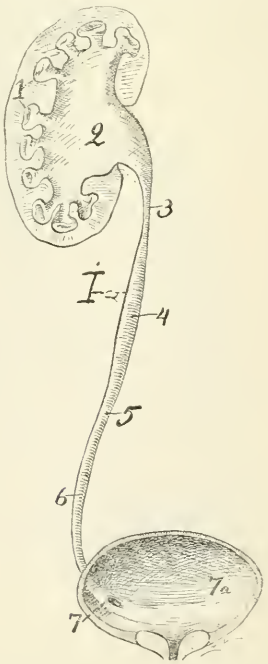

Fig. 6.—This specimen represents the right kidney, ureter, and bladder from a subject possessing no left kidney or ureter. The kidney is 30 per cent. hypertrophied (vicariously assuming the work of both kidneys). The vigorous labor devolving on one kidney and ureter has accentuated the three ureteral isthmuses (3, 5, 7) and the three ureteral dilatations (1-2, 4, 6). Extrarenal function, *i.e.* especially extraureteral peristalsis, accentuates the pronounced form of the ureter, *i.e.* it increases the ureteral dilatations.

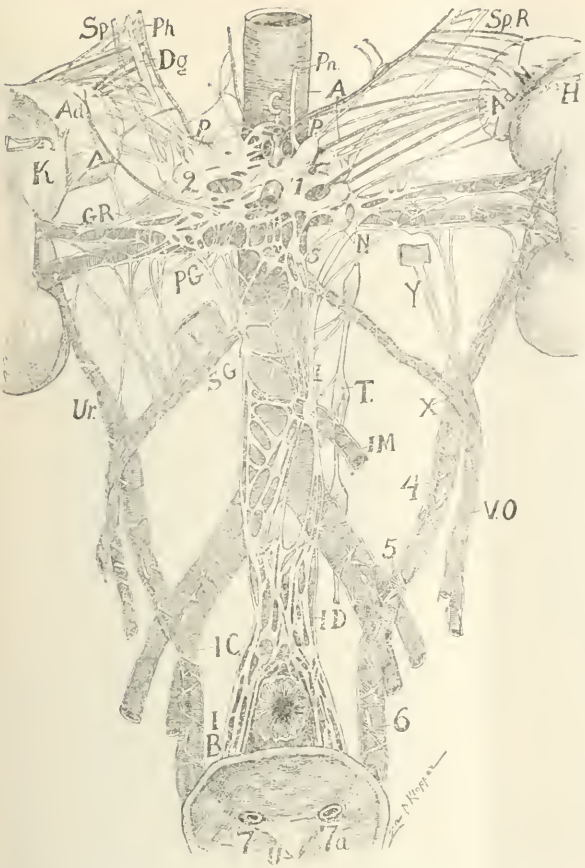

FIG. 7.—This illustration, drawn from nature, illustrates slightly marked ureteral isthmuses (and dilatations). The vasomotor (sympathetic) nerve is pronounced, showing the abdominal brain and vasomotor nerve ensheathing the vessels and ducts. The ureteral isthmuses are located at the distal renal pole, uretroiliac crossing, and the entrance of the bladder; the isthmuses and dilatations are more marked on the right. Note the right proximal ureteral isthmus lodged in a renal groove. The lumbar and pelvic ureteral spindles are marked.

mus. It obstructs many ureteral calculi for considerable periods of time. It is a primary ureteral landmark—anatomical, physiological, pathological—among ureteral isthmuses. The distal ureteral isthmus is a primary ureteral sphincter, a physiological and anatomical constriction. It is located at the lateral angle of the vesical trigone at the base of the bladder. Its thick, fibrous walls, lack of elastic and muscular tissue induce it to dilate less in proportion than its proximally adjacent pelvic ureteral reservoir (pelvic ureteral spindle). The distal end of the ureter is independent, separated from the urinary vesical wall by a cylindrical wall of connective tissue, allowing ureter and bladder wall to functionate independently. The distal ureteral isthmus traverses the urinary vesical wall for three-fourths of an inch, constituting an automatic vascular apparatus—a sphincter or valve of wonderful utility. Normally, no regurgitation of fluids can occur from the bladder into the ureter as the greater the vesical pressure or distention the more firmly are the valves of the distal ureteral isthmus coapted. The distal ureteral isthmus causes the distal ureteral dilatation. It offers slightly increased resistance to the introduced catheter. During ureteritis the mucosa of the distal ureteral isthmus becomes edematous, hypertrophic, and offers partial obstruction to the urinary stream—enhancing the distention of the distal ureteral dilatation. During ureteritis the distal ureteral isthmus may spasmodically and violently grasp the introduced ureteral catheter, offering marked resistance to its withdrawal, and so firmly as to resemble an inverted cone projecting into the bladder. The distal ureteral isthmus is abundantly supplied with blood, hence when obstructed by a calculus it presents remarkable phenomena of hyperemia, edema, eversion, hypertrophy. The distal ureteral isthmus possesses an age relation due to abundant blood supply from the arteria uterina. The distal ureteral isthmus may be safely dilated to evacuate calculus or for other ureteral therapeusis. The distal ureteral isthmus is subject to calculus, ureteritis, tuberculosis, stricture, obstruction by débris, blood clot.

Conclusions.—There exist practically three constant ureteral isthmuses.

The ureteral isthmuses are due to the erect attitude and consequent flexion, angulation of the ureters by adjacent structures (distal renal pole, iliac vessels, and bladder wall—sphincter).

The ureteral isthmuses constitute the most important ureteral landmarks (a landmark is a point for consideration, anatomical, physiological, pathological).

The ureteral isthmuses are points where special ureteral pathology prevails, *e.g.* ureteral flexion, torsion, hydroureter, obstruction by calculus, ureteral stricture, ureteritis, catarrh, hypertrophy of ureteral mucosa, tuberculosis, malignancy, obstruction by débris, or blood clot.

The ureteral isthmuses, because of the presence there of an abundant amount of connective tissue and lack of muscular tissue, dilate less in proportion than the other ureteral segments in ureteral expansion.

The ureteral isthmuses are practically ureteral sphincters.

The ureteral isthmuses are significant in ureteral pathology and are the greatest of ureteral landmarks.

The ureteral isthmuses are significant in ureteral diagnosis.

In ureteritis the ureteral isthmuses represent the tender points of the ureter on pressure. They are also the points where the introduced catheter is obstructed.

In the operation for removing a calculus which is lodged at any one of the ureteral isthmuses, the stone should be pushed forward until it enters one of the ureteral dilatations where the lumen is sufficiently wide to allow for surgical manipulation and for coaptation.

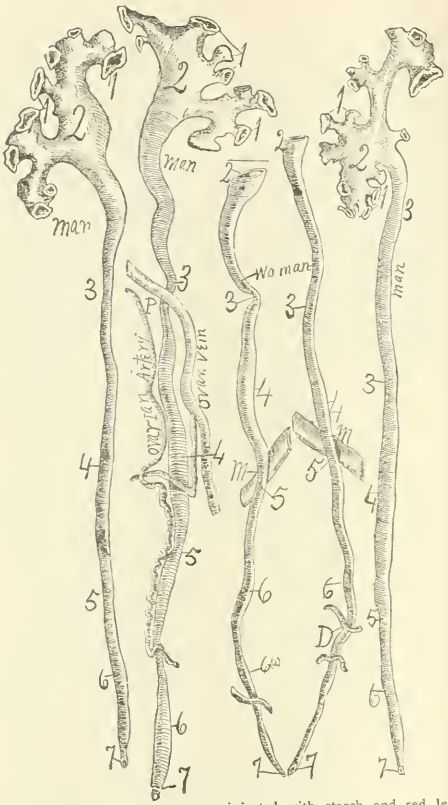

Fig. 8.—These ureters were injected with starch and red lead and *x*-rayed. The ureteral isthmuses (3, 5, 7) and ureteral dilatations (1-2, 4, 6) are evident . Five ureters, half-life size, three with and two without calyces and pelvis. The spindles are obvious, especially those of the woman at 4 and 6. There frequently exist two pelvic spindles, 6 and 6a.

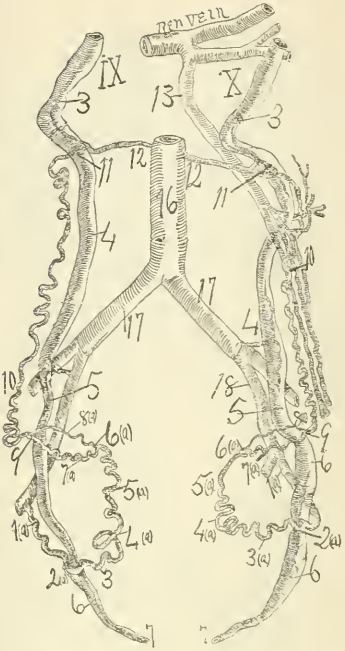

Fig. 10.—This specimen I removed from the body with its associated relations and topography. It was then injected and *x*-rayed. It demonstrates excellently the 3 T-shaped ureteric arteries that supply the ureter. I have named the three ureteral arteries: (1) the ureterica proximalis (at 11), emitted from the proximal end of the ovarian; (2) the arteria ureterica medialis (at 4 and 5), emitted from the iliac; (3) the arteria ureterica distalis (at 2a), emitted from the uterine as it crosses the ureter, *i.e.* at the arteriouteral crossing. The uteroovarian artery being an artery of age or functional relations it imposes by means of its branches an age or function relation on the ureter. Of the branches of the T-shaped uterine arteries one passes proximalward and the other distalward on the ureter. The proximal (11) and distal (2a) ureteric arteries supply the middle and distal ureteral dilatations—hence, menstruation and gestation congest them and senile atrophy cause anemia. The middle ureteric artery (at 4 and 5), being from the iliacs, possesses no age relation. The uteroovarian artery (marked 1a, 2a, 3, 4a, 5a, 6a, 7a, 8a, 9, 10, 11, 12) is shown as to its relations to the ureteral isthmuses and dilatations.

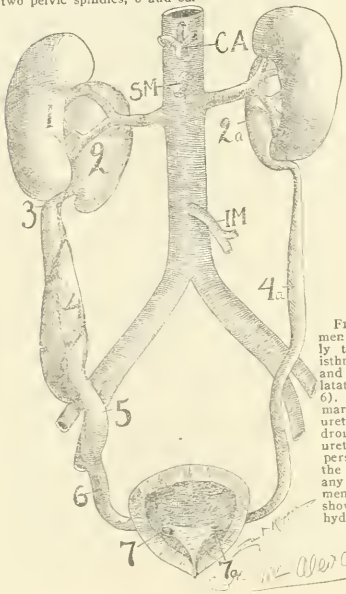

Fig. 9.—This specimen presents markedly the three ureteral isthmuses (3, 5, 7) and three ureteral dilatations (1-2, 4 and 6). Observe that in marked pathological ureteral changes (hydroureter) the three ureteral isthmuses persist, presenting the least changes of any ureteral segment. This specimen shows a right-sided hydroureter.

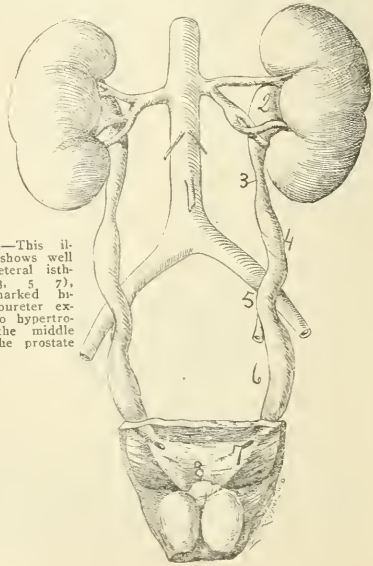

Fig. 11.—This illustration shows well the 3 ureteral isthmuses (3, 5 7), though marked bilateral uroureter exists due to hypertrophy of the middle lobe of the prostate (8).

THE PROPER TEACHING OF THERAPEUTICS IN MEDICAL SCHOOLS.*

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In the way of introduction to my paper I will say that it affords me great pleasure to note the renewed interest which is being taken in therapeutics, for I believe that our ultimate concern, as a profession, is the prevention and cure of disease. The therapeutic art is the final goal to which the training of the medical student should be directed. As Jacobi recently said: "We live in the era of therapy; therapy in political, social and individual life."

I have maintained for years that the best way to do away with nostrums is to give our medical students thorough courses in materia medica, medical pharmacy, pharmacology, and therapeutics. The way to abolish proprietary medicines is to teach medical students how to prescribe, and acquaint them with the physiological and therapeutic action of drugs. They should be taught how to write or compound prescriptions that would be palatable and agreeable, compatible yet so associated or combined as to meet the indications for which the prescription is intended, in a scientific manner.

If our medical students were able to do this there would be fewer therapeutic nihilists; secret remedies would be relegated to antiquity and it would mark the beginning of the end of sectarian schools of medicine. But how is it now? There are some colleges that do not teach materia medica and therapeutics at all, and there are many State examining boards that do not examine on these subjects. The average medical student comes out of college to-day with very little knowledge of these branches. He goes to the bedside ignorant of these matters and not knowing the action, uses, or, in many instances, the doses of drugs, and not knowing how to write a prescription, he naturally falls back on some proprietary medicine. Is it any wonder that the people use "patent medicines" and patronize quacks? Physicians themselves are to blame for the discredit which the lay press casts on the medical profession, not only because of their ignorance and scepticism regarding the value of drugs, but because of the bitter controversies among themselves.

There are in our ranks therapeutic nihilists, and therapeutic anthusiasts, and their discussions over non-essentials have retarded our progress in therapeutics. At the best, as Gregg says, "our advance has been rather by slow and patient endeavor and calm and deferred judgment—Line upon line, precept upon precept, here a little and there a little." So have we climbed and so must we continue to plod along our way. The history of medicine is full of the announcements of cures and systems of cures that have, in most instances, been relegated to the rubbish heap by the test of time. After all, we have few, if any, specifics. The practice of medicine is still difficult and often times discouraging, but our best therapeutic friends are, perhaps, after all, the old time-honored drugs.

So-called nonmedicinal therapeutics has a place and a large one, and I shall say a few words on this subject later, but agents of this class can never entirely replace drugs in the treatment of disease.

*Read before the Physicians' Club of Chicago, Friday, November 27, 1908.

It is our duty to seek a happy medium between therapeutic nihilism and polypharmacy, and ever to study the principles that govern the rational treatment of disease.

Our aim, as teachers of therapeutics, should be to make it, if possible, a science as well as an art, to teach rational rather than empirical methods, and to trace the relations between therapeutics and biology. We must confess, however, that we are still far from being able to explain the principles of much of our treatment; a great deal of our drug treatment is still empirical, but the rational increases every day, and much of the old empirical disappears. While the modern physician is dissatisfied and should be dissatisfied with empiricism, we cannot as yet abandon all our empirical methods. We know as did our ancestors two hundred years ago that mercury is good treatment for syphilis, but we understand little more than they in what way it acts. We believe that salicylates are useful in acute articular rheumatism, and we guess at the secret of their efficiency. We speak of certain drugs as "specific" for certain diseases, meaning thereby that they seldom fail to produce good effects, but of the infinite number of steps between the administration of the drug and the beneficial result we know next to nothing. While I impress upon my students the importance of knowing why and how of therapeutic action, and not be satisfied, as is the empiricist, with the fact, I do not go so far as to advise them not to use one of these old, well-tried "specifics," salicylates for example, because they cannot explain how it acts. It was not so very long ago that we were ignorant of the action of quinine in malaria, but we knew that it seldom failed to alleviate the symptoms of the disease.

Our students should be taught rational, scientific therapeutics so far as we understand it, but we should avoid "over-training" them, otherwise we will turn out ultrascientific men—men with the materialistic and sceptical spirit so developed that they are devoid of all reason and common-sense—utterly incapable of properly treating a sick human being, yet perhaps thoroughly familiar with the action of diethyl-sulphon—diethyl-methane on the blood of a healthy mongrel bitch. Which leads me up to my subject which is "The Proper Teaching of Therapeutics in Medical Schools." I wish to amend this by striking out the work "proper;" I think it is a *good* method and offer it for what it is worth.

Recently there have been so many self-constituted "authorities" who have advocated this and that remedy and method of treatment or no treatment at all, with so much assertive intolerance, that I am wearied with anything that smacks of "authority."

In the college with which I am connected as head of the department of therapeutics, drug therapy is taught as follows: During the first semester of the freshman year the students are taught, by lectures, recitations, and laboratory work, the appearance, physical properties, official name, English name, synonyms, botanical source, active constitutents, and official preparations of the vegetable official drugs. Important unofficial drugs are also considered. In connection with this, the student also learns methods of administration, and the doses of drugs and preparations. Four hours a week are devoted to this work.

Most of the second semester of the freshman year is devoted to work in pharmacy. It embraces the principles of metrology, and the various processes used in the manufacture of chemicals and

pharmaceuticals. It also includes a study of the various classes of preparations, such as waters, solutions, fluid extracts, tinctures, plasters, pills, powders, wafers, etc. The didactic work is supplemented by demonstrations and exercises in the laboratory. The elementary principles of prescription writing are also taught during this course.

It is also explained to the student in this course what is meant by assayed or standardized drugs. Standardization was a great advance toward accuracy in therapeutics as it gives us preparations of more or less uniformity. Yet, after all, standardization is merely a step in the evolution of an exact and definite materia medica.

Standardized preparations when made by the same pharmacist are not always uniform in strength, and I will add for fear of being misunderstood, that alkaloids and active principles are not always uniform in strength, and the same influences, such as exposure to air, etc., which cause the deterioration of one class of preparations will deteriorate the other. This entire question of instability in preparations is now regarded by experts as unanswerable except by means of long-continued experiments which are now being carried on.

I impress these facts upon my students and urge upon them the importance of prescribing only the best obtainable preparations, and if, for instance, they find that one house makes a uniformly reliable and active preparation of ergot, if that is the preparation they desire, they should not hesitate to specify this make or any other brand that they find by experience is reliable.

As the matter now stands we are compelled in the majority of instances to make a physiological assay at the bedside, giving enough, regardless of the dose recommended, to produce the desired results.

I bring all these points out to my students, and tell them it is just as important to be sure of the reliability of any drug they give a sick person as it is of the aseptic condition of their hands and instruments in performing an operation. To use cheap, unreliable medicines is criminal negligence.

In the sophomore year pharmacodynamics is taught, together with a review of the properties of drugs, incompatibilities, pharmacy, prescription writing, and therapeutic indications. I urge laboratory work in pharmacology. Much of our prgoress in rational therapeutics is due to experiments upon animals. Not only have many new and valuable drugs been discovered, but serious errors in the use of well-known drugs have been corrected through the observation of their effect on animals. Thus digitalis was at one time recommended for aneurysm, because it slowed the heart, until it was shown by experiments on animals that it not only slowed the heart but raised the blood-pressure.

While considerable work of this kind is done I impress upon by students the fact that pathological conditions very often modify the effects of drugs to a very considerable extent; that the action of drugs is not always the same in disease as in health; that the action of a drug is not necessarily the same on a sick human being as it is on a healthy animal. A drug may or may not possess certain decided action on a healthy, robust bull pup without having any remedial action whatever on a sick baby —or *vice versa*. In other words, pharmacological experiments to be of practical value must be corroborated by the results of clinical experience.

Throughout the entire junior year the therapeutics of drugs by classes are given—as for instance, drugs whose chief action is on the nervous system, drugs acting chiefly on the circulatory system, etc. —in connection with their physiological action, methods of administration, contraindications, untoward actions, and a review of prescription writing are taught. Didactic and clinical lextures are also given on nonmedicinal therapeutics.

In this year I call the attention of the students to the fact that the treatment of the various grave diseases is not altogether a matter of giving drugs, but that other measures are of equal if not in some instances of greater importance; that when midicine is administered in pneumonia, typhoid fever, and many other diseases it is used to relieve the accidents of disease, not to cure the essentials. Here, for the first time, I begin the discussion of the treatment, curative and preventive, of bacterial diseases by vaccines and antitoxins, or, in other words, the treatment of disease by the production of artificial immunity. Time alone can tell whether or not vaccine treatment has a future before it. The gradual improvement of its methods must bring with it a wider applicability to diseased conditions. It in its turn may give place to something better, but for us at present, we must take it as it is, and teach our medical students all that is known about it.

The opsonic method is a long step in the right direction. But there are other diseases than those of microparasitic origin to be overcome, and we have yet to explain the action of drugs and of other therapeutic agents. That drugs do not, in many cases at least, act directly upon the tissues or organs to modify their action or restore their function is evident, yet that they do act in some way is equally evident. That they act by affecting the nervous centers in all cases is also an untenable assumption. We have learned that nature regulates the function of certain organs by means of specific substances, hormones, secreted in one part of the body and carried by the blood to another part, conveying the message that it is time now for that part to act and to do its appointed share in the work of the economy. It is probable that something analogous to this occurs in disease and that drugs are hormones, or stimulants to the production of hormones, conveying the information that something is wrong in a certain part of the economy and calling upon the curative powers of the organism to exert their specific action in that direction. This is the theory advanced and developed by Sajous in his work on "The Internal Secretions"; a theory, which in my opinion gives promise of raising therapeutics more nearly to the rank of a true science than it has yet attained. This seductive theory is fully explained to my students.

In the first and second semesters of the senior year didactic and clinical lectures are given on medicinal and nonmedicinal therapeutics. Students are required to outline a course of treatment for various diseased conditions under the supervision of the professor in charge. This outline includes not only nonmedicinal measures, serums, organic extracts, etc., but the various drugs used in the treatment of the individual, the preparations of the drug most suitable for the particular case, and the scale of dosage. Frequent quizzes and exercises in prescription writing are given during this course.

Preventive medicine is included in my department. As important as a knowledge of therapuetics is it must be admitted that the system of relieving mankind of its misery and load of disease can no

longer rest alone on what is called curative skill. We have entered an era to which the steady effort must be not only to cure, but to prevent disease. In our medical colleges we should endeavor to reconcile the two different systems; to systematize the preventive part of medical science; to bring the preventive part into entire accord with the remedial; in short, to teach our students the inter-relationships which exist between the two parts—remedial and preventive medicine. You will notice that in the college I am connected with therapeutics and preventive medicine are taught throughout the full four-year course.

It may be argued that therapeutics could very well be taught along with medicine. The objection to this is simply that there is not time—that in the subject of medicine there is so much to be done in the way of teaching, etiology, pathology, diagnosis, etc., as well as treatment, that it is impossible to enter into a comprehensive discussion of all preventive and remedial measures.

With my associates and assistants we aim to teach in our college not only medicinal but nonmedicinal therapeutics, such as electrotherapy, radiotherapy, phototherapy, thermotherapy, hydrotherapy, mechanotherapy, massage, dietetics, therapeutic exercise, hygiene, sanitation, climatology, psychotherapy, etc., our aim being to supply a digest of the general principles of *all* valuable therapeutic measures to arrange well-known facts of practice, together with the explanations furnished by pathologic research and physiologic inquiry in such array and form that the student may be a well-informed, useful physician, competent to intelligently and scientifically treat the sick and able to instruct the public in the latest advances of hygienic and sanitary science.

Lately we have devoted considerable time to psychotherapy, for I believe that it is impossible to divorce the psychological from the pathological. Day by day the physician is face to face with appreciable forces that spring up in the heart and brain, and a thorough or working knowledge of psychotherapy is essential nowadays to the successful practice of medicine. "Moral medication belongs to the higher sphere of the doctor's duties, and if he means to cure his patients permanently he cannot afford to neglect them."

Empirical practitioners should not monopolize all the good nonmedicinal measures. We devote much time in the Junior and Senior years to electrotherapy, covering the fundamental principles of electricity—galvanism as used in electrolysis, the electrocautery, the uses of the faradic current and the static or induced current. Special attention is given to the teaching of the proper method of electrolytic medication. There is now plenty of life in ionic therapeutics, for the dry bones of the subject which have long been with us have now begun to live and move. The nature and use of the x-ray, high-frequency currents, leucodescent and other forms of light, and radium are taught.

One of my associates devotes almost his entire time to the teaching of scientific, practical hydrotherapy, and I look forward to the time when our medical colleges will have every facility for teaching all these methods, where therapeutic clinics can be held, and scientific observations made upon the patients.

In conclusion I will add that in my course in therapeutics I try to impress upon the student's mind that a doctor should not look upon each patient as a "case" of this or that "disease," of interest only as the victim of some morbid process furnishing him an opportunity to demonstrate his diagnostic skill; but as a suffering human being, possessing the attributes of humanity collectively, together with some variations which form individual peculiarities, and who should be relieved, if it is in the physician's power to relieve him.

While I try to teach rational, scientific therapeutics, I wish my students to avoid the conceit of the ultrascientific mind and while they remember the words of Huxley that "all true science is such exactly in so far as it strives to pass out of the empirical stage," I do not want them to forget that, after all, "all true science begins with empiricism." We cannot afford to belittle the results of observation and experience. It behooves us all to maintain an attitude of the widest tolerance.

I am desirous of sending out men who are generous, liberal, and broadminded, and original and independent thinkers. And last, but not least by any means, I try to teach my students that there is an ideal as well as a real or material side to the practice of medicine; that in order to be good doctors, and that means good therapeutists as well as good diagnosticians, they not only must thoroughly master the subjects now taught in medical colleges, but they should have high ideals and live up to them, they should not only be scientific, but cheerful, optimistic, and fearless, kind and sympathetic men and women.

DIAGNOSIS AND TREATMENT OF DIABETES MELLITUS.*

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QUITE frequently during the past five years articles have appeared with titles somewhat as follows: "A Plea for the General Practitioner?" "What is to Become of the General Practitioner?" "The Rôle of the Family Doctor to Send Patients to the Specialists." The thoughts contained in such contributions indicate that many general practitioners feel that their sphere is very rapidly being encroached upon by the specialist. Internal medicine as a specialty has received a large share of this criticism.

What does it all mean? Simply this: Medicine has so far advanced from the stage in which diseases were diagnosed by looking at the patient, his tongue and possibly feeling his pulse, that the public has observed the change. At no distant date the patient will demand that his physician be supplied with the latest scientific knowledge in the diagnosis and treatment of his disease. Moral: The physician must have as his ambition not to be the busiest man in his community and see the greatest number of patients, but must have uppermost in his mind the desire to so study his cases that they will receive the best services that the modern art of medicine can give. This means some laboratory work and much thought given to the preparation of special diet lists for each patient and varying ones for each as the progress of the affection may indicate. In many instances the patient is quite willing to pay for this sort of service in an adequate way. The great majority will more gladly pay for

*Read before the Columbus Academy of Medicine, November, 1907.

this work than for the "jolly" extended with a dozen tablets. To illustrate: About two months ago a patient from Pennsylvania consulted me. Her history was begun with the statement that she was suffering from diabetes and had been given a leaf torn from an old text-book, with directions to cut out all starches and sugars. This advice she had followed for six months. She came to ask if some change could not be made suitable to her own case, for she was getting worse—suffering from manifold nervous disorders, insomnia, thirst, and some skin irritation. Her physician had remarked at the last test of her urine that her progress was satisfactory, as the sugar was reduced; whereas upon examination, diacetic acid and acetone were found. This case is a good example of the effort to cure glycosuria while the patient emaciates and develops a dangerous acidosis.

The general practitioner will come into his own when he makes himself familiar with modern methods of diagnosis and treatment. Few diseases receive as cursory an examination and as careless a treatment as diabetes mellitus. The patient will, in the majority of cases, be better off if let alone than when given opium and have all sugars and starches eliminated from the diet. It is for the purpose of calling attention to a few neglected phases of this subject that I have attempted this paper. "Diabetes may be defined as a disease of impaired metabolism marked by a deficient power of oxidation resulting in the incomplete combustion of carbohydrates and fats of the food and tissues." (F. Stuart Hart, *N. Y. Medical Journal*, Sept. 15, 1906.) More important than the mere presence of sugar in the urine is the excessive amount found in the circulating blood producing a hyperglykemia.

Normally the glucose is oxidized into carbonic acid and water and is so excreted. In diabetes, carbohydrates are not oxidized and in the severe forms the power to oxidize fats is weakened. As a result we have diacetic acid, acetone, and beta-oxybutyric acid formed. In such cases an acidosis is present with the accompanying severe symptoms. Proof has been established that true dyspneic coma is due to the excessive production of beta-oxybutyric acid.

Many classifications of glycosuria have been suggested, but the simplest and most practical is into mild and severe. (1) Mild, embracing those cases in which a limitation of the carbohydrates for three-quarter days will cause a disappearance of the glucose. (2) Severe cases in which an abstinence from carbohydrates for many days will not cause a disappearance of the glucose. In many severe cases limitation of proteids also fails to cause glucose to disappear. Many variations are found; thus, an apparently mild case may prove, after observation, to be severe, and *vice versa*. It must be self-evident to any one who has given the subject the least thought that in almost every case of diabetes there must have been a mild or beginning stage, amenable to treatment. If more care were taken in examination these patients would be saved for years from the severe form of the disease, and, in fact, some would undoubtedly be cured.

The examination of every patient should include urine tests for albumin, casts, glucose, and indican. There is a general idea prevalent that if a urine has a specific gravity of 1,020 or under, no glucose can be present. I have found glucose in five cases in which the urine varied from 1.010 to 1.020. One writer F. Stuart Hart, *loc. cit.*, has observed the same condition in over fifty cases. Allow me to suggest a few instances illustrating how glycosuria may be overlooked. Children who have digestive disturbances should have the urine tested for sugar. Glycosuria occurs much more frequently in children than is usually supposed.

(1) During my service as physician at the children's home some years ago, my attention was called to a boy of 12, against whom a complaint of gluttony had been made. Examination of his urine showed a large amount of glucose. This boy was already in an advanced stage with polyuria, voracious appetite, etc., and died within the year from pulmonary tuberculosis.

(2) A man of 40 years was referred to me by Dr. W. C. Davis. His complaint was a persistent cephalalgia which a correction of an error in his refraction failed to relieve. He also complained of indefinite digestive disorders and occasional diarrhea. Examination of the digestive functions failed to reveal any alterations from the normal. The urine showed a distinct reaction with Fehling's solution. The urine collected for twenty-four hours measured two quarts and contained 2 per cent. glucose, no diacetic acid or acetone. A reduction of carbohydrates caused a cessation of digestive disturbances and headache, with apparent cure.

(3) A specimen of urine was sent me by Dr. D. L. Moore. The patient, aged 33, had advanced seven months in her fourth pregnancy. No albumin was found. Glucose was found in quite an appreciable amount. The Fehling's test was supplemented by the use of the Einhorn saccharometer, on account of the well-known fact that the urine of pregnant women in the later months of pregnancy often gives a positive reaction with Fehling's test when no glucose is present, the reaction being caused by lactose. The patient had noticed no symptoms of diabetes, but when told of the findings thought she had eaten more sweets than usual, had been drinking more water than was her custom, and perhaps was passing more urine. When measured, it was found that 2½ quarts were passed in twenty-four hours, 2 per cent. of glucose was found as were also acetone and diacetic acid. Elimination of carbohydrates from her diet caused a disappearance of glucose only after five days, while the diacetic acid and acetone persisted for some days longer. How frequently is the urine of pregnant women tested for sugar? May it not be that some of the obscure cases of coma and collapse after labor are caused by an acidosis associated with a glycosuria?

The limits and purposes of this paper will not permit a discussion of the theories of etiology. I wish, however, to mention the importance of an hereditary predisposition to the weakness in carbohydrate metabolism. This is very remarkable in the study of the case histories of diabetic patients. An individual whose forebears have suffered from severe neuroses, gout, and diabetes, should be careful in his use of alcoholic drinks and carbohydrates in general, and should submit specimens of urine to his physician for examination at least twice yearly.

The simplest reliable test for glucose in the urine is Fehling's. If the two solutions are kept separately there is no need for renewal, as they will not deteriorate. The precipitation of the red cuprous oxide in this test is not positive evidence of the presence of glucose, as other substances have a similar reducing power. In the performance of this test the least liability to error will be found if the solutions, after being united in equal parts, are diluted

about six times, and the urine diluted four times. The use of the Einhorn saccharometer will settle the question where doubt exists, and at the same time will determine the quantity of glucose excreted. The fermentation test will give positive reactions for levulose and maltose, but as these two bodies are so rarely found the error will be very slight. Quantitative test for glucose should be made only upon a sample of the collected and measured urine for twenty-four hours. In this manner only can one learn the amount of glucose excreted during twenty-four hours, which is the only glucose test of value in treatment. The question arises in cases of glycosuria as to whether its presence is due to transitory causes in the liver—a so-called alimentary glycosuria. This can be ascertained by excluding carbohydrates until the glucose disappears and then, after administering 100 gm. pure glucose, if the urine contains sugar by the ordinary tests, we are justified in speaking of a pathological glycosuria.

Given a patient in whose urine a pathological glycosuria has been demonstrated, one must then ascertain the severity of the disease. The first step before giving any dietary is to collect the total amount of urine for twenty-four hours and find the amount of glucose excreted for this entire time. This may be done by titration of the urine into an accurately measured amount of Fehling's solution, or by using the Einhorn saccharometer or some other fermentation apparatus. If glucose is found by this test in fair amount without the presence of acetone bodies, about to be described, we conclude we have a mild case in which there is weakening of carbohydrate oxidation, but normal fat oxidation. The next step is the test for acetone. For this test the urine must first be distilled. Then Lieben's test may be used. The method is to add to the distillate some Gram's solution and sodium hydrate. If acetone be present in large amount there will occur an immediate precipitation of iodoform. Smaller quantities may be recognized by a microscopic examination of the sediment for crystals of iodoform. Glucose and acetone indicate that in addition to the failure to take care of carbohydrates there is a weakness in the oxidation of fats. Diacetic acid should now be looked for. This test must be carried out with a fresh specimen of the urine. Add a 10 per cent. ferric chloride solution to the urine in a test tube or graduate. A yellowish precipitate of ferric phosphate will form, and the reagent must be added until this disappears entirely; then if diacetic acid is present the further addition of the reagent will show a deep reddish-brown color, the so-called Bordeaux red reaction.

The presence of glucose, acetone, and diacetic acid indicates a severe grade or form of the disease. The most severe forms of diabetes show in the urine the above bodies and also beta-oxybutyric acid.

The final step in diagnosis is the discovery of the degree of oxidation still possible in the metabolism of the patient. In other words, his tolerance for carbohydrates must be estimated.

This is to be done by a test diet which must be weighed. Several authors, Naunyn, von Noorden, and H. Strauss, among others, have suggested special diets for this purpose. Before advising a test diet it is wise to lead gradually to an elimination of the carbohydrates, as failure to do so will often produce an acidosis of grave proportions. The diet suggested by von Noorden is the most nearly ideal and also practical one which may be employed. This diet allows 100 grammes of bread, half given with the breakfast and the other half with the evening meal. After the use of the test diet, the urine should then be collected and tested. If glucose persists the bread must be eliminated. If sugar still remains, we have to do with the severe forms, and a reduction of the proteids must be made. The aim is to ascertain, if possible, the tolerance of the patient. Naunyn demands a stricter dietary than von Noorden. In severe cases he advises starvation except for water for a day or two if the glucose fails to disappear under other measures.

When we have found the degree of tolerance of our patient we must then decide how near the limit we may go with due regard to the patient's general condition and the elimination of diacetic acid and acetone. This is the rock over which we most often stumble.

Very few text-books emphasize sufficiently the necessity of treating the patient and not the glycosuria. A careful searching examination must be made in each case to find the associated or underlying diseases which the patient may have. Syphilis, arteriosclerosis, anemia, etc., must be found if present. Many symptoms, notably diabetic gangrene, are caused by associated conditions and not by the diabetes itself. When the acetone bodies increase while the sugar decreases, it is necessary to add carbohydrates regardless of the patient's tolerance, or diabetic coma is apt to supervene.

Strauss, in his new book on "Diätbehandlung der inneren Krankheiten," gives quite sensible and valuable directions along this line. The diet suggested for the use of diabetics must never be an unlimited one. When we have established the equilibrium of the diabetic the weekly weight record is to be kept rigidly, and estimations of the amount of glucose in twenty-four hours, as well as of the acetone bodies, are to be made regularly. Finally, let me insist that there is no diet for diabetes, as no two patients can use the same amount of carbohydrates. If von Noorden, who has treated upwards of 2,500 cases, has been unable to hand out a stock diet list to his patients, you and I must be satisfied to study each case for itself. I have not discussed drugs because I feel that their use for the limitation of the glycosuria is wrong except in the very advanced and hopeless stages of the disease. Opium and arsenic are recommended as most advantageous. Just as soon as we adopt these medicinal measures we give up any possible hope of raising the tolerance of the diabetic for carbohydrates. While with the dietary treatment the patient's tolerance is often increased. Sodium bicarbonate 50 grs. a day should be used for severe acidosis. The physician may in many cases bring about a condition very closely approaching perfect health if he will give an intelligent consideration to his diabetic patient.

185 East State Street.

Preventive and Curative Treatment of Puerperal Infection by the Use of Essence of Turpentine.—Fabre advocates the use of essence of turpentine both as a preventive of puerperal infection and as a curative treatment when the infection has begun. The preventive treatment is used by injecting equal parts of sterilized water and essence of turpentine into the uterus after labor as a routine treatment. When infection has occurred the same injections are used twice or three times in the twenty-four hours, as long as the infection remains localized in the uterus. When it has become generalized the drug is used by sub-cutaneous injection into the cellular tissues. The results have been excellent, as the treatment has been employed in the Maternity at Lyons.—*L'Obstétrique.*

THE HISTORY OF TUBERCULOSIS.*

By GEORGE FREDERICK LAIDLAW, M.D.,

NEW YORK.

It is a great pleasure to be with you to-day and to take part in this demonstration. The history of tuberculosis is a broad subject. It reaches back to the dawn of medicine. The word phthisis takes us back to Hippocrates, who described clearly the cough, the emaciation, the sweats, the diarrhea, and fatal termination. The word tuberculosis is of more recent origin. It dates from the revival of the study of anatomy by dissection in the sixteenth century. It was the Hollander, Sylvius, who first associated the clinical disease, phthisis, with the formation of nodules in the lungs.

Of the many sides of the tuberculosis question that I might bring before you, I have selected the history of its treatment as most practical. The most significant fact in the history of tuberculosis therapeutics is the turning of all schools of medicine to the ancient doctrine of vitalism. Now, what do I mean by vitalism? I mean that, in tuberculosis, we have stopped trying to kill the bacillus. This is mechanism. We are learning rather to depend more on strengthening the natural resisting forces of the body. In the words of my good friend, Dr. Morris, instead of trying to kill the bacillus ourselves, we back the man in his fight against the bacillus.

Vitalism or the dependence on the patient's vital resistance played a subordinate part in the early history of tuberculosis. The hygienic treatment of phthisis was good, where any was attempted at all, a sea voyage, residence in the pure air of the mountains, and abundant food; but the medical treatment was hopelessly corrupted by the prevailing pathological theories. The chief medicines were expectorants and the so-called antiphthisica, which consisted mostly of the salts of iron, efficacious in checking hemorrhage, but useless to cure the disease.

In the beginning of the nineteenth century the treatment of tuberculous phthisis was aided indirectly by the development of exact physical methods in the exploration of the chest, whereby the physician could recognize the condition much earlier than formerly, with corresponding benefit to the patient.

In the middle of the nineteenth century, however, tuberculosis therapeutics was at a very low ebb, and the hopelessness of the profession was only too often confirmed by the course of the disease. It was at this point that Brehmer, in Silesia, began teaching the curability of phthisis by open air, rest, and food. Brehmer was the founder of the modern sanatorium treatment, and we all owe him a debt of gratitude. It is true that open air and feeding had been used sporadically for centuries; but we owe Brehmer this great debt, that he insisted against much opposition and inertia on the curability of phthisis, and kept on insisting until the profession at last adopted his views.

The year 1882 ushered in the bacteriological era with Robert Koch's masterly work in the discovery of the tubercle bacillus. For a time the profession was bacillus-mad. Timid diagnosticians were afraid and are still afraid to make a diagnosis of pulmonary tuberculosis unless the bacillus was found in the sputum. Recently there has been a welcome reversion to well-tried physical signs, and the physician who now waits for the appearance of the bacilli in the sputum before making a diagnosis of pulmonary tuberculosis is rightly regarded as having waited too long.

Marked as was the effect of Koch's discovery on diagnosis, it was destined to work a still greater revolution in therapeutics; and for the first time the question was squarely presented: Shall the medical treatment of tuberculosis be mechanist or vitalist? Shall we kill the bacillus or stimulate the vitality of the patient?

For a time, it looked as if the mechanist method would triumph, at least in popularity. To the mechanist, killing the bacillus seemed equivalent to curing the disease, and many weird and wonderful methods were devised for this purpose. We had Bergeon's insufflation into the rectum of sulphuretted hydrogen and carbon dioxide, which were exhaled by the lungs and supposed to suffocate the bacilli in transit. Creosote had long been used as an antiphthisicum. It was now believed to kill the bacilli when exhaled in the breath. In the *Journal of the American Medical Association* for 1887, page 143, you will find the formula for a marvellous antiseptic pulmonary lozenge that dissolves in the stomach, is exhaled in the breath, and kills the bacilli en route. Time lacks to review the antibacillary mania in all its vagaries. Suffice it to say that we are past all that. In this antibacillary treatment, the headlong, enthusiastic mechanist did not see what was plain as day to the vitalist, that, even if you should succeed in killing the bacilli, the patient was just as vulnerable as before; that the patient had certain natural protective powers, and, if these were stimulated, he would get well and kill the bacilli himself.

In looking back on the antibacillary days, I perceive one great good which may not have been achieved by any less spectacular method. It impressed the medical mind strongly with the curability of consumption, and however foolish the methods, they have passed away and left as a legacy a firm faith in the curability of consumption which is probably worth all the temporary error.

It is fair to state that in this fantastic bacillus hunt, the homeopathic school as a body did not share. Not that they knew any more about tuberculosis; in fact, from a pathological point of view, they probably knew less; but they have always been vitalists. They have by training an antipathy to interfering by chemical and physical agents with the mechanism of the body. Their method is to stimulate the body tissues to do their own bacillus-killing or any other physiological work that is necessary.

It is fair to state also that Koch and the practical bacteriologists kept aloof from antiseptic pulmonary therapeutics. It was chiefly the work of clinicians untrained in bacteriology, but it was none the less widespread, because so plausible. Koch and the bacteriologists were working along a different line, and with Koch's discovery of the curative power of the extract of the tubercle bacillus, tuberculin, the era of vitalism in bacterial therapeutics fairly opened. Into the history and uses of the various tuberculins I have not time to enter. It is enough to say that, in using them, we are treating a bacillus disease with a substance that is not a germicide, that will never kill the bacillus; but which stimulates the tissues of the body to protect themselves,

*An address delivered at a mass meeting of medical students at the International Tuberculosis Exhibition, American Museum of Natural History, New York, on December 8, 1908.

sets in motion the body's own protective apparatus while the nature of the protective mechanism remains absolutely unknown. A more perfect example of vitalistic therapeutics does not exist.

In the art of medicine, we owe much to the great epidemics. "This is no flattery. These are counsellors that feelingly persuade me what I am." The sciences of hygiene and prophylaxis were born in the great plagues. It was another plague, syphilis, that shattered the Galenic system of pathology and therapeutics, and just so surely is the modern plague, tuberculosis, shattering medical idols of ten generations and leading medical thought to long-neglected vitalism, to the preservation, the care, and the stimulation of the body's own protective power and curative power.

Let me say a word about the dose of tuberculin. Vitalism leads inevitably to the use of the single remedy and the smallest effective dose. The history of all vitalists is alike in this. When Koch found that ten milligrams of tuberculin aggravated the disease, and reduced the dose to five milligrams and then three and one, and then one-tenth of a milligram, he was following step by step the footprints of that other great vitalist of one hundred years ago, Samuel Hahnemann. Professor Wright went further, to one-thousandth of a milligram. Professor Denys has got down to one-millionth of a milligram, and the end is not yet.

These men have been accused of imitating the small doses of the homeopath. Let me, a homeopath, state here that I can claim no such honor, for this my own school. It is not that you are imitating the homeopathic dose or system. It is that you are adopting the vitalistic attitude toward tuberculosis, and vitalism leads inevitably to the single remedy and the smallest effective dose, as, in past centuries, it led Paracelsus, and Sydenham, and Stahl, as it led Hahnemann one hundred years ago, and as it is leading Robert Koch and von Behring and Wright to-day.

This, gentlemen, is my interpretation of the history of tuberculosis.

A TRAY FOR HOLDING INSTRUMENTS DURING SURGICAL OPERATIONS.

By B. F. JENNESS, M.D.,

P. A. SURGEON, U. S. NAVY.

The device illustrated is intended to facilitate the handling, and insure the maintenance of asepsis, of instruments on the operating table.

During surgical operations instruments not in use are usually poised on the mounded surface of the sheet in the region of the patient's chest or abdomen, or are deposited between the thighs, in which situation they sink deeply, carrying the sheet with them. In either resting place they are in a precarious position for the maintenance of asepsis, and their whereabouts is uncertain in time of need.

The patent instrument trays, which are attached to and overhang the table, are not a success and in consequence are now seldom seen in the operating room.

Any operating sheet can be supplied with tray, and to be well equipped it is advisable to have three sheets with a tray on each attached at the level of the chest, abdomen and knees, respectively. This supply of sheets will give a choice of location for the instrument tray, depending upon the field of operation. If only one sheet beside the abdominal one is supplied with the tray, it can be reversed if necessary, thus bringing the tray at the level of the chest or knees. The tray for the abdominal sheet should be attached at the epigastric level in order that it may be well clear of the opening into the field of operation.

The tray consists of a pocket of sheeting 14x10 inches stitched on three sides to the operating sheet,

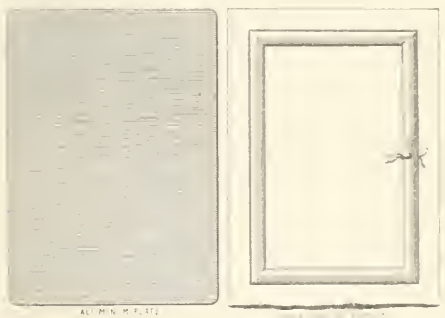


Fig. 1.

at one of the positions mentioned, and equidistant from the sides of the sheet. The open side of the pocket is preferably a short side and the one most convenient to the table upon which sterile dressings, gowns, etc., are deposited from the sterilizer, differing of course in accordance with the accustomed arrangement of the particular operating room in question.

A hem of sheeting of sufficient diameter to carry easily, but snugly, a half-inch rubber tubing is stitched to the pocket, one inch from the seam on three sides of the pocket and from the free edge on the fourth side. This hem now forming a tube of sheeting, will measure 12x8 inches. It will give better service if sewn by hand with strong thread, and is reinforced at the corners by the button-hole stitch. The ends of the tube or hem of sheeting are furnished with short tapes which will tie the approximated ends securely at the top and at the sides. Three tapes on each tube end are necessary.

A piece of firm rubber tubing ½ inch in diameter is now passed through the entire hem. The tube is drawn in about an inch from one end of the hem

Fig. 2.

and allowed to project an equal distance beyond the opposite end. The projecting end of rubber is passed into the empty inch of hem and the tapes are tied.

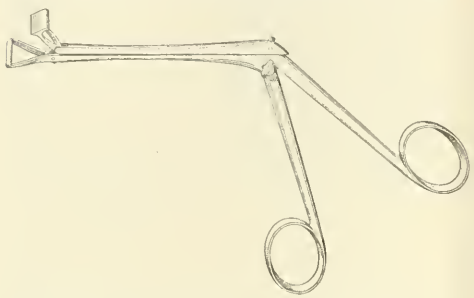
An aluminum plate 13⅞x9⅞ inches in size (Fig. 1), with slightly rounded corners completes the outfit.

The enclosed quadrangle of rubber tubing 12x8 inches, attached to the pocket on the operating sheet, is left as a permanent fixture. The sheet is sterilized as usual, as is also the aluminum plate. When the sheet is placed in position the sterile plate is slipped into the pocket, and the tray is ready for the reception of instruments, sutures, sponges, etc.

A FORCEPS FOR THE REMOVAL OF TAGS, ETC., ON THE POSTERIOR PHARYNGEAL WALL AFTER ADENOID OPERATIONS.

By ALFRED WIENER, M.D.,
NEW YORK.

This forceps can be applied in close proximity to the posterior pharyngeal wall. It cuts and does not tear off the mass to be removed. The blades work scissor-like in action. The edge of the lower blade is serrated, thus preventing the mass, when once within the grasp of the instrument, from being



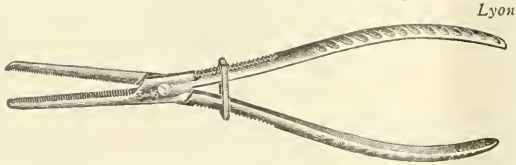
crowded into one corner, or slipping away from the instrument, the fault of so many others. Only one hand is necessary for its manipulation. The other hand is free to depress the tongue, if necessary, thus enabling the operator to obtain a clear view of what he wishes to remove. It is especially adapted for rapid work. The forceps is made by E. B. Meyrowitz, New York.

616 Madison Avenue.

AN IMPROVED HYSTERECTOMY CLAMP.

By HOWARD CRUTCHER, M.D.,
ROSWELL, NEW MEXICO.

In the Medical Record for February 29, 1896, I had the honor to present to the profession a surgical lock, consisting of a steel ring sliding over serrated surfaces, which up to that time had never been employed in surgical practice. The principle was first applied to my hysterectomy clamp, but was afterwards extended to cover other instruments, among them the hemorrhoidal clamp de-



scribed in the Medical Record for September 23, 1905. The only alteration in the present instrument will be found in the handles; this in no wise affects the vital simplicity of the lock. There have been numerous modifications of the blades used, but the simple principle of the steel ring against a saw-tooth surface is, and is likely to remain, unchanged.

My thanks are due to Messrs. Sharp & Smith, of Chicago, for the courtesy of the accompanying illustration.

New Researches on the Etiology of Tetanus. Influence of Hepatic Lesions as Predisposing Factors.—M. H. Vincent says that there are many predisposing causes which render the body a suitable soil for the growth of the tetanus spores. Such are local microbian associations, injury of the tissues by contusions, burns, slight wounds, the action of quinine, hematoma in a wound, hypothermia, insolation, and heat prostration. The author has made animal experiments to demonstrate that tetanus occurs more easily in animals who have some lesion of the liver which renders the hepatic functions subnormal. It has been found that many of the germs become encysted soon after infection in the cells, and that such germs lose their virulence and vitality. But they are not destroyed, and may become virulent at a later period, which explains the sudden appearance of the infection when it is impossible to find the slight wound of entrance. Lesions of the hepetic parenhcyma place the organism in a state of receptivity to the germs. Hence tetanus may be the indirect result of an affection of the liver when the subject carries the spores in his system.—*La Bulletin Médical.*

Globular Resistance of the New-born with Reference to Its Relations with Idiopathic Icterus.—E. Leuret has made a study of the globular resistance of the new-born. He has established the globular resistance in normal babies, and has compared it with that of infants affected with idiopathic icterus. He finds that in icterus the globular resistance is reduced. This condition is only transitory; it does not exist at birth, does not exist in the blood from the umbilical cord, and does not last after the beginning of icterus. It exists only in the preicteric period, coinciding with the yellowing of the skin, the increase in granular corpuscles and plasmochrome, and the emission of highly colored urine. When icterus really exists the globular resistance has returned to normal. Most of these infants with diminished globular resistance have had a subnormal temperature. This appears to be a vital reaction. The blood globules of the fetus, badly adapted to extrauterine life, undergo a rapid hemolysis due to substances set free in the circulation to destroy them. On the contrary, the new formed blood cells, which are adapted to extrauterine life, are more resistant and survive. This hemolysis is a physiological phenomenon. In icterus there is a greater rapidity of globular destruction caused by too great cooling of the body.—*Gazette Hebdomadaire des Sciences Médicales.*

Radicular Brachial Paralysis of Obstetrical Origin.—Louis Gallicadrin and Jean Rebattu describe a case of obstetrical paralysis of some rarity. Such lesions are not very rare, but they generally involve the motor power alone. The upper extremity, arm, and forearm are paralyzed and the fingers are untouched. In the author's case the motor troubles were not marked, the groups of muscles being none of them entirely atrophied, and all movements possible, although with less than normal force. There was entire sensory paralysis, tactile pain, and thermic senses being absent throughout the upper extremity. The patient had burned herself severely, and bore the scars, on account of her inability to feel heat. The symptoms were confined to the portions supplied by the brachial plexus, the posterior roots having been ruptured and the anterior roots only stretched. To cause such a lesion the arm must have been hyperextended while the head was flexed upon the chest and turned to the opposite side.—*Lyons Médical.*

Croup and Morphine.—A. Lesage and Maurice Cléret have made use of morphine in membranous croup to avoid the spasms of strangling. They find that although opium is so poisonous that it should be left out of the theraptutics of infancy it is on account of the other alkaloids contained, and not of the morphine. The last named alkaloid is harmless, and most beneficial in spasm of the larynx. Infants bear its use admirably. It is given to prevent the necessity of intubation whenever the authors find a case of laryngeal stenosis of diphtheritic nature. A dose of one-quarter, one-third or one-half cubic centimeter of a 1 per cent. solution is given according to the age of the infant, and with it an injection of antidiphtheritis serum of 80 to 120 cubic centimeters. In most cases the infant sleeps calmly without spasm for five to six hours and wakes practically cured. Intubation is avoided and a cure results without its inconveniences. In other cases the duration of intubation is lessened and a retubation is avoided. The lesions of the larynx and the complications resulting are lessened in number and severity. The sleep which is given to the child puts him in the best possible condition for resistance.—*La Tribune Médicale.*

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, April 10, 1909.

A YEAR'S WORK OF THE PUBLIC HEALTH SERVICE.

As a record of good work well done the annual report of Surgeon-General Wyman of the U. S. Public Health and Marine Hospital Service for the fiscal year ended June 30, 1908, is a very interesting document.

The first thirty pages are taken up with an account of the labors of Dr. Blue and his associates of the service in suppressing the outbreak of plague in San Francisco and thereby preventing what might easily have become a widespread and disastrous epidemic of the disease. The country at large has not been slow to recognize its indebtedness to the Marine Hospital Service in this respect, but few probably have any idea of the difficulties encountered in this task. The disease appeared in 1907 and efforts were made by the municipal and State authorities assisted by officers of the service to suppress it, but without success, and in November of that year, five months after the first case was discovered, a telegram was sent to the President requesting the Federal Government to take immediate charge of the beginning epidemic. When the surgeons assigned to the work arrived they found the difficulties apparently almost insuperable. The city was in a period of reconstruction after the fire, the streets were littered with all manner of débris and the people were living in certain sections of the city under most unhygienic conditions. Many were gathered together in temporary camps where the sanitary conditions were of the worst, the shacks were built of scraps of sheet iron and bits of old lumber, the lavatories were open pits, and garbage was scattered about or kept in open wooden boxes. The stables of the city were hastily constructed and insanitary buildings, the grain being kept on the floor or in open bins, and these and numerous chicken yards offered every attraction in the way of shelter and food to rats. Coincident with this there was an unusual prevalence of flies and fleas.

The city was at once divided into districts, each of which was placed in charge of a medical officer with a force of inspectors and assistant inspectors and a gang of laborers employed in rat trapping and poisoning, fumigating and disinfecting. Officers were also detailed to address public meetings on the history, nature, and mode of spread of the disease and on the necessity of getting the entire city as soon as possible in a sanitary condition. In three months the disease was eradicated, the last human case being reported in February, 1908. Plague-infected rats were still found, however, and the campaign against the rodents is even yet being carried on. In reviewing this work, Dr. Wyman insists upon the necessity of a general warfare against rats throughout the world, and especially of their destruction on shipboard. It is questionable, he thinks, how far a war of extermination against rats can be successful in cities, but the animals can be kept out of ships, and if this is done there will be an end to the spread of plague from one seaport to another.

In the field of scientific research and sanitation there has been a gratifying increase in the operations of the service, several new subjects having been taking up in addition to a continuation of the routine work of previous years. The work in this department embraced the following: "Supervision of the manufacture of vaccines, serums, and toxins; investigations in relation to the pharmacopeia; investigations of typhoid fever in interstate traffic; cooperation with the Lake Michigan Water Commission; investigation of rabies, and treatment in the Hygienic Laboratory of persons bitten by rabid animals; studies of hook-worm diseases; studies of pellagra and publication of literature in relation thereto; studies of milk and its relation to the public health; investigations of devices and appliances advertised for the treatment of diseases; investigation of a case of leprosy in Virginia; studies of leprosy at the national leprosy investigation station in the Territory of Hawaii; analyses of drugs, water, and other public health investigations in the Hygienic Laboratory; aid to the International Congress on Tuberculosis; and aid to State and municipal health officers in the determination of specimens, examinations, and analyses of a public health character."

A detailed report is made of the quarantine service, domestic, insular, and foreign, maintained by the surgeons of the bureau, and also of the medical inspection of immigrants to determine their physical fitness for entrance at ports of the United States and its dependencies. Nearly a million immigrants were examined during the fiscal year by fifty-one officers especially detailed for the service.

Special attention is directed by Surgeon-General Wyman to three institutions of the service mentioned in this report, viz., "First, the Fort Stanton (New Mexico) Sanatorium for the reception of tuberculous patients of the service. The results of the open-air treatment are noteworthy, and the service is now reaping some of the benefits of its efforts to sustain this institution in part by the products of the farm and dairy and by the herd of beef cattle. This herd, numbering now some fifteen hundred head, is maintained upon the large range provided by the reservation and supplies the beef necessary for the station. Second, the leprosy investigation station, at Molokai, Hawaiian Islands. The buildings are now about completed, but while

awaiting their construction the director has been engaged in a scientific investigation of the disease, particularly with reference to cases in the first stage before their segregation on the island of Molokai. His reports already show considerable progress in his investigation, and the bureau is encouraged in the belief that this institution will be successful in its legalized quest with regard to leprosy and its treatment. So far as can be ascertained, this institution, established by the liberality of Congress, is the first organized effort of any government to pursue the objects above mentioned continuously until success shall have been achieved. Third, the Hygienic Laboratory, the work of which has been referred to above, has become firmly established as a scientific center of research in regard to contagious and infectious diseases. The personnel of the laboratory numbers, all told, fifty-two, and its recent reports, particularly upon typhoid fever and the relation of milk to the public health, have been recognized, both in the United States and abroad, as standard works on the subjects named." The addition to the laboratory, for which Congress appropriated $75,000, is now in course of construction. Plans were prepared by the Supervising Architect and the work is done under the direction of that office. The completed building will be 230 feet long. This addition will somewhat relieve the congested and crowded condition of the present small structure. The activities of the laboratory, however, have grown so fast that they are believed to have already outgrown the addition. A further addition is needed to provide necessary space for the experimental and routine work and to afford room for the classes of student officers, as well as the lectures and demonstrations which are given to the students of the Naval Medical School and to the Army Medical School, for rabies work, for the lighting and power plant, heating and ventilating apparatus, and, finally, to give proper and comfortable shelter to the animals under experimentation. An item has therefore been included in the estimates to Congress for an appropriation of $175,000 for this purpose. Congress could hardly be asked to give so small an amount for a better purpose.

Only six of the two hundred pages of the report are devoted to Marine Hospitals and Relief, showing strikingly how widely the bureau has departed from its original purpose expressed in the former designation: Marine-Hospital Service. The growth and increase in activity of the service during the past few years have indeed been wonderful. Instead of a small body of medical men treating sick and injured sailors at a few of the larger seaboard and lake ports, we see now a completely organized sanitary service looking after the health interests of the entire country, restricted as yet in its field of usefulness but constantly enlarging this field as more and more authority is given it as a consequence of the awakening of public sentiment regarding sanitary questions and of the recognition of the services rendered the country in times of epidemic. If the time ever comes, and it almost certainly will come, when the public health is deemed of sufficient importance to be looked after by an independent department of the Federal Government, with a cabinet officer at its head, the department will be found already organized in the Public Health and Marine Hospital Service, now only a bureau of the Treasury Department. A still further increase in the work of the service is foreshadowed in a request which President Taft has made of Dr. Wyman to formulate a plan for the consolidation of all the existing government agencies for the guarding of the public health.

In order to maintain the efficiency of the corps and its esprit and to assure that admissions thereto shall be from among the most highly qualified medical candidates, it is essential, Dr. Wyman says, that the compensation, as now fixed by law, be increased to meet the necessities of modern living, these salaries being practically the same as provided twenty years or more ago. This increase is further made necessary because of the increase provided for the medical officers of the army and of the navy and to prevent a consequent disadvantage to the Public Health Service if its officers do not receive compensation equivalent to that given to officers holding analogous positions.

VENOUS ANESTHESIA.

The inventive mind of August Bier has added another technical procedure of apparently great importance to the art of medicine. It is the production of local anesthesia by the introduction of the anesthetic into the veins of an extremity, a method which he presented for the first time last year at the Congress of the German Surgical Society and to which he devotes a comprehensive paper in the *Berliner klinische Wochenschrift* for March 15, 1909.

His experience with simple local anesthesia has shown that the sheaths of nerves offer great resistance to the entrance of an anesthetic, a fact which well explains the difference between the effectiveness of a local anesthetic injected into the tissues and the same drug introduced into the spinal meninges. Lumbar anesthesia, however, has almost as many disadvantages as inhalation narcosis, while local infiltration anesthesia but seldom allows large operations to be performed painlessly if bones or joints as well as soft tissues are involved. Moreover the quantity of the drug used in producing infiltration anesthesia is sometimes large enough to introduce the possibility of dangerous toxic effects.

Venous anesthesia consists in the introduction of the anesthetizing drug into the veins of an extremity which has previously been made as bloodless as possible by tight bandaging; two bandages are used and the drug is introduced into the veins between them. Bier differentiates between "direct" anesthesia produced between the two bandages and "indirect" anesthesia which occurs somewhat later and which robs of sensation all of the limb below the bandages. The individual circumstances of each case determine which method is to be used, the bandages being adjusted either to include the field of operation between them or to have all of it below the lowermost bandage. Using either of

these methods Bier has performed ten amputations, thirty-seven resections, and a great number of smaller operations upon the soft parts, the bones, and the joints of the extremities. Among the total one hundred and thirty-four operations, the anesthesia was unsuccessful in only five cases, three of them occurring in children in whom all local anesthesias are, of course, uncertain procedures. The only possible contraindication Bier sees is in cases of diabetic gangrene, inflammation and gangrene having developed in the amputation stumps of three diabetic subjects after operation under venous anesthesia. It was not improbable, however, that a like result would have occurred in any case.

Bier acknowledges that there is much room for improvement in the anesthetic solutions used by him and in the general technique of the procedure. He seems to have no doubt, however, that this method of producing extensive local anesthesia is the best that has so far been devised.

MEDICAL CLUBS AND THE MEDICAL PROFESSION IN GERMANY.

One of the most illuminating theories of modern historical science is the so-called "economic or materialistic explanation of history" which sees the mainsprings of the actions of large classes of population, not in mental or moral factors, but in the economic circumstances under which these classes fight for their existence. To put it simply, the measures by which men earn their food and drink, determine their attitude in questions of conduct; the ideation of one class, therefore, may be quite different from that of another class of the population, and yet seem to single individuals of each class the only proper and correct way of looking at the world.

The truth of the main contention of this theory of history is well exemplified in a most interesting controversy which is at present going on in Germany between the physicians and the united benevolent associations (*Krankenkassen*). It has been the practice of the latter to engage physicians to look after the health of their members. Only the physicians designated by the societies could be appealed to in case of sickness, and as these associations are very popular in Germany, their directing bodies soon obtained a great deal of power in determining the financial success of individual physicians. The matter progressed so far that finally the whole profession of the land declared itself for the principle of the so-called "free choice of physicians" which would give the members of the benevolent associations the right to select their own physicians who can then collect the regular fee established by the associations. An attempt was then made by the associations to find physicians who would be subservient to their rules, but only seventy physicians were found willing to act against the wishes of the entire profession. At the same time, the physicians of Cologne, where the controversy was especially sharp, agreed to refuse medical service to association members except in cases of emergency. This has led to criticism of the profession by one of the ministers of the government who declared that such a step was an abuse of the right of coalition and a return to unsocial conduct. He was answered by a committee of an association formed by the physicians for the protection of their financial interests, the answer being in form of a sharp rebuke for interfering in the matter before it had been passed upon by the German Reichstag. The association, too, laid special stress upon the fact that economic necessity and need were the determining factors in urging the profession to adopt the apparently unsocial attitude it took; these factors were sufficient to overcome the traditional attitude of physicians in the pursuit of their profession.

The matter stands at present in this very unsatisfactory condition and both sides are preparing for a governmental revision of the laws relating to benevolent societies.

Tubercle Bacilli in Glandular Tuberculosis.

As is well known, tuberculous infection of the lymph nodes differs from that of any organ by the great rarity with which bacilli can be demonstrated in the lesions. On the other hand, inoculation experiments have been much oftener successful than the staining of tissue sections so far as the discovery of the exciting organism is concerned, and it is not surprising that a number of pathologists have expressed the suspicion that some latent form of bacillus is responsible for the tuberculosis of the lymph nodes, a form that cannot be demonstrated by the usual staining methods. The discovery, made by Much, that there exists a granular form of tubercle bacilli, which can be demonstrated by the use of the Gram stain alone has shown how well founded was such suspicion. That Much's granules are really the excitants of glandular tuberculosis, that is, that they are a form of the tubercle bacillus, has been apparently proved by many workers who have corroborated his findings. The use of the new staining method must change all the data usually given in reference to the rarity of tubercle bacilli in lymph nodes. Thus Koch succeeded in finding the bacilli only twice in twenty-one cases examined, while Oehlcker found bovine bacilli in four out of fourteen similar cases. In the *Münchener medizinische Wochenschrift* for March 2, 1909, Dr. Leonard Weiss communicates the results of using Much's method in looking for the bacilli. He has succeeded in demonstrating the granules that Much discovered in every one of nine cases of glandular tuberculosis, although bacilli stainable by the old methods were absent. An interesting observation recorded in the report is the finding of many granules arranged in short bacillus-like chains, a picture that lends strength to the theory that such granules are simply an involution form of tubercle bacilli that have lost their usual staining affinities.

Death of the Antivivisection Bills.

The antivivisectionists have again failed to induce the Legislature of this State to hamper scientific investigation and clog the progress of medicine by putting fatal restrictions upon vivisection, so called. A hearing on the two bills was held at Albany on March 23 before the Judiciary Committee of the

Assembly. Against the bills there appeared, among others, Drs. Egbert LeFevre, Edward R. Baldwin, James Ewing, Simon Flexner, John G. Curtis, Charles G. Stockton, and Rosalie S. Morton, and Bishop Nelson of Albany, Professor George W. Kirchwey, Dean of the School of Law of Columbia University, and President Schurman, of Cornell University. On March 24, a hearing on the two bills was held before the Judiciary Committee of the Senate at which there appeared Drs. Flexner, Curtis, Ewing, Morton, and Frederic S. Lee. On March 24 the Assembly Committee voted not to report either bill. This action kills both bills for this session of the Legislature. The Senate Committee seems to have taken no action. At both hearings the preponderance of argument was decisively on the side of science. If the final status of the matter at the present time be compared with its status a year ago, it will be seen that the situation is now much more satisfactory than then, for last year, after the hearing, the Assembly Committee took no action, while the Senate Committee voted to report one bill.

News of the Week.

Long Island State Hospital.—The State Commission in Lunacy and the managers of the Long Island State Hospital have purchased 548 acres of ground at Greenvale, Long Island, for the site of the new Long Island State Hospital which is intended for insane patients committed from Brooklyn. The site has water and rail facilities, and about 75 per cent. of tillable land. The cost is $412,000. Considerable opposition to the proposal has been voiced among the residents of the section.

Smallpox in Paterson.—A slight epidemic of smallpox is reported from Paterson, N. J., ten cases having been discovered in the first few days of April.

Pneumonia Prevalent.—Three hundred and twenty-nine deaths from pneumonia was the record in New York for the week ending March 27, as compared to 275 for the corresponding week of last year. The number of cases of the disease has been very large throughout the month.

Exhibition of the Work of the Blind.—The anniversary exercises of the New York Institution for the Blind were held on April 1, and included an exhibition of the work of the classes in manual training. Specimens of Indian baskets, reed baskets, raffia and cord work, cane seating, hand and machine sewing, knitting and crocheting were exhibited.

Quintuplets.—A North Carolina woman, the wife of a farmer, recently gave birth, according to newspaper reports, to five healthy children, three boys and two girls. The weights of the children varied from four to six pounds.

Sterilization of Criminals.—The Southern District Medical Society, of Chicago, recommends to the General Assembly of Illinois the enactment of a law requiring the sterilization of habitual male criminals, imbeciles, incurably insane and epileptic persons in the State institutions of Illinois.

The College of Physicians and Surgeons, New York.—The trustees of Columbia University announce the resignation from the Faculty of Medicine of Dr. Walter B. James, Bard Professor of the Practice of Medicine, to take effect at the close of the present academic year. To fill the vacancy thus created, the trustees, on the recommendation of the Faculty, have appointed Dr. Theodore C. Janeway to the Bard professorship, and have also appointed Dr. Evan M. Evans to a clinical professorship with a seat on the Faculty. Dr. James will retain a clinical professorship also. Dr. Janeway is a graduate of the College of Physicians and Surgeons and has been an associate in medicine at the college for the past year, having previously been on the teaching staff of the University and Bellevue Hospital Medical College. Dr. Evans is also a graduate of the college and has been for some years connected with the staff. Both men are ex-internes of St. Luke's Hospital. This is the third resignation from the Faculty of the College of Physicians and Surgeons during the present year, the retirement of Prof. Prudden and of Prof. Curtis having been announced a few months ago. Dr. W. G. MacCallum of Johns Hopkins Medical School has been appointed Professor of Pathology, but the appointment of a successor to Prof. Curtis has not as yet been made.

Gifts to Charities.—Heaton Hospital of Montpelier, Vt., will receive about $5,000 from the estate of the late Mrs. Susan B. Shumway, of that city, who died while under the care of the hospital some time ago.

Among the beneficiaries of the will of the late William P. Henszey of Philadelphia, a member of the firm of the Baldwin Locomotive Works, are the following: Hospital of the Good Shepherd, Children's Homeopathic Hospital, Homeopathic Hospital of Philadelphia, Episcopal Hospital, University Hospital, Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, Presbyterian Hospital, Woman's Hospital, Home for Aged Couples, Friends' Home for Children, Medico-Chirurgical Hospital, Wills Eye Hospital, and White Haven Sanitarium for Consumptives, each $10,000.

Fort Dodge Hospital.—The new St. Joseph's Hospital which has been erected in Fort Dodge, Iowa, by popular subscription at a cost of about $100,000, was dedicated on March 23 and turned over to the Sisters of Mercy, who will manage it.

Schenectady Tuberculosis Dispensary.—From the time of its establishment in June, 1908, to the last of October of the same year, the Schenectady Tuberculosis Dispensary made examinations of seventy-nine patients, thirty-seven being found to be tuberculous. The dispensary has had the services of three attending physicians and a nurse, and instruction has been given in the homes of the patients as well as in the offices.

Lincoln Hospital Endowment.—More than $96,000 has already been subscribed to perpetuate the work of the Lincoln Hospital, New York, as a memorial to Abraham Lincoln, and it is hoped that the entire sum necessary, $500,000, may be pledged before the end of the year. During the last year 10,737 patients were treated at the hospital, and 150,474 days of treatment were given, of which only three and a half per cent. were paid for.

New Auto-Ambulance.—Bellevue Hospital has recently put into commission a new 20-horsepower automobile ambulance, which might well be described as a hospital on wheels. The ambulance is equipped with emergency appliances of every kind, and the inclosed part is lighted by electricity and heated by steam. It is said to be able to make more than sixty miles an hour.

A Bill to Create a Board of Osteopathic Examiners in Illinois is now in the hands of the Judiciary Committee, and a sub-committee seeks its enactment. The regular profession is working to defeat the passage of this bill on the ground that such a board is unnecessary, because the present State Board of Health issues licenses to osteopathic practitioners.

Dr. Achilles Rose of this city is about to retire from practice and will go to Athens, Greece, to reside. He intends to devote himself to the propaganda for the purification of medical nomenclature and will take part in the preparation of the lexicon which a committee of the Athens Medical Society has in hand. Dr. Rose's friends will wish him every success in his labors and many years of useful activity in this undertaking.

Dr. Lewis S. Pilcher of Brooklyn, N. Y., lectured before the surgical section of the Hartford Medical Society on March 22, taking for his subject "The Cure of Cancer."

Dr. Herman J. Boldt of New York delivered an address before the Medical Society of the Mississippi Valley on March 18.

Dr. Charles A. Drew, medical director of the Bridgewater, Mass., State Farm, has been elected superintendent of the Worcester City Hospital, to succeed Dr. Thomas Howell. Dr. Drew is a graduate of the medical department of the University of Vermont, and has had a large experience in the direction of hospitals and other institutions.

Memorial of the Late Dr. Senn.—It is believed that in a few months a memorial to the late Dr. Nicholas Senn may be erected in one of the Chicago parks, or a lectureship established. Both subjects were discussed at a recent meeting of the Senn Club, at which Dr. Alexander Hugh Ferguson was elected president. The Nicholas Senn High School is the name given by the Board of Education to a new high school soon to be erected on the north side of Chicago.

International Congress on the Medical Aspects of Industrial Injuries.—The second meeting of this congress will be held in Rome, May 23 to 27, 1909, under the patronage of the Italian Government. The programme of the congress will be arranged under seven main headings: 1, The organization of a medico-surgical service for the treatment and study of the consequences of accidents of occupation; 2, the medico-legal aspect of such accidents and the principal methods of making examinations; 3, the diagnosis and prognosis of the neuroses caused by accidents of occupation; 4, the appraisement of the working capacity before and after such an accident; 5, the influence of the mode of indemnity upon the development of post-traumatic nervous affections; 6, statistical observations, from a medical viewpoint, upon accidents of occupation; 7, functional adaptation of members disabled in an accident. Prof. Salvatore Ottolenghi, director of the institute of legal medicine, Royal University of Rome, is the president of the Congress, and the secretary-general, from whom further information may be obtained, is Dr. Tito Ferretti, surgeon in chief, Policlinico Umberto, 1e, Rome.

The American Proctologic Society.—The eleventh annual meeting of this society will be held at Atlantic City, N. J., June 7 and 8, 1909. The president, Dr. George B. Evans of Dayton, Ohio, will address the meeting on "Progress in Proctology," and Dr. Samuel T. Earle of Baltimore will give a Review of Proctologic Literature for 1908. A number of other papers and clinical reports will be read. The medical profession is cordially invited to attend all meetings.

Excursion to Atlantic City.—Arrangements have been made for a special excursion from the West to Atlantic City for the benefit of those who wish to attend the meetings of the American Medical Association which will be held at Atlantic City from June 8 to 11, 1909. The excursion will be run under the auspices of the Medical Society of the Missouri Valley and the Medical Association of the Southwest, and the special train will leave St. Louis on Saturday, June 5, at noon, arriving in Atlantic City on Monday morning. Full information may be obtained from Dr. Charles Wood Fassett, St. Joseph, Mo.

The Pathological Society of Pittsburg was organized recently with sixteen members and the following officers: *President*, Dr. Joseph S. Barrach; *vice-president*, Dr. Ernest W. Willetts; *secretary*, Dr. S. George.

The Emanuel County (Ga.) Medical Society at its annual meeting recently elected the following officers: Dr. E. T. Coleman of Graymont, *president;* Dr. L. P. Youmans of this city, *vice-president;* Dr. J. H. Chandler of Swainsboro, *secretary and treasurer.*

The Coos County (N. H.) Medical Association held a meeeting on March 17, and reorganized with the following officers: *President*, Dr. W. H. Leith of Lancaster; *vice-president*, Dr. J. J. Cobb of Berlin; *secretary and treasurer*, Dr. F. W. Evans of Coos; *board of councilors*, Drs. E. Brown of Groveton, W. H. Leith of Lancaster, and L. B. Marcou of Berlin.

Medical Alumni Meeting.—The alumni of the medical department of the University of Iowa will hold a meeting on April 27 and 28, at Iowa City. The program will consist of clinics to be held by noted practitioners, members of the faculty and others connected with the school.

The New Haven County (Conn.) Medical Association will hold its annual meeting in Meriden on April 22. The chief subject for discussion will be "Remedial Measures Other Than Drugs."

The American Society of Tropical Medicine will hold its sixth annual meeting at the United States Naval Medical School, Washington, on April 10, 1909. The program will include a review of the year's progress in tropical medicine, by the president, Dr. James M. Anders of Philadelphia, and a symposium on the prevalence and etiology of pellagra.

The East Side Physicians' Association of the City of New York.—The regular meeting of this society will be held on Thursday evening, April 22, under the presidency of Dr. C. A. Von Ramdohr. Dr. M. Girshansky will read a paper on "The Myth of Puerperal Septicemia," and Dr. Chas. Jewett one on "Puerperal Sepsis."

The Rockland County (N. Y.) Medical Society held a joint meeting with the Rockland County Pharmaceutical Association at the Lederle Vaccine Farm, Manuet, N. Y., on Wednesday of this week. A number of topics of interest to the two professions were discussed.

Obituary Notes.—Dr. D. McLean Forman of Freehold, N. J., died at his home on March 29, aged 64 years. Dr. Forman was graduated from the College of Physicians and Surgeons, New York, in 1866, and had practised in Freehold for thirty five years. He was a member of the American Medical Association, the State and County Medical Societies, and the Practitioners' Society of Eastern Monmouth, and an attending surgeon to the Monmouth Memorial Hospital at Long Branch.

Dr. Ludwig M. Michaelis of New York died at his home on March 30, aged 45 years. Dr. Michaelis was a graduate of the College of Physicians and Surgeons, New York, having received his degree in 1888, and was a member of the Academy of Medicine, the American Medical Association, the New York State and County Societies, the Metropolitan Medical Society and the Harlem Medical Association. He was also an alumnus of the Sloane Maternity Hospital.

Dr. Harry Butler, a well known resident of Bangor, Me., died after a lingering illness, on March 23, aged 40 years. Dr. Butler was graduated from the University of Maine in 1888, and from the medical department of the University of Pennsylvania in 1895, after which he served as interne at St. Joseph's Hospital, Philadelphia. He had made a special study of diseases of the nose and throat, and at the time of his death was on the staff of the Eastern Maine General Hospital.

Dr. Charles L. Kingsbury died at San Diego, Cal., where he had gone for his health, on March 14, aged 59 years. Dr. Kingsbury, who was a native of New Hampshire, was graduated from the New York Homeopathic Medical School in 1874, and had practised in Spencer and in Boston, Mass., until his health failed two years ago.

Dr. Charles W. Harwood of Worcester, Mass., died at his home on March 27, after a long illness, aged 52 years. He was a graduate of the Jefferson Medical College of Philadelphia.

Dr. John M. Kitchen of Stayton, Oregon, died on March 16, aged 67 years. Dr. Kitchen was graduated from the medical department of Willamette University, Oregon, in 1877.

Dr. Frank P. Clark of Danbury, Conn., died on March 24, of pneumonia, after a short illness. Dr. Clark was born in Danbury in 1852, and was graduated from the College of Physicians and Surgeons, New York, in 1876. He was a member of the Connecticut State Medical Society and the Fairfield County Medical Society, and a member and former president of the Danbury Medical Society.

Dr. Asa P. Tenney of Kansas City, Kan., died at his home of pneumonia, on March 20, aged 75 years. Dr. Tenney was graduated from the Harvard Medical School in 1859, and in 1877 was appointed superintendent of the Kansas State Asylum for the Insane; later he became superintendent of the Topeka Insane Asylum. In 1885 he removed to Kansas City, and from that time until his death was a member of the surgical staff of the Missouri Pacific Railway Company.

Dr. Joseph P. Fessenden, a well known surgeon of Salem, Mass., died at his home of pneumonia, on March 26, aged 77 years. Dr. Fessenden was graduated from Bowdoin College, Maine, in 1851, and received his medical education at the Brunswick Medical School and the New York Medical College, taking his degree in 1854. He was on the staff of the Salem Hospital from the time of its opening in 1874 until his death, and had served on the Salem School Board for many years. He was a member of the Massachusetts Medical Society, the Essex South District Medical Society, and the Salem Hospital Club.

Dr. A. R. Hahn of Boston, Mass., died at his home on March 30, aged 67 years. Dr. Hahn was a graduate of Dartmouth University and of the Harvard Medical School, and practiced in Chicago until the time of the great fire there in 1871, after which he returned to Boston. He was for many years on the staff of the City Hospital, and was a member of the Massachusetts Medical Society.

Dr. Milton Leroy Somers, for the last two years Health Officer of Atlantic City, N. J., died at his home on April 2 of tuberculosis, aged 38 years. He was a graduate of the Medico-Chirurgical College of Philadelphia, receiving his degree in 1897, and a member of the American Medical Association and of the New Jersey Academy of Medicine.

Dr. John Hudson Thompson of Goshen, N. Y., died at his home on April 2, aged 82 years. Dr. Thompson was graduated from the College of Physicians and Surgeons in 1852. He was engaged in active practice when the 124th Regiment of N. Y. Volunteers was organized in 1862. Hon. Edwin D. Morgan, the State Governor (1859-63) commissioned him as regimental surgeon and he was soon made surgeon-in-chief of the brigade and division with the rank of major. Dr. Thompson was popular as both soldier and physician in caring for the ill and wounded.

Dr. George O. Barclay of Philadelphia died at the University of Pennsylvania Hospital in that city on April 3, of peritonitis, aged 33 years. He was a graduate of the Medico-Chirurgical College of Philadelphia, and was a famous football player at Lafeyette University.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

MORPHOLOGY AND VARIATION OF THE SKULL—FRACTURE OF THE BASE—HUNGER PAIN—CHINA AND MEDICAL SCHOOLS—DEATH RATES INCREASING—OBITUARY.

London, March 19, 1909.

"The Morphology and Variation of the Skull" was the subject of a course of Hunterian lectures at the Royal College of Surgeons, delivered last month by Dr. William Wright, lecturer on anatomy at the London Hospital Medical College. Variation, he observed, opens the whole subject of evolution, a theory as old as Anaximander and Archelaus, and he briefly stated the three theories: Lamarck's, the earliest, which recognizes in nature a power of effecting adaptive variations, but errs in assuming that an animal controls this power itself; Darwin's, which is differently understood by Huxley and Wallace, the former accepting natural selection acting on accidental variations as an adequate explanation of the forms of life, as if the whole world, a world in which law, order, and intelligence prevail, were the outcome of accident. But Wallace regards variation as due to the mysterious powers of life, to which the lecturer saw no alternative and suggested whether the origin of species should not be ascribed to these powers, natural selection being insignificant. A third theory, supported by Bateson, considers variation is not always slow and continuous, but sometimes discontinuous and giving rise to mutations. It was to be noted, however, that natural selection could not directly produce anything—could only encourage or suppress—and artificial selection, though it might be more rigorous, could not effect specific variations even in the lowest microorganisms.

The lecturer then described the morphological

divisions and variations of the skull and traced its evolution. To emphasize the importance of remembering retrogression as well as progression, he referred to the life history of the ascidia, the larval state of which is vertebrate, possessing a notochord and sense organs, but as it develops sinks to the bottom of the ocean, where its higher faculties decline and it spends its allotted span in a state of "vegetative monotones." The amphioxas, too, suffers a degenerative change, though it retains its vertebrate character. In these two organisms the beginning of a cranium is seen as a membranous sac enclosing the anterior end of the central nervous system. Passing to the cyclostata, Dr. Wright found differences, not fundamental, in the skulls of those living now, but much greater in certain extinct fishes from the old red sandstone—as if nature had made an abortive attempt to produce craniata or was herself undergoing an evolutionary process. If this is strange doctrine to those who hold only by a material evolution, he replied that "no one has proved, no one ever now is likely to prove, that matter itself is other than subjective." Such a recognition of Berkeleyan philosophy is quite refreshing among these anatomical details. Passing to true fishes, the lecturer remarked that the few elasmobranchs and ganoids living to-day are only scanty survivors of a rich and varied fauna which alone upheld the vertebrates through the Silurian and Devonian periods.

Before leaving fishes mention was made of some parallels they exhibit with land animals, *e.g.* some are viviparous, some oviparous, the mustelus possessed a placenta, cord, and amnion; in pteroplatæa there is an approach toward suckling the young. As a final reference, Dr. Wright mentioned the habit of the butter fish of coiling its body around its eggs, as there possibly was the beginning of that "maternal instinct which leads the hen to gather her brood under her wings, the prettiest scene in nature and the most attractive simile in literature."

Coming to amphibia, the lecturer found evolution progressed along two distinct lines, the rhynchocephalic and anomodontine, the former leading through many extinct forms to living reptiles and to the still more highly specialized birds, which lie distinctly apart from the main line of vertebrate descent. Through the latter he came to the monotremes, the lowest of mammals. Of course, in the various links the skull was the point most considered, and perhaps no other region of the body could so well furnish evidence of variation adapted to purpose, for in it were seen most admirable devices distributed throughout the zoological kingdom—devices which create wonder and disarm criticism. If further proof were asked that living forms owe their birth to an unknown power operating in nature it could be found in the phenomena of parallelism, which clearly show that nature progresses, not eratically, but along old, well-tried paths. So the way in which many amphibia can regenerate limbs indicates in them an intelligent force of which they can be only dimly conscious. If this mysterious force be admitted, there is no necessity for natural selection to be regarded as dominant in evolution and artificial selection is practically impotent. Recognizing this mysterious force as the *vera causa* of evolution, Dr. Wright asked if we were wise to push inquiry further, and answered without hesitation in the affirmative, for the question becomes psychological, and that is intelligible, for he held with Descartes that we "know more of mind than we know of body, the immaterial world is a firmer reality than the material." As to how the mysterious power works nothing could be said, unless that it did not show human intelligence it acted in a way the human intellect can follow and in some degree comprehend. An impressive fact was the enormous apparent waste of extinct animal form, but it might be that each evolved in a high degree some particular attribute with which some remote variation could be effected. That nature should act in a human manner was not surprising, as human intelligence is her highest achievement and probably her last stage mentally and morally. Morally the knowledge of right can go no further, and as to whether a human intellect will ever surpass that of Aristotle the lecturer confessed he remained skeptical.

At the Medical Society of London on the 8th Mr. L. B. Rawling had a paper on the surgical treatment of fracture of the base of the skull. As any practitioner may be called upon to treat such a case, always an anxious one, a few points may be of interest. He remarked that profuse hemorrhage from the auditory meatus suggested extradural extravasation and an extensive fracture of the petrous bone probably involving the tegmen. Plugging the meatus was wrong; it hindered the escape of blood, one factor of compression. Syringing, too, was dangerous and might cause meningeal infection. From a study of about 300 cases Mr Rawling classified them in three groups: (1) Where the temperature rose steadily to 103° or more, marked reaction from the collapse stage and definite signs of compression. (2) Temperature rising to 100°-101° and remaining for a time, the later rise or fall indicating death or recovery—a sort of crisis, therefore. (3) Temperature keeping subnormal from the first, the prognosis then being death in a few hours. Bleeding would reduce intracranial pressure. As to operations, that designed by Harvey Cushing had several advantages, especially the possibility of drainage through the split muscle rather than through the scalp and the use of the muscle against a tendency to hernia. Lumbar puncture was pronounced useless, even for diagnosis. Blood in the cerebrospinal fluid merely suggested intradural hemorrhage, and Mr. Rawling had never seen it benefit these cases.

Hunger pain, so called from its coming on some four hours after food and being relieved by eating something, has long been regarded as suggestive of duodenal ulcer, especially as it is usually situated on the right side. At one time, indeed, it was thought by many to be pathognomonic, but now it is mostly considered to be a suggestive clinical symptom, which may be present in other conditions. Dr. James Little of Dublin showed a specimen at the academy lately from a man of about sixty (which he thought the most common age) who had had right-sided pain in proportion to the solidity of the food he took and two bleedings from the bowel, but who did not think himself very ill. After three or four days in hospital, severe hemorrhage and later vomiting of blood proved fatal. At the post mortem an ulcer was found and a ruptured artery in its floor, the head of the pancreas. A second ulcer was also found in the duodenum. Mr. Wheeler said he had had five cases, one verified by post mortem, the four others by operation. In the fatal case the duodenum was rotten and leaking, but a definite ulcer was not detected at operation. Mr. Stokes said Mayo found 69 per cent. of ulcers were in the duodenum and even more in males, but gastric ulcers were more frequent in females. He believed hunger pain was common in any lesion of the middle gut. Dr. Moorhead had had two cases, one a woman with typical hunger pain, the other a young man who never had it. Dr. Cahill said duodenal ulcer began earlier than usually supposed, and when seen at the age of sixty or so was perhaps the final stage of a very chronic digestive trouble. A definite time relation could be found by giving a slowly digestible meal to delay the pain. But the pain was found in other conditions.

A very distinguished company attended at the Mansion House on Tuesday, over which the Lord Mayor presided. The object of the meeting was to promote a scheme proposed by the China Emergency Committee to help existing philanthropic and religious agencies in China. Sir Robert Hart strongly espoused the cause and declared that to-day is the opportunity for the West to help the East—the day the "East is rubbing her eyes and standing on her feet." The American and the Chinese Ambassadors were both present. The point to interest you is that it is proposed to establish four medical training colleges in connection with existing hospitals in four centers. These are mostly supported by missionary societies, and the committee is to work through them. Other branches of knowledge are to be taught and translations of Western books undertaken, so the colleges, if established, will be incipient universities. On every hand we are assured China is awakening and desirous of Western science and learning. As regards medical training, it is to be hoped that this will be kept strictly in the hands of qualified medical men. There are many associated with the missions and their hospitals. It would be a sad blunder to allow the missionaries themselves to pose as doctors. A few would perhaps like to, but certainly not the most useful.

Our death-rates have been rising during the last month due to a large extent to measles and influenza, both of which have been prevalent. The deaths registered from measles in the last four weeks have been successively 93, 94, 92, 105. From influenza, 25, 36, 66, 101. For the same weeks the annual rate has averaged 21.4, being 3.8 above the mean for 1904 to 1908.

Dr. William H. Day of Norwich, where he passed a long and useful life, died on Monday, the 13th inst., at the age of eighty-five. He qualified as long ago as 1845. He soon after began practice in his native city. For many years he had the confidence of both rich and poor—the latter having always appreciated his kind attentions. He filled many medical offices in his time and always with satisfaction, earning continuously esteem and gratitude.

Another prominent senior practitioner in the provinces died on the same day, viz., Dr. J. H. Keeling, aged seventy-seven, consulting surgeon to the Royal Hospital and the Women's Hospital, Sheffield. He was M.D. Edin. 1852. He joined the Turkish contingent in the Russian war and received the Medjidich Order. He settled in Sheffield afterward and became a lecturer in its medical school and an active member of the Medical Society. His health had failed of late years and he retired in 1906.

Lieutenant-Colonel J. E. Fishbourne, R.A.M.C., M.D., F.R.C.S., died on the 16th, aged sixty-seven. He joined the army in 1865 and retired in 1885. He served in the Afghan war, 1878-1879, receiving the medal, and in the Mahsood Waziri expedition in 1881. He took part in the Soudan campaign, 1884-1885, and received the medal with clasp and bronze star.

Surgeon-Major Frederick Sairgnac Stedman, formerly of the Bombay Army, died on the 16th, after a few hours' illness, at the age of eighty.

OUR LETTER FROM COPENHAGEN.

(From Our Regular Correspondent.)

SOME PHYSICAL AND CHEMICAL ACTIONS OF LIGHT-RAYS.

COPENHAGEN, March 13, 1909.

At a meeting of the Medical Society of Copenhagen Dr. Aage A. Meisling read a paper on his discoveries regarding the properties of the light rays. He said that the utilization of the curative and antibacterial properties of the light rays would rest on a far firmer foundation if we had a better knowledge of the decompositions which the rays provoke in the substances forming the different tissues of the organism, particularly the proteins and other colloids. D. Meisling has experimented chiefly with plaques of gelatin and has found that pure gelatin is in itself sensitive to light to such a degree that an exposure of five to ten minutes' duration to a Bang lamp suffices for the production of demonstrable alterations, later to be described. The sensitivity to light is increased very considerably by coloration of the gelatin with certain anilin dyes, *e.g.* erythrosin, eosin, or auramin. These dyes have a catalytic action. After exposure to light rays pure gelatin gives the reaction for formaldehyde. The blue, violet, and ultraviolet rays possess the strongest action in this respect. The methods for demonstrating and measuring the light action on gelatin are either physical or chemical. As an instance of the first class of methods, Dr. Meisling has shown that the illuminated parts of a pure gelatin plaque have a diminished faculty for water absorption, so that relievos arise when, after exposure to the light, the plaque is placed in water, the sunk spots being identical with those having been illuminated. Very beautiful relievos may in this way be obtained by employing a gelatin plaque sensibilized by erythrosin and an ordinary photographic negative. Exposure to light alters the solubility of gelatin, a fact which may easily be demonstrated by placing a gelatin plaque in water, when only the non-illuminated parts will dissolve. As will be seen, the physical changes brought about by illumination represent a hardening and precipitation of the substance.

One of the chemical changes that take place in illuminated gelatin is an oxidation, another the mentioned formation of formaldehyde. This last chemical process explains satisfactorily the precipitation and hardening. A further peculiar faculty of illuminated gelatin is this, that the parts of a gelatin plaque that have been exposed to the light, when placed in a solution of anilin dye, attract the coloring matter and become themselves strongly colored. If, for example, a gelatin plaque, after exposure to the light under a photographic negative, is placed in a fuchsin solution, after a few hours a beautiful red-colored copy of the negative is seen on the gelatin plaque. Under certain conditions the light produces, besides formaldehyde, also hydrogen peroxide in the illuminated gelatin. This formation of hydrogen peroxide is due to the presence in the illuminated substance of sulphuric acid and resinous matter, not to the gelatin itself. Both formaldehyde and hydrogen peroxide are oxidizing agents, though acting in a different way. When acting together they bring about very strong oxidations of an extremely complex nature. With mixtures of hydrogen peroxide and formaldehyde Dr. Meisling has succeeded in obtaining the same reactions *in vitro* as those that are used for the demonstration of oxydases. He therefore considers the oxydases to be simply mixtures of formaldehyde and hydrogen peroxide.

Summing up, he said that as a result of his researches the enigmatical vital processes particularly connected with the colloids might to a certain extent reasonably be considered as depending on simple physical and chemical laws.

Professor Carl J. Salomonsen and other speakers congratulated Dr. Meisling on his important researches that appeared to shed light on hitherto rather dark ground.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

CHOLERA—IMPROVED CONDITIONS IN MANILA—CAMPAIGN AGAINST ADULTERATED BEVERAGES—NEW WATER SUPPLY—BILIBID PRISON HOSPITAL—NEW HEALTH INSPECTORS OF THE BUREAU OF HEALTH.

MANILA, P. I., February 9, 1909.

The cholera, which has prevailed in Manila during the month of September, and which was the cause of the great Atlantic fleet not landing here upon its first visit, has produced considerable activity in local circles. Among other things, the Manila Merchants' Association appointed a committee to investigate the cause and fix the responsibility for the presence of the disease in Manila. This report was made public December 29, and the blame for existing conditions was practically laid upon the Municipal Board, which is responsible for the administration of the city of Manila, because it failed to carry into effect recommendations which had been persistently made during the past five years by the Bureau of Health. This opinion was arrived at after the committee visited a large number of insanitary places, which showed that the building and other ordinances, the enforcement of which was the duty of the Municipal Board, had been continually violated. The evidence showed that the health authorities had repeatedly protested against such a condition of affairs, but without avail.

On account of the extreme desirability of eradicating cholera from the city as soon as possible, many rigorous measures were taken at this time in order to produce the desired result in the shortest period. Among other things the insanitary nipa houses, which had been such a great cause of concern to the Bureau of Health for many years, are being rapidly moved to more sanitary sites, and the swamps upon which they stood are being either filled in or drained. The Municipal Board, in spite of many vigorous protests from the Director of Health in the past, had not intended to enforce their removal until 1914.

The lack of public midden sheds has also, no doubt, been an important factor in the spread of the disease in times when flies were plenty, and on account of the pressure brought to bear by public opinion on the municipal officials they have already constructed forty-five additional sheds of this character.

Public hydrants have been installed and many insanitary wells, which it has been impossible to close heretofore, have now been permanently filled in.

The San Lazaro estate, which the city of Manila has heretofore claimed could not be improved without an expenditure of at least $50,000, has been greatly improved by draining the same at an outlay of about $2,000.

The improvements which have been brought about in Manila in the past six months are concrete evidence of what aroused public opinion may accomplish. The appeals of the health authorities in the past have fallen upon deaf ears, and they were being held responsible for a situation that they were unable to remedy under existing legislation.

The active campaign which was commenced here against the importation of fermented beverages which did not comply with the provisions of the Food and Drugs Act has been temporarily suspended. On account of recent developments which have taken place in the United

States, it has not been deemed advisable to enforce the provisions of this Act until the Department of Agriculture issues final rules which shall govern the manufacture, sale, and labeling of these products.

The new water supply for the city of Manila, which comes from an uninhabited water shed, was made available for use November 13, 1908. It is notable that the per capita consumption of water has already increased considerably, an average of thirty gallons per capita being used, as against twenty gallons per capita formerly.

The new $100,000 hospital for Bilibid prison, which has been under construction for the past few years, is now practically complete, and the tuberculosis wards are already being used. This is one of the first modern hospitals to be completed since American occupation of the islands.

The sixth annual meeting of the Philippine Islands Medical Association will be held in the lecture rooms of the Philippine Medical School from February 11 to 13, inclusive. A number of visitors from abroad will be present.

The Bureau of Health is about to increase its number of medical inspectors and the Civil Service Commission at Washington has been asked to recommend five men for appointment. The entrance salary is $1,800 per annum and men with records are eligible for promotion in several years' time to positions of $3,500 per annum. The work not only is of the kind that ordinarily falls to the lot of a health inspector, but there are also many opportunities for medical and surgical experience.

ZOOPHIL PSYCHOSIS.

To the Editor of the Medical Record:

Sir:—Will you permit me to suggest the term "zoophilitis" in place of zoophil psychosis, under which title Dr. Charles L. Dana has published a highly interesting paper describing abnormal regard for animals, in your esteemed journal of March 6. A. Rose, M.D.

New York.

Progress of Medical Science.

Boston Medical and Surgical Journal, March 25, 1909.

Surgery of the Bile Passages, with Special Reference to the End-Results.—J. C. Munro discusses the question and gives summarized histories of six personal cases. His conclusions follow: (1) An analysis of our cases demonstrates that jaundice is present in a majority of all, even the simple gall-bladder cases, at some time, and that a very large majority of common duct cases have jaundice. (2) That the pancreas is not infrequently pathological, as determined by examination of the open abdomen. (3) That adhesions are present in a large majority of cases and may be the direct cause of symptoms rendering all medical treatment more than futile. (4) That pulmonary complications must be reckoned with in prognosis, but that they are less frequent than anticipated. (5) That cholecystotomy is normally a more suitable operation than cholecystectomy unless the gall-bladder is definitely functionless. (6) That recurrence of symptoms may be due to adhesions or a contracted gall-bladder as well as to overlooked stones. (7) That toxemic cases are best treated medically until the acute state is passed. (8) That fatal capillary hemorrhage may be controlled to an extent not yet determined, by the use of fresh animal serum.

A Case of Pseudo-Hermaphroditism.—W. L. Harris refers to the case of a person of seventeen years, brought up as a girl, to whom he was called as she was having a "fit." Entering the room, he found the unconscious person had thrown off the bed clothing, disclosing a penis six inches long and three in circumference. The child had been born with a small perforate protrusion in the genital region, which the physician in attendance had told the mother was an enlarged clitoris. It had grown up with some of the characteristics of the male sex, but with a preference for those of the opposite sex. Examination under ether revealed absence of scrotum and no evidence of testicles or spermatic cords. At the base of the penis was an opening about one and a half inches long, with the pinkish mucous lining thrown into longitudinal folds. An instrument passed two inches into this opening entered the bladder. No uterus could be discovered. It was believed that this was a definite case of androgyna and the patient's parents were advised to change the clothing from that of a girl to that of a boy. At seventeen she had her first epileptiform convulsion and the present was probably the third or fourth. The removal of the penis was advised and done without incident and the epilepsy ceased. The later development of this person was that of a sexual pervert. Some time after, a young man who had known her as a girl proposed marriage and could not be dissuaded therefrom, although the exact state of affairs was explained to him. To satisfy the parents an exploratory laparotomy was done, but no uterus, broad ligament, or ovaries were found. The two young people eloped and the result of attempted sexual relations was a return of the epileptic attacks. Sexual desire became a mania in this developed pervert. Epilepsy became so frequent that it became necessary for the young man to leave his "wife." Separate living greatly improved "her," but resumption of living together brought about again a return of the epilepsy, and the "wife" was committed to the asylum. While there she contracted syphilis. The later history of the case is not given.

New York Medical Journal, March 27, 1909.

Eucalyptus in Leprosy.—H. C. Hollman, a resident of the Hawaiian Territory, thus describes the manner of using the remedy. For medicated baths the following formula is given: Take of thoroughly cut eucalyptus leaves, ¼ lb.; of Ohia leaves (mountain apple—jambos malaccensis), ¼ lb.; ground hæmatoxylon bark, ground hemlock bark, 1 oz. This is tied in a small muslin bag. To make bath, place bag in 5 gallons of water, boil for one hour, of this take 2½ gallons and add to the daily bath. For internal use the following is the formula: Take eucalyptus leaves, cut up thoroughly and place in still, cover with water, and place on fire. From a 5-gallon still we get 3 gallons of distilled eucalyptus. Directions for using this distillate: Take ½ teaspoonful in a glass of sweetened water three times a day. The dose is gradually increased until the patient is taking a tablespoonful three times daily. The author has obtained, after two years' treatment, the following results: (1) The glands of the skin are stimulated. The skin now presents a much clearer, cleaner, brighter, healthier appearance. (2) It softens the thickened, indurated skin and underlying integument. The skin becomes softer and more pliable, "Leonine" facies becomes less marked. Two cases, one reported as showing marked improvement, are now *not* the exception, but many more lepers show this decided improvement. (3) Marked improvement in leprous neuritic pains. This pain is most intractable to remedial agents, but under baths and internal eucalyptus many are relieved to a great extent. The numbness of the hands and feet (a feeling as if the parts were asleep) becomes less marked in many cases. It also relieves the coldness of these parts. (4) Itch, leprous, as well as parasitic, is cured. Formerly there was an almost constant prevalence of one or the other variety of itch. To those who use this treatment, itch has become a rare disease or symptom. (5) Many cases of leprous excoriations, ulcerations, erosions, and abrasions of the skin and mucous membranes are healed. The sores of whatever variety except where the bone is affected are stimulated, old scabs and crusts are thrown off, and healthy granulations appear, and finally healthy, rosy skin covers it over. (6) Swollen head fever, first described by Dr. Goodhue, has ceased to assume epidemic proportions, and has, in fact, largely disappeared. There have been *no* attacks in those using baths, etc. (7) Leprous fever, produced by exacerbation of the disease, or perhaps by fresh invasion of the germ has shown a decided decrease in the number of patients. Many have not had an attack since starting treatment two years ago. The author's experience is based on 275 patients who have taken the baths more or less continuously, and have taken eucalyptus internally in some form, either distillate or the oil, with strychnine. Those patients who show the most marked improvement have followed the bath by an inunction of a salve composed of: R. Oil of eucalyptus, oil of chaulmoogra, equal parts. M. Among those who have regularly taken the baths and internally eucalyptus and strychnine, the death rate has been less than 5 per cent., and less than 2 per cent. due to leprosy.

Painful Heels.—I. D. Steinhardt finds a most frequent cause of this condition to be an acute productive inflammation of the oscalcis, and the underlying trouble may be due to a gonorrheal, rheumatic, traumatic, and gouty rheumatic. The full pathological findings are given of one case of the gonorrheal variety. The patient usually complains at first of general pain in the toes and foot,

which after a little time becomes localized in the heel itself. Examination of the heel proper shows general tenderness, with a point of exquisite pain on pressure of the sole of the foot immediately in contact with the tubercule of the os calcis. This pain is such that ofttimes the fear of it is sufficient to prevent the patient from putting his feet to the ground, and he uses crutches and various other means to get about without having to put his weight upon his feet. An *x*-ray picture will show bony spicules protruding from the os calcis with a periostitis of the surrounding bone or a very much enlarged tubercle of the os calcis. Treatment consists in the removal of the offending exotosis and later of the underlying cause. Operative details are as follows: (1) Apply Esmarch bandage. (2) Usual cleansing of entire foot for operative procedure. (3) Apply tincture of iodine to line of incision. (4) Make an incision about 2 or 2½ inches long, terminating at a point about ½ inch behind the tubercle of the os calcis. This incision should be right down to the bone, and in the middle line. (5) Insert retractors and locate exostosis at bottom of wound. (6) Chisel away exostosis with a grooved chisel and scrape the bone with a sharp spoon until the surface is smooth and seems healthy. (7) Wash out with sterile normal salt solution. (8) Close wound without drainage, with interrupted catgut sutures. The patient should rest in bed for about three days, and may then, if everything is going along smoothly, be allowed to sit up. At the end of two weeks, the feet may be put to the ground, and after twenty-one days the patient should be around as usual, continuing, if still necessary, the post-operative treatment.

On External Roentgen Treatment of Internal Structures (Eventration Treatment).—Carl Beck gives the histories of eight cases of abdominal cancer in which this treatment was used and three of which are now alive and well. The plan consists of opening the abdomen, bringing the malignant area to the edges of the wound, fastening it there so that the *x*-ray may be used directly upon it, and later releasing the affected area and dropping it back into the abdomen, which is then closed in the usual way. The author is not too sanguine as to ultimate results. In regard to his first two cures he says that the future alone can show if the cures are permanent. Perhaps, he adds, they were only most favorable cases for this mode of treatment, while the fatal ones were received in a very much advanced stage, and might have been more answerable to the Röntgen therapy at an earlier period. The type of the carcinoma texture must, as we know, also have a marked influence. It is my experience, as well as that of other investigators, that in some neoplasms the process of destruction is rather accelerated by the Röntgen treatment than prohibited. If we could define the exact reasons for this strange phenomenon we would learn more about the indication and the eventual prognosis of this kind of therapy. It is remarkable, however, that even in my fatal cases a short improvement took place.

The Intracranial Causes and Operative Treatment of Trigeminal Neuralgia.—J. B. Deaver enumerates some of the common causes of trigeminal neuralgia which arise within the skull. Predisposing causes are the neuropathic diathesis, exhausting maladies, loss of blood or tissue juices, anemia, cachexia, senescence, and arteriosclerosis. Cold, exposure, overexertion, and mental strain act similarly. The mineral poisons, toxins of diabetes, gout, Bright's, etc., are all included. The various infectious diseases, fracture at the base of the skull, abscess along the course of the nerve, carotid aneurysm, tumors of the Gasserian ganglion, tuberculous and syphilitic granulomata, cholesteotomata in the region of the ganglion are also causes, and that group of cases is also to be thought of in which neuralgia major, tic douloureux, epileptiform neuralgia are present and raise a doubt as to whether surgery can intervene with benefit or not. The author then traces the history of the development of surgery as applied to this affection, dwelling particularly on extirpation of the Gasserian ganglion. He says that to those who have not had the opportunity of observing cases of major neuralgia, this operation may seem somewhat heroic to employ for the relief of a condition characterized by pain without danger to life. By those, however, who have seen the abject misery it can cause, leading in not a few instances to suicide, or to the addiction to morphine, the operative treatment, with its comparatively present low mortality and not very great deformity, will be hailed as a triumphal offering of surgery to humanity.

Journal of the American Medical Association, March 27, 1909.

Human and Bovine Tuberculosis.—F. M. Pottenger reviews the points of difference and resemblance between human and bovine tuberculosis bacilli, stating the opinions of others and giving the results of his own observations. He believes that we are warranted in assuming that these bacilli are not only different, but antagonistic, though originally from one parent stem. He makes a comparison between cowpox and smallpox, and believes that the same immunity can be conferred, though with greater danger, by children taking in bovine bacilli in small numbers. His experience has taught him, if he interprets his observations correctly, that few patients do equally well on treatment with both forms of bacilli; some are improved by one and irritated by the other. Pottenger considers it fairly established that human and bovine bacilli are different and that cattle can be immunized against bovine bacilli by inoculation with moderate numbers of human bacilli. Their resistance, however, can be overcome by overwhelming or prolonged infection. Human beings are sometimes infected with bovine bacilli. Reasoning from all the facts, he concludes that the toxins of the two forms are different, but, judging from the reaction to the infection from the two types, it appears that both are able to produce tuberculosis in the human body, but that the localization of the two infections is more or less constant. It has been found that infections of the lungs, larynx, and intestines are best treated by tuberculins as a rule made from bovine bacilli. These infections are most probably of human origin. Infections of the bones, glands (as a rule), peritoneum (with effusion), ear, and genitourinary tracts as a rule are best treated by tuberculins made from human bacilli. These infections are probably produced by bacilli of bovine origin. Reasoning from the analogy, the fact that human bacilli will immunize cattle against infection with bovine bacilli would suggest that bovine bacilli might immunize human beings against human bacilli; and, if our belief that tuberculosis of the bones is of bovine origin is true, and our observation that persons suffering from bone lesions rarely suffer from tuberculosis of the lungs is correct, we have clinical evidence which supports the fact that immunity in human beings against human bacilli may be produced by infection with bacilli of the bovine type.

Tubercle Bacilli in Milk.—A. F. Hess examined samples taken from the large forty-quart cans which constitute a large proportion of the New York City milk supply and are often the same as the bottled milk. In 107 samples 17 or 16 per cent. were found, by inoculation tests on guinea pigs, to be tuberculous, tubercle bacilli being found in the guinea pig on autopsy. Tubercle bacilli were not discovered by direct microscopic examination, but only by animal inoculation; cream, as well as sediment, was found infective. Tubercle bacilli were also detected in a sample of "commercially pasteurized" milk, claimed to have been heated to 160° F. for forty seconds, showing that this name is misleading and suggesting that only such milk be called "pasteurized" as has been heated for a length of time and to a degree sufficient to insure its being a safe food. In all but one instance the bacilli found were of the bovine type. In the exceptional case a human type was found, showing that human contamination of milk is possible and must be guarded against. A number of infants and young children who drank milk containing tubercle bacilli, when examined one year later, seemed in average health. A fourth of the number, however, reacted to tuberculin. One of them was in poor physical condition and had suffered from a recent glandular affection. Probably 90 per cent. of human tuberculosis is due to infection from human beings, but we are not, therefore, justified in neglecting the danger from the bovine source, as even a very small percentage from this cause means thousands of cases. As an immediate safeguard, Hess recommends pasteurizing or boiling all milk not coming from tuberculin-tested cows. There should be a great many more inspectors of herds and finally all cows should be tested with tuberculin, and, if found reacting, should be condemned or isolated.

Facial Deformities.—E. S. Talbot points out how in the evolution of the race certain structures develop and others are lost for the benefit of the organism as a whole. With the greater development of the brain, other structures of the head, the facial bones, the jaws and teeth especially, decrease in size and recede, making the face more perpendicular. How rapid this change may be is shown by the changes in the cranial and facial characters of the African race in the northern States of this country. In the white race the changes in the jaws are shown by the disappearance of the

third molar, which Talbot found wanting on one or both sides in one or both jaws in 47 per cent. of patients over twenty-five years old. The lateral incisor comes next. It was missing in about 6 per cent. of patients. These parts undergoing such rapid changes are structures with transitory characteristics and are more readily involved in disease than others. In the development of men from the primitive cell, periods of stress due to readjustment to environment occur, some during development and others during involution. The first period of stress, and the most important one as regards facial and dental development, occurs about the eighteenth week of fetal life. The second occurs after birth, at the time of the development of the first set of teeth. Arrested development of the jaws is usually accompanied with abnormalities also in the nasal bones and mucosa, though neither is as dependent on the other as has been supposed, both being the result of an unstable nervous system; the two conditions go side by side, and the successful treatment of one must have a favorable effect on the other. The perpendicular line is the dividing line between the normal and abnormal facial angle. Deformities of the face, nose, jaws, and teeth rarely require treatment except under conditions where these structures develop inside of the perpendicular line drawn at right angles to a line from the root of the nose to the external auditory meatus.

The Opsonic Index.—E. F. McCampbell publishes a description of a method devised by himself which makes the determination of the opsonic index available to the general practitioner with limited laboratory facilities. He incubates a culture of the bacterium to be opsonized at 37° C. for from eighteen to twenty-four hours, then washes it off with a small amount of sterile 0.85 per cent. sodium chlorid and 0.8 per cent. sodium citrate solution. The bacterial emulsion is drawn up to the mark 0.5, and then on up into the bulb of the leucocyte blood-counting pipette of a hemocytometer. The blood of the patient whose opsonic index is to be determined is then drawn up to the mark 0.5, then on up into the bulb, where it is thoroughly mixed with the bacterial emulsion. The sodium citrate in the bacterial emulsion precipitates the calcium salts and prevents the coagulation of the blood which would occur without greater dilution with salt solution. When the materials have been mixed the solutions are blown into the capillary portion of the pipette and a strong rubber band placed over the ends lengthwise, thus practically sealing it. The pipette is now ready for incubation, which may be accomplished in a regular incubator at 37° C., or, if no incubator is available, the pipette may be incubated in the operator's axilla. The pipette must be frequently rotated. After incubation for fifteen minutes or any desired period the material is blown out on a slide, the smear made and stained with carbothionin blue or some other equally good blood stain. McCampbell says that experimental work suggests that the sodium citrate causes a slight reduction in the amount of phagocytosis, probably due to some slight effect on the opsonins, but he does not know whether this effect will be noted with all species of bacteria. By this method the index can be determined as quickly as an ordinary blood count can be made. Further results with it will be noted later.

The Lancet, March 20, 1909.

On the Cultivation of Spirochæta Duttoni.—C. M. Duval and J. L. Todd give the following note on the preparation of the suitable medium. The yolks of two fresh hen's eggs are carefully separated from the whites under aseptic precautions and dropped into a 200 c.c. Erlenmeyer flask, to which have been previously added 100 c.c. of a sterile mouse decoction, made by boiling the skinned bodies of six mice in 500 c.c. of water. The mixture is thoroughly shaken until it is homogenous, when 5 c.c. of defibrinated sterile mouse blood are added. The flask is now sealed to provide drying of the medium and placed at 37° C. for from six to eight weeks, until the mixture undergoes partial digestion. The semi fluid mass first becomes solidified and finally, through autolytic action, is broken down to a grumous, mush-like mass. In the author's experience this partial autodigestion of the mass seems essential to the multiplication of the spirochæta. If the egg mixture is coagulated at higher temperatures, it seems to be no longer suitable for the growth of the parasites.

An Investigation into the Leucocytes of Epidemic Cerebrospinal Meningitis.—W. Dow has made a series of observations and collected his results in tabular form. He says (1) that cases of the disease are always accompanied by a leucocytosis, whether the attack is acute, abortive, mild, or chronic. (2) That the character of the leucocytosis is practically the same in all instances, both adults and children, and is the result mainly of an increase in the number of polymorphonuclear cells. (3) That nevertheless a lymphocytosis may be very occasionally observed in infants and young children. (4) That there is a relative decrease of the large mononuclear elements alike in fatal and non-fatal cases, though less marked in the chronic type. (5) That in the first three groups there is sometimes an absolute decrease of the large mononuclear elements and occasionally total absence of these cells. In the chronic group, absolute decreases like relative decrease is little marked. (6) That eosinophile corpuscles in acute fatal cases are always present, though present in varying degree in all the other groups. As regards diagnosis, the leucocytosis is of value only as excluding typhoid fever.

X-Ray Carcinoma.—C. W. Rountree says that there are now on record in Great Britain at least eleven cases of carcinoma following exposure of workers to *x*-rays, and one case has proved fatal. Full descriptions are given of one case. The practical point relates to the well-known treatment of malignancy with this therapeutic agent. There has been and still is, says the author, considerable divergence of opinion not only as to the kinds of growth which should be subjected to treatment, but also as to the manner in which the best results may be obtained. All observers are agreed, however, that it is only in very superficial conditions that amelioration can be confidently anticipated. Of all malignant growths rodent cancer is the most superficial and it is the only variety in which really good results have been obtained. But even in this condition the results are discordant, in some cases the tumor disappearing after two or three exposures, in other cases healing, only to break down again, or not healing at all. It is possible that in certain instances the dose administered has been so large as to have induced a condition analogous to an *x*-ray burn, or in other cases it is probable that a dose just sufficient to induce retrogression of the superficial parts of a growth may, in the deeper portions, stimulate to increased activity.

British Medical Journal, March 20, 1909.

Bee Stings and Rheumatism.—E. T. Burton contributes another article on this subject, referring to cases previously reported, and adding additional new ones. Some pertinent words are added on the management of bees. The general tenor of the report is that bee stings are distinctly beneficial in rheumatic cases.

Some Insufficiently Recognized Points in the Diagnosis of Disease.—Dyce Duckworth urges the importance of a study of the patient no less than of the disease, and illustrates his points by reference to tuberculosis, rheumatism, myxedema, cretinism, etc. In regard to tuberculosis, he notes the so-called preliminary scrofulous period during which the patient presents a soil ever ready to tuberculous infection. These cases are veritable forcing grounds for all kinds of vicious microbic invasion. They have every prevalent infection and are always very sick with it. They are not tuberculous and never need become so, but every hygienic precaution is required to keep them well. One of the most striking features of the arthritic diathesis is its resistance to tuberculous infection. If it is acquired, it has a hard struggle to progress, and is easily arrested or held in check for long periods. There are such things as blends of constitutions, intermixtures of diathesis, etc., as struma and rheumatism, gout and struma, etc. Arthritic subjects are peculiarly susceptible to the gonococcal virus. There is also a neurotic habit of body in which we find instability of the nerve centers, with a tendency to break down in various parts of the cerebrospinal axis, a condition plainly inherited and transmissible, often blending with other proclivities, as chorea, which presents a distinct rheumatic infection, together with nervous erethism and instability. Myxedema and cretinism in an early stage may long remain unrecognized, unless we are on the lookout for the peculiarities of the disease as disclosed by a change of physiognomy and habits. In cases of apparently simple anemia, especially in middle-aged males, we may sometimes discover the reason of our inability to promote recovery by attending to the minute histology of the blood and, finding an undue

eosinophile count of leucocytes, be led to the discovery of ankylostomiasis. The author says that since the study of botany has been neglected in the medical curriculum there has been, he believes, a loss of discriminative power in the student, and less ability for accurate differentiation in common observation. More botany and careful study of the materia medica, with more assiduous observation of the action of our common remedies, and perhaps less of elaborate chemistry, would be a change for the better.

Münchener medizinische Wochenschrift, March 16, 1909.

Alcohol in Hunger.—Kochmann says that alcohol has been proved to be a foodstuff capable of making up for waste of carbohydrates or fats or of saving the waste of proteins. He has experimentally studied the question of the influence of alcohol upon starving animals, using rabbits for this purpose. He concludes that in appropriate dosage alcohol is capable of prolonging the life of starving animals. Large doses of alcohol, on the other hand, hasten the death of the animal. The favorable effects of alcohol must be ascribed to the sparing of proteid metabolism and the maintenance of water equilibrium of the organism. Under its influence the proteid content of the body is kept at the same level, while other tissue elements, less important to life, are used up in the metabolic processes. The unfavorable effects of large doses are due to an increase in the waste of proteids, those rich in sulphur being most affected. Large doses increase the diuresis, smaller doses lead to diminution in the amount of urine secreted. These results are applicable to the use of alcohol in human beings. Very large doses have a toxic action and must never be prescribed. Small doses are very beneficial in the treatment of undernourished individuals, such as those with high fever, those who are unable to take nourishing foods, and those who refuse food. Alcohol has the same effects in healthy human beings, not supplied with a proper amount of food, and may, therefore, be advantageously used in such circumstances in time of war, or on similar occasions arising in any form of sport.

Deutsche medizinische Wochenschrift, March 4 *and* 11, 1909.

Serum Diagnosis of Syphilis.—Lesser says that a positive result of the Wassermann reaction should always lead to the diagnosis of syphilis or to a well-founded suspicion that any obscure symptoms present are due to syphilis, if the presence of scarlet fever is excluded. The negative result, on the other hand, does not exclude syphilis. The reaction is usually positive in inherited syphilis and in paralysis due to preceding syphilitic infection; the former fact is of special value in diagnosing the nature of various affections of the special organs, such as the eyes, in childhood. Lesser has tried the reaction in over two thousand cases and reports the following figures: The reaction was positive in 69 per cent. of cases showing the primary lesion only, in 91 per cent. of the early period with symptoms, in 67 per cent. of the same period without symptoms, in 90 per cent. of tertiary stage with symptoms, in 46 per cent. of this stage without symptoms, in 56 per cent. of the cases of tabes dorsalis, and in all cases of general paralysis. The fact that the reaction is often negative in the primary stage excludes it as a means of differentiating between chancre and chancroid; in such cases the presence of spirocheta pallida is the best proof of the nature of the lesion. The discovery of this organism and of the reaction enables us to study the effect of removing the primary lesion before the secondary symptoms appear; in two cases proved syphilitic by the finding of *Spirochæta pallida*, Lesser removed the primary sore, but this did not prevent the appearance of secondaries and of the reaction. Further study of this important question is needed. The outcome of the reaction is especially valuable in the numerous cases in which the infection is denied and yet many lesions suggesting syphilis are present. Such cryptogenetic syphilis is often proved by the positive reaction. The fact that general paralysis has always given a positive reaction shows that syphilis is the cause of this condition; the negative outcome in many cases of tabes dorsalis, on the other hand, simply shows that the luetic infection which may have existed has been completely conquered, though the anatomical changes in the cord remain. The positive reaction may be made to disappear by an energetic specific treatment, and this fact speaks strongly for the conclusion that such reaction means the existence of active syphilis; the latter may be manifested only by some changes in internal organs without leading to recognizable external signs or symptoms. The presence of the reaction, then, speaks for the necessity of continuing the treatment for active syphilis, however little manifestations of the disease may exist.

Clinical Value of the Wassermann Reaction.—Blaschko says that neither the fact that Wassermann reaction may be obtained in certain diseases, such as frambesia, sleeping sickness, and scarlet fever, as well as in syphilis, its clinical value is but little modified by this fact. Scarlet fever is easily distinguished from syphilis, while the other diseases are very rare in Europe. Blaschko reports his experience with one thousand patients, in whom the reaction was tried. In over thirty cases the reaction was negative, though the diagnosis of syphilis could be made on other grounds; tabes dorsalis and syphilitic disease of the bones were most frequently represented among these negative results. Blaschko has also observed ninety cases in whom a strong positive reaction was changed by thorough antiluetic treatment into a weak reaction, or was made to disappear altogether. The diminution in the intensity of the reaction ran for the most part parallel with the disappearance of clinical symptoms. In general, it is wise, therefore, to continue treatment until the reaction disappears, though cases may be met with to which this general rule cannot be applied. The other question, whether the mere presence of a positive Wassermann reaction should serve as an indication of treatment, ought to be answered in the affirmative at present, for such a reaction is really a symptom of syphilis, with the exception, of course, of cases of scarlet fever, etc., in which the reaction may also be seen. So far as the value of the reaction for prognosis is concerned, Blaschko's conclusion is that a persistence of the positive reaction in the first three years of syphilis is not to be taken as an unfavorable sign; the disappearance of the reaction in the same period, on the other hand, must not be taken as a favorable sign. The outcome of the reaction becomes of prognostic importance only in the later stages of the disease, when persistence of a positive result must be looked upon as indicating incomplete success of treatment or the development of post-syphilitic affections. In general all conclusions as to Wassermann reaction must at present be only tentative; it is the duty of sphilidologists to make use of their material in the study of the reaction so that more dependable judgment may be soon had in reference to the value of the reaction.

Disinfection in Gynecology Without Soap and Water.—Otto v. Herff says that the principle of the disinfection used by him is not to soften the skin and thus not to bring out the germs hidden in its deeper layers. Only the germs on the surface of the skin are dangerous and they must be surely destroyed. The usual technique of disinfection with the use of soap, water, and brush simply uncovers the organisms that otherwise lie latent in the skin. Herff begins the preparation of the skin on the day before operation by giving the patient a bath and by removing the hair from the area to be prepared, the razor and a depilatory powder being used. A wet dressing that is often used in preparing the field of operation simply renders the skin a good culture ground for the growth of bacteria. Then after anesthesia has been begun the field is wiped for four minutes with 50 per cent. alcohol acetone; then the alcohol is removed by rubbing the skin for one minute with pure acetone, and the skin dried by sterile gauze. After the operation the field is wiped dry, but not washed. Acetone is the special agent in this method, for it acts as a solvent of fat and at the same time removes most of the moisture from the skin. In order that the surrounding tissues may be protected from secretions of the wound, alcoholic tincture of benzoin is applied. The entire technique is very simple and therefore well adapted for emergency preparations. The results in over three hundred cases show that the omission of the soap, brush, and water has led to no increase in general or local infections after operation.

The Placenta of Eclamptics.—A. Brindeau and L. Nattan-Larrier describe the lesions found by them in the placenta of eclampsia, of albuminuria of pregnancy and retroplacentar hemorrhage. There is a typical form of placenta found in these conditions and there is a less complex form of lesion. The typical form includes nodular infarcts, arteritis, endometritis, edema, and small hemorrhages. This corresponds to slow formation. In the second form there are diffuse hemorrhages, rupture of fetal vessels, and plasmodial proliferation. These occur rapidly in cases of sudden convulsions.—*L'Obstétrique.*

Book Reviews.

Diseases of the Digestive Canal (Esophagus, Stomach, Intestines). By Dr. Paul Cohnheim, Specialist in Diseases of the Stomach and Intestines in Berlin. From the Second German Edition. Edited and Translated by Dudley Fulton, M.D., Lecturer on Medicine, University of Southern California, Los Angeles. Illustrated. Philadelphia and London: J. B. Lippincott Company, 1909.

The author explains the addition of another volume to the large number of special treatises on gastrointestinal diseases as due to the fact that he has written for the general practitioner, and inasmuch as his practice has always been a general one, he believes himself qualified to understand their needs and opportunities. His text proves his reasoning to be correct, for throughout the work he has been clinical in his point of view, in his diagnosis, and in his treatment. To make the book one of moderate size he has omitted the physiology, pathology, and anatomy of the subject and has plunged at once into the practical discussion of sick patients who are seeking an opinion and relief from symptoms. Unlike so many specialists he seeks to minimize the need of laboratory help and shows how the history, if complete, is the great means toward a diagnosis if properly understood. To make the reader a good historian is evidently his aim, and in this he excels; each clinical point of importance is emphasized, and its significance, whether great or little, is taught directly and unhesitatingly. His use of words is careful, and he adopts such terms as "epigastric pain" as signifying a pain of an unexplained origin but fairly definite location. The author's view of surgical interference, for instance, in gallstones and in appendicitis, is extremely conservative, more so than is the stand taken upon these subjects by American surgeons, but aside from this the treatment advised is such as the modern advanced internist who is no faddist or theorist would be apt to employ.

Practical Dietetics. With Reference to Diet in Disease. By Alida Frances Pattee, Graduate, Department of Household Arts, State Normal School, Framingham, Mass.; Late Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City; Former Instructor at Lakeside, St. Mary's, Trinity, and Wisconsin Training Schools for Nurses, Milwaukee, Wis.; St. Joseph's Hospital, Chicago, Ill.; Special Lecturer at Bellevue, Mount Sinai, Hahnemann, and the Flower Hospital Training Schools for Nurses, New York City; St. Vincent de Paul Hospital, Brockville, Ontario, Canada. Fifth Edition. New York: A. F. Pattee, 1909.

This well-known book, which has reached its fifth edition within six years, can be recommended as of great value to those who have to prepare food for the sick. Innumerable recipes for various dishes, enemas, etc., and the special diets suitable for certain diseases make up a volume which no nurse could afford to do without. The second portion, "Diet and Disease," is wisely taken from the writings of physicians who are authorities and can be thoroughly trusted.

Indications Opératoires dans les Affections de l'Estomac. Par Dr. A. Delangre. Paris: Vigot Frères, 1909.

Delangre's work on the indications for operations in affections of the stomach is very timely. The material is grouped in a systematic way, and is very instructive.

Delangre advocates surgical intervention when there are strong indications for such a procedure, otherwise he recommends rational medical treatment. Thus he says (p. 61): "In fact pure gastrosuccorrhea of a spasmodic nature ought to be treated internally only: absolute milk diet in conjunction with belladonna ought to be prescribed in every instance. It is not quite the same in gastrosuccorrhea with food remnants; in the presence of the latter in the stomach, due to stasis, gastroenterostomy is indicated, as this condition, if left untreated, will cause dilatation of the stomach. Medical treatment and a postoperative diet of fat and vegetables must then be strictly followed by the patient in order to permit the '*restitutio ad integrum*.'"

In acute gastric hemorrhages Delangre prefers medical treatment. He expresses himself as follows (p. 77): "In the majority of cases of sudden, severe hemorrhage, operative intervention has been connected with direful results for the patient. In spite of several rare and lucky operations, such as that of Rossoni of Rome, where surgical intervention was successfully practised, based on the indication of a very severe hemorrhage, and revealed the presence of a small ulcer seated over a small artery that could be ligated, abstention should be the rule in large hemorrhages. The large incision into the stomach and its internal exploration constitute a very serious intervention for a run-down patient of low resistance, especially as the checking of the hemorrhage is not always such a simple maneuver. Firstly, the bleeding ulcer is at times difficult to locate, as was proved in Hartmann's case, who was able to find the erosion only after the minutest examination on the autopsy table; secondly, the ulcer is at times adherent and difficult of access, or the infiltration of the tissues prevents the proper placing of a ligature. Thus the deplorable results of operations during a hemorrhagic crises may be explained."

In dilatation of the stomach Delangre advocates an operation if there is ischochymia present, which latter is usually due to pyloric stenosis. He agrees with Hartmann that operation for atonic dilatation is only exceptionally indicated, and that the knife has been used too much in this condition, instead of insisting on medical treatment, which is well understood and must be sufficiently prolonged.

In simple dilatation, so common in practice, the stomach empties itself during the night. General as well as local medical treatment will frequenty cure this condition. Therefore Delangre has but little confidence in gastrorrhaphy or gastroplication by means of folds and sutures on the anterior surface of the organ. As a whole, the book can be highly recommended to physicians and surgeons alike.

Selected Bibliography of Sanitary Science and Allied Subjects. Prepared by Arthur W. Smith, M.A. (Yale), for the Use of Classes in Sanitary Science in the College of Liberal Arts, University of Colorado. Boulder, Col.: A. A. Greenman, 1909.

This is a usable bibliography because well annotated. There are 420 titles, including articles in periodicals and chapters in books. These are arranged alphabetically by authors under the following headings: General Works on Sanitary Science; General Hygiene, Personal Hygiene, School Hygiene, Etiology of Disease, Bacteriology, Protozoology; Infection: Means, Vehicles, and Carriers; Immunity: Toxins, Antitoxins, Opsonic Method; Disinfection and Disinfectants; Water, Milk, and Food; Sewage Disposal and Purification; Climate and Health, Geography of Disease; Heredity, Race Improvement, Degeneration, Old Age; Vital Statistics; Patent Medicines, Quackery, Medical Superstition; Specific Infectious Diseases; Relation of Government to Sanitary Science; Public Health Administration.

Industrial and Personal Hygiene. By George M. Kober, M.D., LL.D.; Chairman of the Committee on Social Betterment of the President's Homes Commission; Professor of Hygiene, School of Medicine, Georgetown University. A Report of the Committee on Social Betterment. Washington, D. C.: Published by the President's Homes Commission, 1908.

This is a timely pamphlet on the subject of industrial hygiene. Since health is the chief asset of the workingman, anything that tends to the preservation of his health must necessarily be an economic factor of the first importance. In this *brochure* will be found a considerable amount of information on almost everything appertaining to the subject. It is well written, in simple language, and should prove of much service. The few pages at the end, on personal hygiene, are brief and sketchy, and are not of the same value as the rest of the volume.

Blood Examination in Surgical Diagnosis. A Practical Study of Its Scope and Technique. By Ira S. Wile, M.S., M.D. New York: Surgery Publishing Company, 1908.

This is an elegant little volume dealing with the changes met with in the blood in various surgical conditions. The subject is treated not from the theoretical standpoint, but from the viewpoint of practice, the means of examining the blood, and the conclusions that can be drawn from such examinations being concisely given. The author has done a great deal of hematological work for large hospitals, and writes from his own experience rather than from a study of hematological literature; his methods and conclusions have been tested in practice and are the more valuable for that. We recommend this little volume without hesitation to the hospital internes engaged in doing much blood work, and to the young surgeon who does not want to miss the help in diagnosing disease which a study of the blood by modern methods can so often render. To the author we would suggest that the substitution of colored drawings of blood findings, using the colors obtained by the use of such stain as the Jenner, for instance, will greatly enhance the usefulness of the book; the black and white drawings do not give good representations of the stained blood films.

Society Reports.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held February 15, 1909.

The President, Dr. Robert T. Morris, in the Chair.

The Medical Importance of the Study of Anthropology.—Major Charles E. Woodruff, Surgeon U. S. Army, read this paper. He said that our expansion to tropical climates had taken soldiers into new environments, which had created an entirely new subject for sanitary investigation, namely, the relation of races and climates. One phase of this was the curious reduction of resistance which made all infections far worse in the tropics than in the normal environment. It had been found that some patients would not get well there at all, and that as a rule recovery in all cases was vastly hastened by sending the patient home. There was a constant stream of invalids sent home from all tropical climates, and, omitting a few dissenters, there was a generally accepted opinion that two years was the longest period it was safe to remain in hot places without more or less prolonged vacation in a cold country. Explanation of this failure to retain vigor when out of our usual environments was quite easy on general laws, but most difficult when we got down to particulars. While biologists for half a century had been talking about adaptation to environments the medical profession had completely ignored it, and the opinion was wide spread that the differences between types of men was of no significance whatever. Consequently, no investigations had been made. Unfortunately, all races of men had generally been considered to constitute one species, and there was once a prevalent notion that man was superior to the universal natural laws governing all other animals. Professor William Ridgeway of Cambridge had recently protested against the old idea of man's isolation from the rest of creation, and had pleaded for the view that we were governed by all the natural laws which modified other animals. One of the greatest obstacles to the determination of characteristics due to the selections of variations was the fact that a modification might appear generation after generation as long as the cause acted, though such acquirements were never hereditary. For instance, a race was forced into an inhospitable place, where sufficient food was not available, and at once they showed reduction of stature, which might last for centuries, as though it were an hereditary useful variation. Let them come to America, where the children could be well fed, and the latter at once grew to a much higher stature than their parents, thus proving that the low stature was not a specific character like that of tropical natives, but a mere acquirement sure to disappear with its causes. Another disturbing factor was the effect of use and disuse. On the other hand, pigmentation was a result of survival of favorable variations caused we did not know how, for sunburn was never transmitted. Why was there such a great tendency to shortness of stature in the tropics and great tallness toward the colder places? Heavy northern men did not stand the tropics as well as the little ones, and the speaker said he had been struck by the fact that men of short stature, particularly those of the brunette type, often enjoyed the Philippine climate, and that the big men, with some exceptions, labored under it. Heavy men had less radiating surface than thin men of equal height. Bulkiness was a decided advantage in retaining body heat in cold climates, but it prevented sufficient radiation in the tropics, so that the disturbances of body temperature broke down the nervous system in the course of some years. Another character which had long been noted as varying with the climate was the nasal index, or the width of the nose divided by the length. This index was smallest in cold climates and largest in the tropics, where the width might even exceed the length. This had no fixed relation to the size of the nose, but there had long been an hypothesis that it was related to the size of the nasal cavities, which were supposed to be larger in the tropics to admit more air.

In discussing the effect of light, Major Woodruff said it seemed that for the greatest efficiency we were dependent upon the stimulation of a small amount of light, and, though mere health was possible with very little, as in the case of miners and night workers, yet total deprivation, as in the Arctic winters, was decidedly depressing. On the other hand, light in large amounts was invariably lethal, and even in smaller doses, it might be unduly stimulating, so that the limit of safety was far below the point generally accepted by the medical profession. Consequently, nature was always at work removing the specimens insufficiently protected, so that in the course of time the people in certain localities became pigmented in proportion to the maximum intensity of the light, irrespective of the temperature. The negro's skin did not keep out all the light of the tropical sun, but so far as we knew it transmitted about as much as passed through the skin of a blonde in the feeble light of cloudy places in Europe. The evidence was fairly conclusive that blonde races disappeared when they migrated to lands of excessive sunshine, but they survived longer if the light was less intense. A careful investigation of several regiments in the Philippines some years ago showed that even in the short time of two years the blondes had a higher morbidity and a much higher mortality rate than the brunettes. The statistics already available (*New York Medical Journal*, Sept. 12, 1908) showed that blondes furnished more cases of tuberculosis than brunettes in this country, and had a quicker mortality of the infected. The rapidity and malignancy of the disease among blonde immigrants from Scandinavia and Ireland and blonde Jews was now a matter of record, and was the same phenomenon as the awful rapidity of the disease among white people in the tropics. It was well known that certain cases of tuberculosis did not improve in our northern mountains. What types were they? A few years ago we were all convinced that light in unstinted amounts was essential in treating tuberculosis, though a goodly number of men were now convinced that it was of very minor importance, and a still larger number were discovering facts which proved that in large amounts it was harmful. In the Philippines, where we had unstinted sunshine even in the rainy season, the disease was rapidly fatal, while in very cloudy places it was quite curable. There was no perfect climate for any disease excepting the one by which the patient's physique was evolved. In sending invalids away in search of health we must consider each individual far more than we had done in the past.

Dr. Livingston Farrand, Professor of Anthropology in Columbia University, said that while he did not feel qualified to speak on the special relation of anthropology to medicine, as he had not given that phase of the subject particular attention, still, there was one lesson that he had learned from a general study of anthropology, and that was, extreme caution. If there was any branch of human knowledge along which we had to proceed cautiously, it was in this particular field. There were few lines of investigation in anthropology where our statistics were sufficiently complete to permit us to generalize freely, and there was no field in which our preconceptions had to be so often abandoned as here. Dr. Farrand said nothing definite was known about the effect of light on different races and individuals, and he could only second Major Woodruff's plea for more careful observation and detailed knowledge on that point. It was highly desirable that we should obtain more accurate clinical observations from which to

draw conclusions. The term "race," to which we so freely referred, was one that had fallen into hopeless disrepute. It was questionable whether such a thing as a race still existed. In deciding this we had no criteria to go by, and we could not even agree as to which were the great races, so called. To-day there was a tendency to classify the human family into two races, viz., the negroid, or black, and the mongoloid, or yellow. Of these the former was the more permanent type, yet even in that we found every possible modification in stature and color in different parts of the continent of Africa. We did not know whether white was a modification of the yellow or of the black. Europe was occupied by a perfect hodgepodge of "races," and even in Africa we had these variations which were obviously the result of generations of admixture. While as a rule the black or dark skinned races lived in the tropics and the light skinned races were found further north, yet there were many puzzling exceptions to this rule in both hemispheres, *e.g.* the very light skinned Hottentot—Bushman group in South Africa. Still, we had to admit that as a rule the darker skinned races occupied the tropics. Before we could assert that this was due to the influence of light or to purely climatic causes we had to learn more about the genealogy of these people and how they happened to be there. The teaching of anthropology, based upon recent investigations, had tended to show a general uniformity of the human race in its various characteristics, and that the variations between different so-called "races," both physical and mental, were much less marked than we formerly supposed them to be. The physical modifications, to some of which Major Woodruff referred, were extremely slight. Referring to nervous derangements in primitive races, to which subject Professor Farrand said he had given some study, the speaker said that his investigations did not bear out the oldtime belief that insanity was largely a product of civilization. The untutored savage, who had never been subject to the pressure of civilized life, was probably the most hysterical individual in the world, and was apparently subject to nervous derangements to just about the same degree as the whites.

Dr. Woods Hutchinson said that Major Woodruff had called attention to one of our pet delusions, namely, that sunshine was such a good thing that we could never get too much of it. The majority of us believed that if a moderate amount of sunshine was good, more of it was better, and in consequence we had used it and abused it. The speaker said he had lived for a time in northern Oregon and Washington, where for a large part of the winter the weather was cloudy and misty, but occasionally, with a breeze from the desert to the northeast, the sun would come out, and at those times the old residents would begin to complain of colds and catarrh, and claimed they did not feel well. In southern California, particularly in the region of Los Angeles, the land of perpetual sunlight, the northern immigrant was perfectly delighted with the climate during his first summer. During his second season he was not quite so enthusiastic, and when his third season there arrived he was very apt to go up into the mountains or down to the seashore, where the fogs and rain gave some relief from the everlasting sunshine. The continual dazzle and glare of the sun grew more monotonous than did the fog and the rain. Dr. Hutchinson said he agreed with Dr. Farrand that we should be cautious in drawing any conclusions on this subject until we had collected more data upon which to base them. As yet we did not know what constituted a race. The so-called "racial characteristics" by which a race was recognized were often distinctly rare, even in that particular race. For example, the "almond-shaped" eye was found in only about ten per cent. of Mongolians. If we took any race and examined it as to the number of vivid, striking blondes we would find them far outnumbered by persons of intermediate coloration, and the same was true of the brunettes. The vast number of people were—not black and tan, but a combination of the blonde and the brunette. Most races of blondes had only about ten per cent. of real blondes among them. We of the so-called white race, while forming only a small minority, were a set of "sports" in the biological sense, and the race owed its dominance to its faculty of adjusting itself to the environment in which it was placed. It possessed this power of adjustment to a striking degree. In referring to the uncertainty of our knowledge in regard to so-called racial immunity, the speaker called attention to the exploded theory that the negro was immune to malarial infection. Pigmentation of the skin might possibly be simply associated with some other peculiarity in the individual and be of direct value in itself. Practically, blondes were as a rule tall, while nearly all short races were dark, and the disappearance of the pigment in these blonde races might be merely a concomitant of increased height. Because pigmented races lived in the tropics that did not prove that the pigment was necessary to their existence there. We were not yet in a position to say that such a pigmented condition was either necessary or desirable for persons who were obliged to live in the tropics. White races did not do well in the tropics, but they did far better than negroes, and had lower death rates, higher birth rates and higher longevity. The real immunity was that which was built up by generation after generation of exposure to infections. That, in the speaker's opinion, was the principal factor in racial immunity and more important than color or anything else.

The discussion was continued by Drs. Charles A. Leale, John Herman Branth and the president, Dr. Morris, and was then closed by Major Woodruff.

The Value of the Mixed Toxins of Erysipelas and Bacillus Prodigiosus in Inoperable Sarcoma, Based Upon a Study of Cases Treated During the Past Sixteen Years.—Dr. William B. Coley, in this paper, said that while the results of this treatment had not been as satisfactory as one who was seeking for perfection could wish, they had been sufficiently real and tangible, he thought, to be entitled to more careful consideration than they had yet received. Furthermore, they might have an important bearing upon the whole cancer problem, since, if by the administration of certain bacterial toxins we could cause the degeneration, death and absorption of living tumor cells of one variety of cancer, *i. e.*, sarcoma, it was not unreasonable to suppose that by the use of some other forms of bacterial toxins we might succeed in destroying or inhibiting the growth of the other and more common variety, namely, carcinoma. The speaker emphasized the statement that the method rested upon a solid foundation of accepted and indisputable clinical facts, namely, that in a considerable number of cases of inoperable cancer of all varieties, and especially sarcoma, such tumors had been known to entirely disappear under attacks of accidental erysipelas, and patients had remained well for many years thereafter, and during the past two years, at the Huntington Cancer Research Fund, Dr. Martha Tracy and Dr. S. P. Beebe had shown that large multiple sarcomas in dogs rapidly disappeared under local or systemic injections with the mixed toxins of erysipelas and bacillus prodigiosus. Dr. Coley believed that the following were the indications for the use of the mixed toxins: 1. In all cases of inoperable sarcoma, excepting the melanotic, which were probably of epithelial origin. 2. In cases of sarcoma originating in the long bones, in which operation meant the sacrifice of the limb. 3. Immediately after operation (within a week or two) in all primary inoperable cases, as a prophylactic against recurrence. 4. In addition to the foregoing, after primary operations for carcinoma as a prophylactic against recurrence. The use of the toxins as a prophylactic after operation he believed offered by far the

most important field of all, the proportion of recurrences in his own experience thus far being less than 25 per cent., whereas in cases in which the toxins were not used after operation the proportion of recurrences had been fully 75 per cent. As regarded the dangers from the use of the toxins, he stated that personally he had found their administration practically free from danger. However, he had learned of several fatal cases in the hands of other men, which, taken together, showed that there were certain risks connected with the treatment. He believed, however, that if the precautions he had always made it a point to emphasize in former papers were observed, these risks would be reduced to a minimum. Most of the fatal cases that had occurred had been due to a neglect of those precautions. Dr. Coley said that up to the present time he had 51 cases of inoperable sarcoma successfully treated with the mixed toxins of erysipelas and bacillus prodigiosus. Of these, 35 had remained well from 3¼ to 16 years, 14 from 10 to 16 years, and 28 from 5 to 16 years. To the 36 successful cases published by him in the *American Journal of the Medical Sciences*, in March, 1906, he had since added 15. In the first 36 cases there was, in addition to the tumors being adjudged inoperable by leading surgeons, a careful microscopical diagnosis made in all but two instances. In connection with his paper Dr. Coley presented eight patients upon whom the treatment had been successfully used.

Dr. Howard Lilienthal, discussing Dr. Coley's paper, said that under the use of the mixed toxins he had seen cases of sarcoma get well in which, without this treatment, he was confident death would have occurred. He recalled one case of inoperable giant-celled sarcoma of the ribs and pleura which disappeared under the use of Coley's fluid, and the patient remained free from recurrence for a period of eight years. Recently he had returned complaining of pain at one end of the cicatrix, which disappeared promptly upon resuming the use of the toxins. Dr. Lilienthal said he had frequently employed the serum as a prophylactic measure, and thus, he firmly believed, prevented a recurrence in cases where it could otherwise have been confidently looked for. He advocated its use not only in inoperable cases, but also in operable cases as a prophylactic measure.

Dr. William Seaman Bainbridge, in discussing Dr. Coley's paper, expressed his appreciation of the opportunity of seeing the interesting cases presented. He had come to the meeting to listen and learn, with no thought of taking part in the discussion. Since the chairman had called upon him, however, he would say that for ten years or more he had been especially interested in the study of cancer, particularly sarcoma, with reference to finding some successful non-surgical method of treatment. He had, therefore, read with great interest the various reports presented by Dr. Coley and others concerning the mixed toxins, and had himself for some time been collecting data upon this subject. While he had endeavored with reference to this, as with all things else, to maintain the scientific attitude, which calls for the proving of all things and holding fast to that which was good, he regretted his inability to voice the implicit faith in the efficacy of this method to which Dr. Coley had given expression. He was surprised to hear the claim made that the almost universal skepticism which he had noted both in America and in Europe was so fast being dispelled. Like many others, he was earnestly seeking after truth, and would welcome more conclusive proofs of the final efficacy of the mixed toxins than even the interesting cases presented this evening seemed to furnish.

Dr. Coley, in closing, said he now advised the use of the toxins after operation in every case of cancer as a prophylactic measure. For that purpose he gave small doses, only sufficient to bring the temperature up to 99° or 100°, three times a week, and continued for five or six weeks. If this method were generally adopted he believed that we would see fewer inoperable cases. The skepticism in regard to the value of the treatment, to which Dr. Bainbridge had referred, had markedly diminished, especially during the past year. It was now employed by very many prominent surgeons throughout not only America, but Europe. At the Mt. Sinai Hospital, in New York, Dr. Gerster and Dr. Lilienthal had adopted it, not only in inoperable sarcoma, but far more important as a routine treatment after all operations for primary sarcoma as a prophylactic against recurrence.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held March 5, 1909.

Dr. Ellsworth Eliot in the Chair.

Nephrectomy for Twisted Pedicle.—Dr. C. Putnam presented a woman who at operation was found to have a kidney the size of a large orange, with a twisted pedicle. After being in bed for several days with high temperature and symptoms of collapse, a nephrectomy was performed. The pathologist found the mass to consist of multiple miliary abscesses, due to the shutting off of the blood supply by the twisted pedicle. The woman made a good recovery.

Nephrectomy for Tuberculosis.—Dr. C. Putnam presented a woman who had been run into by a bicycle and had received a severe blow in the side which rendered her unconscious. A short time after this accident blood appeared in the urine and a year and a half ago she had an attack of appendicitis, which she said "cured" the hematuria. The bleeding, however, appeared later, and three or four months ago a cystoscopic examination revealed a patulous ureter with tuberculous ulcerations about the vesical orifice. A nephrectomy resulted in the complete cure of the hematuria.

Intestinal Obstruction from an Adhesion of a Loop of the Ileum to a Tuberculous Mesenteric Gland.—Dr. W. S. Schley presented a patient who had been admitted to the hospital three years ago with a typical attack of acute intestinal obstruction. There was a history of cramp-like pains in the abdomen at intervals of a month or two for a year past. The large intestine was found to be completely collapsed, while the small intestine was distended. The obstruction was found to be caused by an adhesion of a loop of the ileum to a tuberculous mesenteric gland. The gland was yellow in color and cheesy, and was apparently an old tuberculous gland. The patient gave no other history of tuberculosis.

Large Carbuncle of the Neck; Cosmetic Result After One Year.—Dr. W. S. Schley presented a man who had a large carbuncle of the neck. The motions were now entirely normal, and the cosmetic results were perfect.

Appendicitis with Perforation of an Enterolith, Following Typhoid Fever.—Dr. S. Minot Milliken presented a man, twenty-two years of age, who had entered Lincoln Hospital June 4, 1908, and whose case had been diagnosed as typhoid fever. He did not look very ill, having a temperature of 101°, pulse 102, and respirations 24. The white blood cells numbered 6,000 and there was 72 per cent. polynuclears. The diazo reaction was present. This patient ran a low grade of typhoid fever for seven days, when his temperature rose to 101° and his pulse to 88. Later that day his temperature went to 102.6°, pulse to 120, and a diagnosis of perforation was made. When Dr. Milliken saw the patient, he had a rigid abdomen and exquisite tenderness to even the slightest touch over the right lower left quadrant. There was flatness in the right

flank. At operation edema of the peritoneum was found and a cloudy serum escaped from the peritoneal cavity when that was opened. There was no perforation of the small intestine, but an abscess was found about a retrocecal appendix. A gangrenous appendix was found perforated just beyond the middle. In the bottom of the abscess cavity an enterolith was found the size of a grapefruit seed, which was composed of dry fecal matter, and was very friable. A fistula persisted after the operation, which rapidly closed except for a small tract which persisted for another week. A week after the patient left the hospital this fistula reopened and remained so for a time and finally the man was brought back to the hospital with all the symptoms of acute obstruction. He was immediately operated upon, and the cause of the obstruction was found to be a fibrous adhesion extending from the mesial side of the cecum to the left leaf of the mesentery and firmly binding the small intestine to the abdominal wall. The division of this band released the obstruction. The fistulous tract was found as a small cord leading from the upper surface of the cecum well above its blind end. The patient made a good recovery. In his opinion the presence of the fistula was due to the pressure of drainage tubes on the inflamed surface of the cecum where they crossed to come through a wound distant from the abscess cavity. The occurrence of an enterolith in the appendix, causing a perforation after typhoid fever, made the diagnosis obscure, and seemed such an unusual complication that the case seemed worth while reporting.

Large Submucous Lipoma of the Ileum, Producing a Chronic Ileocecal Intussusception Intermittently Protruding at the Anus; Laparatomy; Resection; Recovery.—Dr. DeWitt Stetten presented this patient, who was admitted to the German Hospital with the diagnosis of rectal prolapse. She was thirty-six years of age, and had suffered from the prolapse for two years She had also suffered from constipation and flatulency. There was no blood or mucus in the stools, and the patient had not lost in weight. Abdominal examination revealed an indistinct, soft, nonsensitive, movable mass in the left hypochondrium. The rectum was dilated, but there was no prolapse. After the administration of a cathartic and during defecation a mucous membrane covered mass, the size of a large fist, was extruded at the anus; it was lobulated and apparently had no lumen; it had a long, thick pedicle running high up into the sigmoid, so that the end could not be reached with the examining finger. The mass was replaced with difficulty, and the abdomen reexamined. The indefinite abdominal tumor seemed somewhat lower than at the first examination. A presumptive diagnosis of polyp of the sigmoid or descending colon with partial invagination of the wall of the gut was made. At operation a dilated but empty sigmoid and descending colon were found. In the left half of the transverse colon a soft movable mass was followed to what seemed to be the ileocolic junction. An ileocecal invagination existed, and an attempt was made to disinvaginate this, which was but partially successful. About 2 cm. of the invagination was reduced, leaving the invaginated mass extending to the hepatic flexure. Diagrams were shown illustrating these points. It was found that further attempts in this direction would be futile and resection, according to Maunsell's method, was decided upon. The appendix was removed, the colon opened longitudinally, and the mass delivered and resected at its base. The patient made an uneventful afebrile recovery. The wound healed primarily. The specimen proved to be a lobulated submucous lipoma of the lower ileum at the apex of the intussusception. A search of literature showed that nearly eighty cases had been reported. The submucous lipoma was a comparatively frequent form of so-called benign intestinal neoplasm. In nearly one-third of the recorded cases an acute or chronic invagination was the result of the presence of a tumor. A large proportion of them terminated fatally.

Pelvic Ureteral Calculus in the Female, with Special Reference to the Operative Method.—Dr. A. Isaacs said that during the past year he had seen four women who had been operated upon for ureteral calculi, and the stone in each case was situated very low in the pelvic portion of the ureter. Although calculi might become impacted in any portion of the ureter, there seemed to be points of election. Morris gave three of these: first, one or two centimeters below the commencement of the ureter; second, where the ureter crossed the brim of the bony pelvis; third, at the intramural portion of the ureter where it passed between the coats of the bladder wall before entering. The method of operation depended to a great extent upon the location. According to all accepted authorities he should have made his approach from below, but it seemed to him that he could work down from above more easily, in spite of the anticipated difficulties. The peritoneum was raised from the pelvic wall, after the usual incision had been made, and the iliac vessels were exposed; the ureter was located upon the raised peritoneum, and in its exposed portion was separated from it, and a traction strip passed around it to draw it up out of the pelvis. At the base of the broad ligament it was very adherent. Probably one inch or more of the ureter distal to the point of separation, together with its adherent and surrounding structures, could be picked up between the thumb and fingers and palpated to find if it contained a stone. The traction from above was of material assistance in permitting this to be done. In all four cases the stone laid beyond the uterine artery, and milking the stone backwards and proximally to the artery eliminated the necessity of its division and ligature. The inguinal retroperitoneal operation was practical and fairly easy of accomplishment when the calculus was as low down as one and one-half inches from the vesical orifice. When in the intermural portion of the ureter the stone might be more easily removed transvesically.

Metastatic Hypernephroma of the Serratus Muscle.—Dr. J. Hitzrot presented a man, fifty years old, admitted to the hospital on January 28 with tumor of the right shoulder region. The tumor was elastic, not hard, and appeared as if under the latissimus dorsi muscle. The pathologist stated that the tumor was a hypernephroma. It was found to involve the entire serratus magnus muscle. The cystoscopic examination showed the urine coming from the left kidney to be slightly cloudy; whether urine came from the right kidney or not could not be determined. At present the patient had a tumor of the right side distinctly palpable. All the long bones had been *x*-rayed but no metastases were found. There were, however, metastases on the right side of the chest. This was the first case in which such a metastasis was found in the muscle.

Hemorrhagic Cyst of the Liver.—Dr. Hitzrot presented a man, thirty-two years old, who had had alcoholic gastritis a number of times and had passed blood per rectum. He had had his right side severely injured. The skin became shiny and some swelling appeared over the injured area. He vomited and passed a great deal of blood per rectum. A needle was inserted into this swelling and blood was withdrawn, eighty-two ounces having been withdrawn by means of a suction bell. This was a hemorrhagic cyst of the liver, and recovery followed.

Acute Pancreatitis.—Dr. Ellsworth Eliot presented a patient, thirty-three years old, who had had several attacks of indigestion during the past year. The last attack occurred eight weeks ago, and there was slight jaundice with it. Thirty-six hours before admission to the Presbyterian Hospital the patient was seized with

sharp, lancinating pains in the left epigastrium, passing anteroposteriorly into the back. Examination showed the abdomen not distended, tympany about the umbilicus, auscultatory dullness in the left flank and slight in the right, rigidity over the entire abdomen, tenderness just above and to the left of the umbilicus. The temperature was 102°, pulse 120, white blood cells 19,000, and polymorphonuclears 87 per cent. A serous, sterile, odorless fluid was found in the general abdominal cavity. The gastrosplenic omentum was oval, and an area of two by one inches was studded with nodules of fat necrosis. The tail of the pancreas was swollen and in the lesser cavity were several drams of clear sterile fluid. The head of the pancreas was found adherent to the greater curvature of the stomach, thus obliterating the right extremity of the lesser cavity. After a somewhat disturbed convalescence the patient made a good recovery.

Chronic Pancreatitis.—Dr. ELIOT also presented a man, twenty-nine years old, with a negative family history. He had had malaria, and for the past eighteen months had attacks of epigastric pain and vomiting; these attacks lasted several days, but the patient felt well between them. He had anorexia for five weeks, but no blood was vomited, and there was no jaundice. The physical examination showed the sclera distinctly icteroid. The liver dullness extended from the fifth space in the midcostal line to eight inches below the costal margin in the same line. The abdomen was a little prominent in the right upper quadrant. During the seven days the patient spent in the medical ward his temperature ranged from normal to 100.2°, pulse 60 to 72, and respiration normal. The Cammidge reaction was negative; the urine showed at one examination .6 per cent. sugar, at a second .2 per cent., and at a third none. At operation the gall-bladder was found to be adherent to the surrounding structures and to contain thick, dark material which proved to be sterile. The head of the pancreas was found to be much thickened, nodular, and hard. There were no stones, and the gall-bladder adhesions were separated and the ducts explored for stones. Since the operation the patient had not been jaundiced, felt well and strong, and had no distressing symptoms.

Etiology and Pathology of Pancreatitis.—Dr. E. OPIE said that the changes found at autopsy in this condition were not less surprising than its sudden onset and turbulent course. Hemorrhagic pancreatitis was recognized about fifty years ago. The classification of acute pancreatitis was almost universally adopted from the time of the Middleton-Goldsmith lecture of Dr. Reginald Fitz, which was delivered before the New York Pathological Society about twenty years ago. Recent studies had shown that the disease could be reproduced in lower animals by a variety of means. Some of these were the injection of bile into the pancreatic duct and the injection of gastric juice through the opened duodenum into the pancreatic duct. Duodenal contents had also been employed. Flexner had produced the lesion with weak solutions of a variety of acids and was equally successful with sodium hydroxide. There seemed to be no common character of these substances except their power to injure the tissues with which they came in contact. Acute hemorrhagic pancreatitis produced in these ways might be wholly unaccompanied by bacterial infection. There had been much discussion as to the relation of hemorrhage and inflammation. Did hemorrhage occur as the result of inflammation or *vice versa?* The study of the experimental lesion had shown that both hemorrhage and inflammation were secondary to necrosis of the parenchyma. The experiments of Flexner and others had demonstrated the surprising rapidity with which the change occurred, and this explained the sudden onset of the disease. Necrosis of the walls of the blood-vessels explained the multiple hemorrhages which characterized the lesion. Necrosis of the pancreas was usually caused by contact of some irritant substance with the cells of the gland. The peculiar necrosis which affected the pancreatic parenchyma was doubtless due to the trypsin which was obtained in the pancreatic cells. Recognizing the fact that necrosis of the tissue was the essential characteristic of acute hemorrhagic lesions explained the relation of hemorrhagic to gangrenous pancreatitis. Conspicuous symptoms of both human and experimental lesions were the profound intoxication, shock, and collapse of the circulatory system. Dr. Opie emphasized the following facts: (1) The pancreas was not more susceptible to spontaneous hemorrhage than other organs; so-called pancreatic apoplexy was an acute hemorrhagic pancreatitis. (2) Gangrenous pancreatitis was a late stage of hemorrhagic pancreatitis. (3) Hemorrhagic pancreatitis was not primarily the result of bacterial infection. (4) The most frequent cause of hemorrhagic pancreatitis was the penetration of irritant material into the ducts of the pancreas. Bile diverted by a gallstone lodged at the duodenal orifice of the common bile duct had produced the lesion in a large proportion of the cases. (5) Certain individuals were rendered susceptible to hemorrhagic pancreatitis by anatomical peculiarities of the pancreatic ducts.

Acute Pancreatitis.—Dr. JOHN F. ERDMANN read this paper. He said that the Cammidge reactions had proved very useful in diagnosis of this condition, especially when taken in connection with the history and other analyses jeopardize the patient's life. In this latter class of cases, in which the onset was very sudden and accompanied with intense abdominal shock; here the delay of from twelve to twenty-four hours needed to make the test would jeopardize the patient's life. In this latter class of cases, an exploratory operation was necessary to make the diagnosis. The difficulties of making a diagnosis in acute pancreatitis were multiplied by the contiguity of the pylorus, the gall-bladder and its ducts, and the head of the pancreas, which were so frequently invaded. The analysis of the stools had shown undigested muscle fibers. Fatty or oily stools were also evidences, as well as large, spongy stools. The urine frequently contained sugar, but he was inclined to think this a coincidence. The duct of Wirtsung was without question a very frequent source of entry for the infection. Gallstones, traumatism, alcoholism, and arteriofibrosis were also causative agents. Dr. Erdmann reported six cases which had occurred in his practice; four were hemorrhagic (two living), two had resulted in abscesses (one living). In one of the hemorrhagic cases the pancreas was almost completely destroyed. None of these cases was accompanied by sloughing, although sloughing was one of the terminations of an acute inflammation of this organ. Two of these cases were males, four were females, none were alcoholics, and none gave a history of syphilis. Two females were under thirty-three years of age and the remaining four were over forty years. The onset of the condition was usually sharp pain, a varying degree of shock, followed in some cases by profound toxemia, characterized by a peculiar cyanosis and lividity, with shallow breathing and rapid pulse. Hiccough was a symptom of relative frequency and persistence. There was vomiting and pain in the back. These symptoms, together with a history of previous digestive disturbances, and gall-bladder or duct invasion, should give great weight to the diagnosis of acute pancreatitis. Later a tumor might occur anywhere in the epigastrium. The subsequent manifestations were those of ordinary peritonitis. If in doubt as to the diagnosis, one should explore. If there was a peculiar bloody, beef-broth like serum or peculiar warty, yellowish-white plaques (fat necrosis) upon the mesentery, provided no strangulation existed, the search should be extended to the pancreas.

If an acutely hemorrhagic, enlarged pancreas was found an incision should be made in its peritoneal coat and a number of punctures made into the pancreas itself. Gauze should be placed in and about these punctured areas. In the six cases reported the gall-bladder was drained three times, each time for a large number of gallstones. Dr. Erdmann emphasized the necessity of early exploration when the set of symptoms described manifested themselves.

The Cammidge Reaction in Diseases of the Pancreas.—Dr. Francis P. Kinnicutt read this paper. (See page 589).

Dr. Robert T. Morris said that certain facts in connection with acute hemorrhagic pancreatitis impressed themselves upon one, many of them of considerable value, which could not be expressed in words.

Dr. Howard Lilienthal said that with their increasing experience with pancreatic affections, correct diagnoses were more often made. He thought it safer and wiser to make punctures, but not incisions, into the pancreas.

Dr. Samuel Lloyd said that the intense prostration, the vomiting, the restlessness, intense thirst, and other symptoms led to the recognition of the fact that they were dealing with some serious intraabdominal trouble which called for prompt action.

Dr. George Woolsey said it should be remembered that the vomiting in acute hemorrhagic pancreatitis did not relieve the pain, as it did in some other abdominal conditions. Some years ago he reported three cases in which he merely opened the abdomen, washed out the fluid from the abdominal cavity, and all the patients recovered without dealing with the pancreas at all. The Cammidge test was only applicable in the subacute cases. In the very acute cases operation alone would give relief.

Dr. Opie believed that their hope for recovery in these acute cases was in the natural processes of repair, the absorption of the necrotic tissue, and its replacement by scar tissue.

A Device for End-to-End Anastomosis.—Dr. A. Soresi made this presentation.

Pathological Society of Philadelphia.

At a stated meeting held March 11 Dr. John Speese exhibited a specimen of "Carcinoma of the Thyroid Gland." The organ was removed from a boy eleven years old, and on account of his age it was thought to be a sarcoma. Histological examination, however, disclosed the structure of carcinoma. Dr. David Riesman exhibited specimens from "A Case of Acute Miliary Tuberculosis with Perihepatitis and Large Fatty Liver." The patient was a woman with fever, delirium, enlarged liver, jaundice, tympanites, cough, expectoration, and a few tubercle bacilli in the sputum. Death occurred rather suddenly, and postmortem examination revealed a chronic tuberculosis of the lungs, with many miliary tubercles, and a miliary tuberculosis of the peritoneum, together with a greatly enlarged liver, the cells of which had undergone almost total fatty degeneration or infiltration. Dr. George Fetterolf exhibited "A Rare Anomaly of the Kidney." The specimen was obtained in the dissecting room from the body of an old colored woman whose left kidney was normal in all respects, but whose right kidney was in the right iliac fossa, with its hilum directed forward and its ureter passing over the ovarian artery. Dr John Speese exhibited for Dr. George P. Müller a specimen of "Ulcer of the Stomach" and one of "Carcinoma of the Gall-bladder." Dr Aller G. Ellis exhibited a specimen of "Tuberculous Ulceration of the Stomach." There was extensive ulceration of both small and large intestines, while a series of ulcers occupied the greater curvature of the stomach. Dr. W. M. Late Corlin demonstrated in himself a small excavated ulcer with indurated margins on the forearm induced by formic acid for the purpose of demonstrating the colloid basis of edema, and maintained by the application from time to time of artificial gastric juice. The lesion was supposed to indicate the mode of origin of ulcer of the stomach. Drs. D. J. McCarthy and H. T. Karsner presented a communication entitled "Report of a Case of Cystadenocarcinoma of the Thyroid Gland, with Remarks on the Pathology of Fat-formation." The specimen came from a case of adiposis, and it was used to illustrate the relations between the severe varieties of adiposis, that associated with pain, that attended with tumor-masses, and that of cerebral origin and associated with lesions of the generative organs. In most of the cases that have come to autopsy lesions of the thyroid gland have been found, and in some also lesions of the pituitary gland. Dr. Harlan Shoemaker read a paper entitled "Pseudoleukemia Gastrointestinalis." Dr. J. T. Rugh read the clinical account, detailing the case of a man 20 years old who presented enlarged glands in the neck and enlarged tonsils, with a considerable degree of anemia without change in the number of leucocytes, but with a relative increase in the number of lymphocytes. After death the small intestine was found studded with small leukemic nodules. Dr. Aller G. Ellis presented a communication entitled "An Experimental Study of Joint-affections Induced by the Typhoid Bacillus." He attempted to induce articular lesions by introducing typhoid bacilli into the blood serum and inflicting local traumatism, but, like other experimenters, he failed in this attempt. To bring about the desired result he was compelled to introduce the bacilli directly into the joint.

Philadelphia County Medical Society

At a stated meeting, held March 10, Dr. R. Max Goepp read a paper entitled "Remarks on the Administration of Sea-water by Subcutaneous Injection, with a Report of Cases." The water employed was obtained at some miles' distance from shore and from a considerable depth. It was diluted with fresh water to reduce it to the specific gravity of blood-serum, and it was then passed through a sterile Berkefeld filter. From one ounce to ten ounces or more were employed at each injection, the treatment being repeated on alternate days, and the fluid being introduced into the subcutaneous tissues of the buttock or the infrascapular region. The results in some fifteen or sixteen cases thus treated varied considerably. In many there was a feeling of subjective improvement, without confirmatory objective evidence. In one case of diabetes mellitus a noteworthy reduction in the amount of sugar in the urine took place. In a number of cases of skin disease great relief from itching was afforded. In many if not most of the cases the good results noted, it was thought, could be attributed to the suggestive influence of a new method of treatment. Dr. Theodore LeBoutillier presented a communication entitled "Some Results Obtained by Subcutaneous Injections of Sea-water." He had employed this method of treatment in some seventy-five cases, many occurring in children, and he had observed improvement in the nutrition as a conspicuous result. Dr. H. C. Wood, Jr., read a paper entitled "The Value of Physiological Salt-solution." He pointed out that normal solution is employed as a circulatory stimulant and as a disintoxicating agent. It is especially useful to fill the blood-vessels when the blood pressure is low, for example, after hemorrhage, but it should not be employed when the heart is enfeebled, as it may, under such circumstances, bring about acute dilatation. Dr. S. Louisa Weintraub read a paper entitled "Preliminary Report on the Results of Subcutaneous Injection of Sea-water." She had treated a number of cases of ulcer with brilliant results

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

College of Physicians and Surgeons of Ontario.

May, 1908.

ANATOMY, DESCRIPTIVE.

(All questions of equal value. Any five questions to be answered, but not more than five.)

1. Describe (*a*) the upper extremity, (*b*) the lower extremity, (*c*) ossification of the ulna.
2. Describe the shoulder joint, as to (*a*) articulating surfaces, (*b*) ligaments, (*c*) synovial membranes, (*d*) nerve supply, (*e*) blood supply, (*f*) movements.
3. Name and give origin, insertion, nerve supply, and actions of the muscles of mastication.
4. Describe the lymphatic vessels, and lymphatic glands of the thorax.
5. Describe the prostate gland under the following heads: (*a*) size, (*b*) situation, (*c*) structure, (*d*) blood supply, (*e*) relations.
6. Describe the middle ear.
7. Trace the course; give the relations; name and trace the branches of the posterior tibial artery.
8. (*a*) Describe the sacral plexus and show its method of formation. (*b*) Trace the great sciatic nerve to its termination.
9. Describe (*a*) the fornix, (*b*) corpora quadrigemina, (*c*) opercula insulæ, (*d*) velum interpositum.
10. Describe the capsules, as to (*a*) size, (*b*) situation, (*c*) structure, (*d*) relations, (*e*) blood supply, (*f*) nerve supply.

PHYSIOLOGY AND HISTOLOGY.

1. Give an account of the histological structure of the retina. What portion of the retina is concerned in most acute vision? What is the "blind spot"?
2. Give an account of the histological structure and function of the suprarenal bodies.
3. Describe the development of the lungs. What is meant by the terms residual air and vital capacity?
4. What physical and chemical changes take place in a muscle during contraction?
5. What is the normal arterial blood pressure? Discuss the factors which maintain and alter this pressure.

CHEMISTRY.

(All questions of equal value. The first four questions to be answered, and any two of the remaining four.)

1. Explain fully what is meant, when we say nitrogen is a triad. What is the atomicity of the oxygen and the ozone molecule, and why?
2. One gram of phosphorus is to be converted into the pentachloride, how many litres of chlorine at 15 degrees C. and 780 mm. are required?
3. Compare the physical and chemical properties of sodium and silver, mentioning the group of metals to which each belongs, and why.
4. Define the term paraffin. Give the names of the acids corresponding to the first, second, and third members of the paraffins, and compare their percentage of composition.
5. Define an amine, an amide, and an imide, and mention a member of each group.
6. Give the names and chemical formulæ for bluestone, red precipitate, white vitriol, aqua fortis, mirbane, guncotton, cresol, and urea.
7. To what series of organic acids do each of the following belong: namely, acetic, oxalic, lactic, and tartaric acid? Give the general formula for each series.
8. How would you proceed to estimate the total nitrogen in 10 c.c. of urine by either the Kjeldahl or the Gunning method? Describe the procedure in detail of the method you select, mentioning the apparatus and reagents necessary.

(Atomic Weights.— Chlorine = 35.5; phosporus = 31; sodium = 23; silver = 108; nitrogen = 14; hydrogen = 1; oxygen = 16; carbon = 12.)

MATERIA MEDICA AND PHARMACOLOGY.

(All questions of equal value. Answer any five of the six questions.)

1. Give preparations of, with quantities: (*a*) A normal salt solution. (*b*) A one to two thousand bichloride of mercury solution. (*c*) A 2½% solution of carbolic acid. (*d*) Lime water. (*e*) A nutrient enema.
2. Define with example, styptic, specific, collyrium, alkaloid, alterative.
3. Compare as hypnotics, morphine, chloral hydrate, and sulphonal. Explain antagonism of morphine and atropine.
4. Outline a prescription containing a mineral acid, a nux vomica preparation, and a pepsin preparation.
5. State ordinary or other names for phenol, acetanilidum, nitroglycerinum, hydrargyri subchloridum, pulvis ipecacuanhæ compositus. Give dosage and specific action (shortly) of each.
6. Select a nitrate, a salicylate, a ferrum, an arsenicum, and an iodidum preparation. Give dose and method in detail of prescribing each.

THEORY AND PRACTICE OF MEDICINE.

1. Give the etiology, pathology, and symptoms of tabes dorsalis.
2. Describe a Flint's murmur and the supposed cause of its production. From what other murmur must it be distinguished, and how?
3. Describe chronic uremia, with reference to its occurrence, clinical features and treatment.
4. Give the causes and general symptoms of obstructive jaundice.
5. Give the etiology, clinical history, and physical signs of empyema. Name the chief modes of natural cure.

PATHOLOGY.

1. Discuss the causes and formation of stricture of the urethra. Explain the pathological conditions which may result from it.
2. What are the features which differentiate innocent from malignant growths? Give the gross appearance and microscopic structure of adenoma, or of a glioma.
3. Give the morbid anatomy of bone lesions in hereditary syphilis, and differentiate these from rachitic and tuberculous lesions.
4. Discuss the forms of puerperal infection and the usual modes of entry to the system. Name the lesions which may be produced, and describe briefly the pathology of any one of these lesions.

BACTERIOLOGY.

1. Explain the difference between active and passive immunity. Illustrate by example how each may be acquired.
2. Describe *Bacillus anthracis* under the following heads: morphology, staining, cultural characters, and pathogenicity.

THERAPEUTICS.

1. Give the treatment of a case of acute rheumatic fever.
2. State the therapeutic uses of ergot. Discuss its use in (*a*) hemoptysis, (*b*) hematemesis.
3. Angina pectoris: Give treatment during paroxysm, and in the intervals.
4. Give the treatment of a case of tuberculous peritonitis.

MIDWIFERY, OPERATIVE.

1. The head is lying in the right oblique diameter of pelvis, with the occiput pointing posteriorly: (*a*) Give the position of all the landmarks on making a vaginal examination. (*b*) How may this case end? (*c*) Treat the case if Nature's efforts are not successful.
2. Diagnose a breech. How would you break up a Frank breech?
3. I have diagnosed a case as transverse presentation with the back of the child pointing towards the mother's feet. I am going to perform version: (*a*) What foot will I grasp? Why? (*b*) How would you deliver this after-coming head?
4. Give the symptoms of placenta prævia, and premature separation of the normally implanted placenta. Make a differential diagnosis.

MIDWIFERY, OTHER THAN OPERATIVE, AND PUERPERAL DISEASES.

1. Name the diseases in the mother liable to injure the fetus *in utero*, and enumerate the supposed causes of labor at full time.
2. Give the causes of post partum hemorrhage and the systematic line of treatment to follow.
3. Give the necessary advice to a patient in a case where you suspect eclampsia might supervene.
4. Treat a case of acute infantile colic.
5. What significance would you attach to the discharge of amniotic fluid tinged with meconium: (*a*) Breech presentations; (*b*) vertex presentations.

SURGERY, OPERATIVE.

(All questions of equal value. Any five questions to be answered, but not more than five.)

1. Scirrhus of the mammary gland: Describe minutely the operation necessary for complete removal.
2. For what conditions would you do excision of the elbow? Describe the operation.
3. What symptoms in a movable kidney render operation advisable? Describe one method of operation for same.
4. What conditions require, and what is the usual method of performing (*a*) thoracentesis; (*b*) resection of ribs.
5. Describe the suprapubic and perineal operations for removal of enlarged prostate. Give reasons for your preference in choice of operation.
6. Describe one method of performing colostomy. Give reasons for your choice of operation. State conditions for which the operation may be required.

SURGERY, OTHER THAN OPERATIVE.

(All questions of equal value. Any five questions to be answered, but not more than five.)

1. Define septicemia and pyemia. Distinguish between them; give bacteriology, clinical history, symptoms, diagnosis, and treatment of each.
2. What is tetanus? Give predisposing and exciting causes, clinical history, diagnosis, and treatment.
3. Describe acute infective osteomyelitis. Discuss its clinical history and treatment.
4. What is aneurysm? Describe its structure. Describe popliteal aneurysm, and give its diagnosis and treatment.
5. What are the general principles governing the treatment of fractures at or near joints? Describe Colles' fracture, and give treatment.
6. Describe the clinical history of a case of enlargement of the prostate gland. Describe the general principles of treatment, apart from the operative.

MEDICAL AND SURGICAL ANATOMY.

1. Where would you map out the position of the following structures on the surface of the skull: (*a*) the middle meningeal artery, (*b*) the fissure of Rolando, (*c*) lateral sinus.
2. Where are the reflex centers for the bladder, rectum, ankle clonus, knee jerk, for wrist and elbow jerks?
3. What enters into the formation of the wrist joint?
4. Describe Colles' fracture, Pott's fracture, and deformity in each.
5. What anatomical relations may be determined under normal conditions by a digital examination of the rectum? (*a*) in the male, (*b*) in the female?
6. Give a description of the normal uterus with appendages, as to size and position.
7. Give in some form, the parts cut through in amputation of the leg, upper third, and name of main vessels tied, and where found.
8. What tumors may be found in the right and left inguinal region and in hypogastric regions?
9. Describe Scarpa's triangle, boundaries, and of what importance is it surgically?
10. Give the collateral circulation after ligature of the femoral artery in Hunter's canal.

MEDICAL JURISPRUDENCE.

1. On opening the thorax for a postmortem, what precaution is to be observed?
2. With regard to the external appearance of the heart, what important condition is to be observed?
3. After the removal of the heart, how would you make your incision to examine the interior?
4. Death by suffocation, how is it produced?
5. Give the average weight in an adult of brain, heart, spleen, liver, and kidney.

TOXICOLOGY AND MENTAL DISEASES.

6. Give (*a*) Symptoms of a cocaine poisoning. (*b*) Period when fatal. (*c*) Fatal quantity.
7. What are the special indications of mental weakness.
8. Distinguish between opium poisoning, acute alcoholism, epilepsy, and cerebral hemorrhage.

SANITARY SCIENCE.

1. (*a*) What becomes of the rain that falls during the year? (*b*) What are the objections to using rain water, as it falls, for domestic purposes?
2. (*a*) What are the different sources for water supply? (*b*) Describe three different methods of purifying water for domestic use. (*c*) Name objections to storing water in cisterns. (*d*) How should a cistern be constructed to permit of the safe use of water thus stored?
3. Name the diseases caused by the use of impure water.
4. What do you understand by the term inspection, flushing, and ventilation of sewers?
5. Describe purification and utilization of sewage.
6. Name (only) the methods by which air is vitiated.
7. What are the advantages of a mountain climate, as contrasted with those of the plains?

N. B.—Any of the above questions can be answered in thirty words.

THERAPEUTICS.

1. What are the indications for the use of belladonna (*a*) externally, (*b*) internally? Give the symptoms and treatment of an overdose.
2. Describe fully the treatment for ascites, giving reasons for each measure employed.
3. In a case of deranged heart action, state fully the indications for the employment, respectively, of (*a*) digitalis, (*b*) strophanthus, (*c*) strychnine, (*d*) nitroglycerin.
4. Write prescription for each of the following conditions: (*a*) pleurisy with effusion, (*b*) suppression of urine, (*c*) sciatica, (*d*) alkaline cystitis.

DISEASES OF WOMEN.

1. In making the incision to perform abdominal hysterectomy, you accidentally open the urinary bladder for two inches in extent. Describe in detail your method of repair. What suture material would you use? Would you repair immediately, or at the conclusion of the hysterectomy? What after treatment would be necessary?
2. Give the causes and treatment of pruritus vulvæ.
3. Describe the operation for, and the after-treatment of, repair of complete perineal rupture—say eight months after confinement.
4. A mass the size of a small orange is found in the posterior *cul-de-sac;* differentiate between retrodisplaced uterus, fibroid of the uterus, and ovarian cyst.
5. In using the uterine sound give the: (*a*) preliminary preparation, (*b*) indications, (*c*) contraindications, and (*d*) dangers.

DISEASES OF CHILDREN.

1. Define laryngismus stridulus (spasmodic croup), and give the predisposing and exciting causes, symptoms, the diseases for which it may be mistaken, and its treatment.
2. Discuss briefly the diagnostic values of Kernig's and Babinski's reflexes. What change, if any, occurs in the patellar reflex (knee jerk) in lobar pneumonia?
3. Diagnose and treat a case of acute rheumatic endocarditis in a child ten years old.
4. Acute osteomyelitis: (*a*) Name in order the three most common infecting germs, (*b*) the three bones in which it most frequently occurs, (*c*) and the diseases for which it may be mistaken. What would be your treatment of an acute attack of the *very early* stage of the disease, as soon as you felt fairly sure of your diagnosis?
5. A child 4 years old receives a penetrating wound of the brain from the tine of a pitchfork. The point of entry is one inch above the meatus auditorius externus, and the fork goes straight in, horizontally, to a depth of three inches or half-way through the brain. Name in some order the structures that would be pierced. What symptoms would likely follow and the treatment from the beginning to the end of the case.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

College of Physicians and Surgeons of Ontario.

May, 1908.

PHYSIOLOGY AND HISTOLOGY.

1. The *retina* is composed of several layers, from without inwards, as follows: (1) layer of pigment cells; (2) layer of rods and cones; (3) the external limiting membrane; (4) the outer nuclear, or granular, layer; (5) the outer molecular, or reticular, layer; (6) the inner nuclear, or granular, layer; (7) the inner molecular, or reticular, layer; (8) the layer of ganglion cells; (9) the layer of nerve fibers; and (10) the internal limiting membrane.

These structures are bound together by sustentacular fibers or neuroglia.

The portion concerned in most acute vision is the macula lutea, and especially its central portion, the fovea.

The *blind spot* is that part of the retina at which the optic nerve enters; it is occupied entirely by fibers of the optic nerve, and is devoid of any elements of the retina; it is insensitive to light.

2. The *function of the suprarenal bodies* is not defi-

nitely settled; they produce an internal secretion which is probably necessary to life, which is also said to increase the blood pressure by a vasomotor action on the arterioles; some tonic action on the cardiac muscle is also attributed to them; and it is supposed that they are able to destroy or remove some toxic substances.

3. *Residual air* is the air which still remains in the lungs after the deepest expirations. It measures about 100 cubic inches.

Vital capacity is the amount of air which can be expelled from the lungs by an extraordinary expiration after the most forcible inspiration. It includes the tidal, complemental, and reserve air, and measures about 225 to 230 cubic inches.

4. During contraction the following changes take place in a muscle:

(1) It becomes shorter and thicker, but the volume remains the same.
(2) It consumes oxygen.
(3) It sets free carbon dioxide.
(4) It forms sarcolactic acid.
(5) It becomes acid in reaction.
(6) It becomes more extensible and less elastic.
(7) There is an increase in heat production, and consequently a rise of temperature.
(8) The electrical reaction becomes relatively negative.

5. The normal arterial blood pressure varies; the systolic pressure being about 120 to 150 mm. of mercury, and the diastolic from about 90 to 120 mm. of mercury.

Blood pressure is *maintained* by the contraction of the heart, the peripheral resistance, and the elasticity of the arterial walls.

Blood pressure:

May be raised—	May be lowered—
1. By the heart beating more quickly.	1. By the heart beating more slowly.
2. By the heart beating more powerfully.	2. By the heart beating more feebly.
3. By contraction of the arterioles.	3. By dilatation of the arterioles.
	4. By deficient supply of blood to the left ventricle.

CHEMISTRY.

1. The combining power of one atom of nitrogen is equal to three times that of an atom of hydrogen; or one atom of nitrogen can combine with or replace three atoms of hydrogen (or other univalent element).

The atomicity of the oxygen molecule is two, because one molecule of oxygen (O_2) contains two atoms.

The atomicity of the ozone molecule is three, because one molecule of ozone (O_3) contains three atoms.

2. The equation is $P_4 + 10\,Cl_2 = 4\,P\,Cl_5$.

(4×31) grams P require (10×22.4) liters Cl.

124 grams P require 224 liters Cl, at normal temperature and pressure.

$\therefore$ 1 gram P requires $\frac{224}{124}$ liters Cl, at normal T and P, but at 15° C. and 780 mm. pressure:

1 gram P will require $\left(\frac{224}{124} \times \frac{273+15}{273} \times \frac{760}{780}\right)$ liters Cl.

$= \frac{224}{124} \times \frac{288}{273} \times \frac{760}{780} = \frac{68096}{36673} = 1.85$ .. LITERS OF CHLORINE.

3. *Sodium* is a silver-white metal, is waxy at ordinary temperature, becomes quickly tarnished, and coated with a yellow film in air. It oxidizes in air; it burns with a yellow flame; it decomposes water with evolution of hydrogen. It is univalent, and has atomic weight of 23.

Silver is a white metal, soft, malleable, and ductile; is not acted on by pure air, but is blackened in air containing H_2S. It makes an alloy with many metals. It is an excellent conductor of heat and electricity. It is univalent, and has atomic weight of 107.

Sodium belongs to the group of alkali metals (Li., Na., K., Ce.); because the properties of these elements are similar.

Silver resembles the members of the same group in *chemical* properties, and therefore might be placed with them; but its *physical* properties are more like those of copper, or gold, or mercury, and it has been classed by various writers with each of these metals.

4. *Paraffin* is a name given to the members of the methane series of organic compounds. They are saturated hydrocarbons, and have the general algebraic formula $C_n H_{2n+2}$.

ACIDS IN THIS SERIES.	FORMULA.	PERCENTAGE COMPOSITION.		
		C	H	O
1. Formic acid.	H. COOH.	26.08	4.34	69.56
2. Acetic acid.	CH_3. COOH.	40.00	6.66	53.33
3. Propionic acid.	CH_3. CH_2. COOH.	48.64	8.11	43.23

5. An *amine* is a substance derivable from ammonia by the substitution of a hydrocarbon radical for part or all of the hydrogen.

Example:—

Ammonia.

Methylamine.

An *amide* is a substance derivable from ammonia by the substitution of an oxidized radical for part or all of the hydrogen.

Example:—

Ammonia.

Acetamide.

An *imide* is a compound derived from a dicarboxylic acid by the substitution of NH for 2 OH.

Example:—

Oxalic acid.

Oximide.

6.

	NAME.	CHEMICAL FORMULA
Bluestone.	Cupric sulphate.	$CuSO_4$
Red precipitate.	Mercuric oxide.	HgO
White vitriol.	Zinc sulphate.	$ZnSO_4$
Aqua fortis.	Nitric acid.	HNO_3
Mirbane.	Nitrobenzene.	$C_6H_5NO_2$
Guncotton.	Hexanitrocellulose	$C_{12}H_{14}(ONO_2)_6O_4$
Cresol.	Methyl phenol.	$C_6H_4OH.CH_3$
Urea.	Carbamide.	CON_2H_4

7.

ACID.	SERIES, WITH GENERAL FORMULA OF SERIES.	
Acetic.	Paraffin monocarboxylic acids.	$C_nH_{2n}O_2$
Oxalic.	Paraffin dicarboxylic acids.	$C_nH_{2n-2}O_4$
Lactic.	Oxyacetic acids.	$C_nH_{2n}O_3$
Tartaric.	Dioxydicarboxylic acids.	$C_nH_{2n-2}O_6$

8. "For the *determination of total nitrogen* 5 c.c. of urine are placed in a long-necked Kjeldahl digesting flask along with 0.5 gm. of $CuSO_4$ and 15 c.c. of concentrated H_2SO_4. The flask is supported at 45° to the horizontal and gradually heated until white fumes are given off; 10 gm. of K_2SO_4 are then added, and the contents of the flask heated just short of boiling until almost colorless. After cooling, the contents of the digesting flask are transferred and washed into a distilling flask; the acid is nearly neutralized by the slow addition of NaHO solution (sp. gr. 1.24); a few pieces of granulated zinc are added, and then a moderate excess of NaHO solution, whereupon the flask is immediately connected with a bulb tube and condenser, so arranged as to deliver the distillate into a recipient containing 30 c.c. of N/5 H_2SO_4 and a little lacmoid as an indicator. The distillation is continued until about two-thirds of the liquid have passed over, when the excess of H_2SO_4 remaining in the recipient is determined by titration with N/5 NaHO solution. Each c.c. of N/5 acid neutralized by the ammonia formed in the process corresponds to 0.0028 gm. of nitrogen in the 5 c.c. of urine used. A blank process must be conducted with reagents alone to guard against error from nitrogen compounds in the reagents or in the air." (Witthaus's *Manual of Chemistry*.)

To estimate the amount of nitrogen in 10 c.c. of urine, multiply this result by two.

MATERIA MEDICA AND PHARMACOLOGY.

1. (*a*) A *normal salt solution* can be made by adding 1½ drams of sodium chloride to one quart of sterile water.

(*b*) A *one to two thousand bichloride of mercury solu-*

tion can be made by adding 7½ grains of mercury bichloride to a liter of water.

(*c*) *A 2½ per cent. solution of carbolic acid* can be made by adding 6 drams of carbolic acid to a liter of water.

(*d*) *Lime water* is a saturated solution of lime. It is made by washing slaked lime and shaking it up in distilled water, using about one grain of lime to each ounce of water. After it settles the water is poured off from the sediment and strained.

(*e*) *A nutrient enema* can be made with 8 ounces of milk, three eggs, and half a dram of salt.

2. *Styptic* is an agent which, on being applied locally, stops bleeding. *Example*:—Silver nitrate.

Specific is an agent which has a distinctly curative effect on a particular disease. *Example*:—Quinine, in malaria.

Collyrium is an eye wash. *Example*:—Boric acid in distilled water (gr. j, or ij to ℥j).

Alkaloid is a basic nitrogenous substance of alkaline reaction, and capable of combining with acids to form salts in the same way that ammonia does. *Example*:—Morphine.

Alterative is an agent which modifies the course of a disease for the better; its action is not determined, but probably it promotes waste and favorably modifies nutrition. *Example*:—Arsenic.

3. *Morphine* is the best where pain is present; it acts quickly, but it is most apt to cause a habit formation, and therefore should not be used unless necessary.

Chloral hydrate produces a natural sleep, acts promptly, but is of no service if pain is present; it also lowers the body temperature. It can be given for a long time without deleterious effect, but it may irritate the tissues and weaken the heart.

Sulphonal produces a natural sleep, but is of slow action, requiring 3 or 4 hours to take effect; it is of no use if pain is present, does not irritate the tissues and weaken the heart, but is probably not so good for continuous use as chloral hydrate, though the two may replace each other for a time.

"The *antagonism* between *morphine* and *atropine* is in part real, such as their respective effects on the convolutions, respiratory center and intestines. In part it is apparent only. Thus, the contraction of the pupil caused by morphine occurs through the pupillary center; the dilatation caused by atropine is referable to paralysis of the ciliary branches of the third nerve. Morphine is diaphoretic through the centers; atropine is anhydrotic through the terminal nerves of the glands. Both depress the heart and reduce blood pressure in poisonous doses. Thus morphine and atropine are not true antagonists, but the one may prevent or relieve certain effects of the other, and may therefore be (1) combined with the other for particular medicinal purposes, or (2) given in the treatment of poisoning by the other under particular circumstances." (J. Mitchell Bruce, *Materia Medica and Therapeutics.*)

4. Glycerini pepsini ℥j.
Tincture nucis vomicæ.
Acidi hydrochlorici diluti ää ♏xl.
Aquæ destillatæ q.s. ad ℥iv. Misce.
Signa:—One tablespoonful three times a day.

5.

	ORDINARY, OR OTHER NAME.	DOSE.
Phenol.	Carbolic acid.	1 to 3 grains.
Acetanilidum.	Antifebrin.	1 to 3 grains.
Nitroglycerinum.	Glonoin.	1 drop of a 1% solution.
Hydrargyri subchloridum.	Calomel.	½ to 5 grains.
Pulvis ipecacuanhæ compositus.	Dover's powder.	5 to 15 grains.

THEORY AND PRACTICE OF MEDICINE.

2. *Flint's murmur* is a presystolic murmur heard at the apex of the heart in some cases of aortic regurgitation. It is *supposed* to be due to the vibration of the anterior cusp of the mitral valve, as it lies between the regurgitating blood stream and that which is flowing into the left ventricle from the left auricle.

It is to be distinguished from mitral stenosis. This is best done by a study of the pulse, which is very different in these two conditions.

PATHOLOGY.

2. *Benign tumors* are encapsulated, do not tend to infiltrate the surrounding tissues, do not give rise to metastatic growths, do not tend to recur after removal, do not produce cachexia, and do not have a fatal tendency (except from their location).

Malignant tumors are not encapsulated, tend to infiltrate the surrounding tissues, give rise to metastatic growths, have a tendency to recur after removal, give a cachexia, have a fatal tendency.

Glioma is usually single, but may be multiple, is soft, gelatinous, grayish or pink, according to the number of blood-vessels in it, the outline is not distinct. Microscopically, it contains glia cells, with a small amount of protoplasm, but large, round or oval nuclei, and many thin fibrils which interlace with each other.

BACTERIOLOGY.

1. "*Active immunity* follows an attack of a certain disease and secures immunity for that alone, which may last but a short time (erysipelas, cholera) or for a longer period (typhoid), or even for life (variola); or it follows inoculation of a virus weaker than necessary to cause the typical disease (vaccination against smallpox); or it follows inoculation by bacterial products apart from the organisms themselves.

"*Passive immunity* is the term applied to the effect of a serum derived from an immunized animal and injected into one not immune, the theory being that in the blood of the former there is a chemical substance (antitoxin) which neutralizes the toxin in the donating animal, or otherwise it would show symptoms, and by borrowing its serum for the infected animal the toxin is opposed by the alien antitoxin."—(From Thayer's *Pathology.*)

2. BACILLUS ANTHRACIS. *Morphology:* It is a large, rod-shaped microorganism, with slightly thickened ends; it is from 5 to 20 mikrons in length, and a little more than one mikron in breadth; it has a tendency to form long threads; it is nonmotile and nonflagellated; it is aërobic.

Staining:—It stains by all the alkaline aniline dyes, and also by Gram's method.

Cultural characters:—It grows on practically all media, as a film on potato, in tree form in gelatin stab, it liquefies gelatin and also serum.

Pathogenicity:—It causes anthrax, splenic fever, malignant pustule, and woolsorter's disease. Infection takes place through wounds, or by the respiratory or alimentary tract. The bacilli are probably destroyed by the gastric juices, but not so the spores.

MIDWIFERY, OPERATIVE.

1. (a) The occiput is depressed and posterior, and points to the right sacroiliac synchondrosis; the smaller fontanelle is in the same locality. The sagittal suture runs obliquely forward and to the left, in the line of the right oblique pelvic diameter. The shoulders lie at right angles to this, in the left oblique pelvic diameter. The anterior fontanelle may be felt anteriorly, high up and to the left.

(*b*) The case may end: (1) By anterior rotation of the occiput, (2) the occiput may remain posteriorly in the hollow of the sacrum; (3) a face presentation may result; (4) the labor may become arrested, or uterine inertia may ensue.

(*c*) (1) Manual rotation and extraction by forceps may be tried; or (2) forceps, rotation, and extraction; or (3) forceps extraction, with the occiput remaining posterior.

4. The differential points between placenta prævia and premature separation of a normally attached placenta are shown in the following table (from Dorland's *Obstetrics*):

PLACENTA PRÆVIA.	PREMATURE DETACHMENT.
Most commonly manifests itself after the sixth month of gestation, but may occur as early as the second month.	Most commonly occurs during the first stage of labor, but may occur at any time during the last three months of pregnancy.
The hemorrhage is abrupt, but painless.	The hemorrhage is sudden, and generally is attended with sharp pain.
There are generally repeated hemorrhages of increasing severity.	Hemorrhage persists until the uterine contents are evacuated or the patient perishes.
There is an edematous condition of the cervix and lower uterine segment, with marked pulsation.	Vaginal examination reveals no deviation from the condition normal to pregnancy.
Cervix is generally quite patulous, and within may be detected the placenta.	The cervix is perhaps (if labor be initiated) slightly patulous.
The placental bruit is situated low down.	The placental bruit is in normal position.

MIDWIFERY OTHER THAN OPERATIVE, AND PUERPERAL DISEASES.

1. The diseases of the mother liable to injure the fetus *in utero* are: Malaria, relapsing fever, typhoid, typhus, yellow fever, scarlet fever, measles, smallpox, cholera, pneumonia, cardiac disease with inadequate compensation, exophthalmic goiter, hepatic disease and jaundice, toxemia, eclampsia, diabetes, and pernicious anemia.

The *causes of labor at full term* are not definitely known. Among the theories held, or factors supposed to be involved, are the following: (1) The gradual distention of the uterus at the end of pregnancy, after it has reached the physiological limit of its growth, while the contents still continue to grow; (2) the fetus becomes a "foreign body," and as such excites uterine contractions and is extruded; (3) fatty degeneration of the placenta and of the decidua; (4) the circulation of toxic products in the placental blood acts upon a center in the medulla and so produces labor.

5. (*a*) In a *breech* presentaation the discharge of meconium has no significance. (*b*) In a *vertex* presentation it is a danger signal, and implies a compressed cord, or fetal apoplexy, and delivery should be hastened.

SURGERY, OPERATIVE.

2. *Excision of the elbow* is performed for: Chronic joint disease (generally tuberculosis); wounds; faulty ankylosis, or other deformity; disease of the articular ends of the bones; fracture dislocation; compound comminuted fracture.

MEDICAL AND SURGICAL ANATOMY.

1. (*a*) The *middle meningeal artery* crosses the anterior inferior angle of the parietal bone at a point 1½ inches behind the external angular process of the frontal bone, and the same distance above the zygoma. From this point the anterior branch passes upward and somewhat backward toward the sagittal suture, lying a little over half an inch behind the coronal suture. The posterior branch passes upward and backward over the squamous portion of the temporal bone.

(*b*) To *locate the fissure of Rolando on the scalp*: Draw a straight line over the top of the scalp from the inion to the glabella; bisect this line, and half an inch posterior to the midpoint draw a line downward and forward at an angle of 67.5° for a distance of 3½ inches. This line will represent the location of the *fissure of Rolando*.

(*c*) The course of the *lateral sinus* is represented by a line drawn from the external occipital protuberance to the base of the mastoid process, and another line from the base of the mastoid to its tip.

2. The *reflex center* for the *bladder*, in the lumbar enlargement of the spinal cord; for the *rectum*, in the lumbar enlargement of the spinal cord; for *ankleclonus*, in the anterior horns of the third to fifth sacral segment of the spinal cord; for *knee jerk*, in the anterior horns of the second to fourth lumbar segments of the spinal cord; for *wrist jerk*, in the anterior horns of the sixth to eighth cervical segment of the spinal cord; for *elbow jerk*, in the anterior horns of the sixth cervical segment of the spinal cord.

3. The *parts entering into the formation of the wrist joints are:* The lower end of the radius, the under surface of the interarticular fibrocartilage, and the scaphoid semilunar and cuneiform bones; cartilage, anterior, posterior, external lateral, and internal lateral ligaments, and synovial membrane.

4. *Colles's fracture* is a fracture of the lower end of the radius; it is generally transverse, and is usually within an inch or an inch and a half of the articular surface. There is a characteristic deformity caused by the lower fragment, and the carpus forming a prominence on the dorsal surface; at the same time there is a projection on the palmar surface just above the wrist, caused by the upper fragment. The hand is abducted and pronated, and the styloid process of the ulna becomes very prominent.

Pott's fracture consists of a fracture of the lower end of the fibula, about three inches above the tip of the malleolus; and a fracture of the internal malleolus. The foot is twisted outward, the sole everted, and the heel drawn up; there is a depression at the site of the fracture, the inner malleolus either projects prominently or the fragment can be felt and crepitus elicited; the foot is shortened and the ankle is swollen and widened.

5. By a digital examination of the rectum there can be made out: The external sphincter, the internal sphincter, the rectal insertion of the levatores ani, the anal canal, the condition of the ischiorectal fossæ, the coccyx, hollow of sacrum, lower part of sacrum, tuberosity of ischium, wall of pelvis, great sacrosciatic ligament. In addition, in the *male*: The membranous urethra, the prostate, vasa deferentia, seminal vesicles, distended bladder. In the *female*: Perineal body, rectovaginal septum, os uteri, cervix uteri, ovaries.

7. The parts cut through in amputation at the upper third of the leg are: Skin; fascia; bones, tibia, and fibula; interosseous membrane; muscles, tibialis anticus, tibialis posticus, extensor longus digitorum, extensor proprius hallucis, flexor longus hallucis, flexor longus digitorum, peroneus longus, peroneus brevis, soleus, gastrocnemius, and the tendon of the plantaris; arteries, anterior tibial, posterior tibial, peroneal; veins, the venæ comites of the arteries, external saphenous, internal saphenous; nerves, anterior tibial, posterior tibial, external saphenous, communicans peronei, musculocutaneous.

The main vessels tied are: The anterior tibial, in front of the interosseous membrane; the posterior tibial, beneath the deep transverse fascia and behind the tibia; the peroneal, beneath the deep transverse fascia and behind the fibula.

8. In the *right inguinal* region may be found: Ovarian tumors, pelvic abscesses, diseases of the cecum and appendix, fecal impaction, hernia.

In the *left inguinal* region may be found: Tumor of the sigmoid, ovarian tumors, pelvic abscesses, volvulus, fecal impaction, hernia.

In the *hypogastric* region may be found: Distended bladder, uterine tumors and cysts, pregnant uterus.

9. *Scarpa's triangle* is a triangular area or depression situated just below the fold of the groin. It is bounded *above* by Poupart's ligament, *externally* by the Sartorius, and *internally* by the inner margin of the Adductor longus; its *apex* is formed by the junction of the Adductor longus and Sartorius. The *floor* is formed, from without inward, by the Iliacus, Psoas, Pectineus, Adductor brevis, and Adductor longus. *Contents*: The femoral vessels pass from about the center of the base to the apex, the artery being on the outer side of the vein; the artery gives off the superficial and profunda branches, and the vein receives the deep femoral and internal saphenous; the anterior crural nerve lies to the outer side of the femoral artery; the external cutaneous nerve is still further external, lying in the outer corner of the space; just to the outer side of the femoral artery, and in the sheath with it, is the crural branch of the genitocrural nerve. At the apex, the vein (which at the base was internal to the artery) lies behind the artery. The triangle also contains fat and lymphatics. Its *surgical importance* is due to the number of important structures which it contains (see above). Its apex is the point for ligating the femoral artery; digital pressure, or ligation, is applied here in case of popliteal aneurysm; femoral hernia appears in the upper part, and psoas abscess often points here, too.

10. The collateral circulation after ligature of the femoral artery in Hunter's canal: (1) The external circumflex; with the lower muscular branches of the femoral, anastomotica magna, superior articular of the popliteal, and anterior tibial recurrent. (2) The perforating and terminating branches of the profunda; with muscular branches of the femoral, and muscular and superior articular branches of the popliteal. (3) The comes nervi ischiadici; with the perforating branches of the profunda, and the articular branch of the popliteal.

MEDICAL JURISPRUDENCE.

4. Death by suffocation is due to asphyxia; that is, air cannot get to the blood, and eventually the respiratory center becomes paralyzed by the prolonged action of the increasingly venous blood.

5. The average weight in an adult of the *brain* is: male, 49½ ounces; female, 44 ounces. *Heart*, male, 10 to 12 ounces; female, 8 to 10 ounces. *Spleen*, about 7 ounces. *Liver*, male, 50 to 60 ounces; female, 40 to 50 ounces. *Kidney*, male, 4½ to 6 ounces; female, 4 to 5½ ounces.

TOXICOLOGY AND MENTAL DISEASES.

1. Cocaine Poisoning. (*a*) *Symptoms:* "When a large dose has been taken the symptoms are not unlike those of atropine poisoning. There is dryness of the throat, tongue, and nose, difficulty of swallowing, faintness, and sometimes nausea and vomiting. The pulse is usually increased in fullness and frequency at first. The respiration also becomes more rapid, and there is much general nervous excitement, with general hyperesthesia. The eyes are bright and staring and the pupils dilated. The patient talks volubly and incoherently. Sometimes an erythematous eruption appears on the skin. The stage of depression soon comes on, when the breathing becomes shallow, the heart's action more rapid, and the face pale or cyanotic. The surface becomes anesthetic, and muscular twitchings

and paralysis precede death, which is generally caused by paralysis of respiration."

(*b*) *Period when fatal:*—Less than one hour. If the patient survive half an hour the prognosis is good.

(*c*) *Fatal quantity:*—15½ grains. The smallest fatal dose on record is 1.2 grain for an adult. Twelve drops of a 4 per cent. solution hypodermically caused the death of a girl eleven years of age in 40 seconds. Twenty-two grains by the mouth and 10 grains hypodermically have been recovered from.—(Riley's *Toxicology.*)

2. The *special indications of mental weakness* are: Lack of attention, inability to concentrate the mind on one's work, loss of memory, incoherence, personal untidiness and neglect, hallucinations and illusions, lack of decision and will power, irritability of temper and disposition, insomnia.

3. In *opium poisoning* the pupils are contracted, respiration is slow, pulse slow and full, body temperature is normal or subnormal, there may be the odor of laudanum on the breath.

In *acute alcoholism* the patient can generally be aroused; the coma is not, as a rule, complete; the face may be flushed; the pupils are normal or dilated; the respirations are normal in frequency, but deep; the skin is cool and moist, and the body temperature may be below normal; there may be the odor of alcohol on the breath.

In *epilepsy* there will be a brief aura, sudden and complete loss of consciousness, pupils dilated and rigid, the tongue will be bitten (unless prevented), the sphincters may be relaxed, there may be a slight rise of temperature.

In *cerebral hemorrhage*:—There are generally paralysis of the head and upper limbs; and in left-sided lesions there may be aphasia; the pulse is slow and full; the respirations are at first slow, regular, and stertorous, later on becoming of the Cheyne-Stokes type.

SANITARY SCIENCE.

1. (*a*) Of the rain that falls:—Part is evaporated; part flows off in streams and rivers; part sinks into the earth through cracks and fissures and flows toward some water channel or the sea; and part comes back to the surface again in the form of springs.

(*b*) The objections to using rain water as it falls are:—The rain takes up gases from the air (chiefly oxygen, nitrogen, and carbon dioxide), but also ammonia, nitrous and nitric acids; also suspended matters which may be floating in the air, such as soot. In this way impurities may be present to the extent of 2½ grains per gallon of water.

2. (*a*) The sources of water supply are: Rain and snow; (2) surface waters (rivers, lakes, and ponds); (3) subsoil or ground water; (4) deep waters (spring and artesian well).

(*b*) Three methods of purifying water:—Distillation, filtration, and boiling.

3. Diseases caused by the use of impure water are:—Typhoid, cholera, dysentery, diarrhea, goitre, intestinal parasites, metallic poisoning, vesical calculi.

6. Air is vitiated by:—The respiration of men and animals; the products of combustion and artificial lighting; substances yielded by factories, workshops, mines, sewers, marshes, cemeteries, etc.; organic products given off by human beings.

7. The advantages of a mountain climate, as contrasted with plains, are:—(1) Greater movement of air, strong winds; (2) less humidity; (3) more sunlight; (4) less suspended mattter in the air; (5) a lower temperature.

DISEASES OF WOMEN.

2. Pruritus vulvæ may be *caused by:* Parasites; diseases of the vulva, as inflammation, edema, vegetations, congestion; irritating discharges; lack of cleanliness; diabetic urine; it may also be of nervous origin, or idiopathic.

Treatment consists in removing the cause, if possible; cleanliness, fresh air, tonics, and general attention to hygiene; local applications of solution of bichloride of mercury, 1 : 2,000; or carbolic acid, 1 : 100; or lead and opium; dusting powders of bismuth subnitrate, calomel, or zinc oxide are also useful.

5. (*a*) Preliminary preparation includes all the usual antiseptic and aseptic precautions.

(*b*) The *uses* of the uterine sound are:—(1) To demonstrate the mobility of the uterus; (2) to show the size of the uterus; (3) the presence of intrauterine growths; (4) deviations in the cervical canal, and (5) as an aid in the diagnosis of uterine displacements.

(*c*) *Contraindications*:—(1) The least suspicion of even the possibility of pregnancy; (2) menstruation; (3) acute endometritis; (4) malignant disease of the uterus or vagina; (5) acute pelvic inflammation.

(*d*) *Dangers*:—(1) Abortion; (2) sepsis; (3) peritonitis; (4) hemorrhage; (5) perforation of the uterus.

DISEASES OF CHILDREN.

2. *Kernig's reflex* (or sign) is present in meningitis or cerebrospinal fever in nearly every case. It is very rarely present in other conditions, hence it is a sign of much value.

Babinski's reflex is said to indicate disease of the pyramidal tract, except in children under two years of age, when the reflex is normal. Its absence does not prove that the pyramidal tracts are not diseased. There is still much uncertainty as to the value of this reflex, its chief value being in differentiating organic disease of the lateral columns from so-called "functional" conditions.

In *lobar pneumonia*, if the toxic condition is very severe, the patellar reflex may be exaggerated.

4. *Acute osteomyelitis.* (*a*) The three most common infecting germs are: *Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus,* and *Streptococcus pyogenes.*

(*b*) The three bones most frequently affected: Femur, tibia, and humerus (or radius).

(*c*) Diseases for which it may be mistaken: Rheumatism, gonorrheal rheumatism, typhoid fever, tuberculous arthritis, cellulitis, and infantile scurvy.

Treatment is immediate incision down through the periosteum; the surface of the bone must be opened with gouge or chisel, pus evacuated, and drainage instituted; irrigation with hot bichloride solution and packing with gauze. The medulla of the bone must be freely exposed, and any suppurating material removed. Constitutional treatment and rest, are, of course, indicated.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION
Alabama*	W. H. Sanders, Montgomery	Montgomery, July 13
Arizona*	Ancil Martin, Phoenix	Phoenix, July 5
Arkansas*	F. T. Murphy, Brinkley	Little Rock, April 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco, Aug. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver, July 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven, July 13
Delaware	J. H. Wilson, Dover	Dover, June 15
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington, April 13
Florida*	J. D. Fernandez Jacksonville	Tallahassee, May 19
Georgia	E. R. Anthony, Griffin	Atlanta, April 30
Idaho*	W. B. Howard, Pocatello	Boise, Oct. —
Illinois	J. A. Egan, Springfield	Chicago, April 15
Indiana	W. T. Gott, Crawfordsville	Indianapolis, May 2
Iowa	Louis A. Thomas, Des Moines	Des Moines, 8
Kansas	D. P. Cook, Clay Center	Kansas City, June
Kentucky	J. N. McCormick, Bowling Green	Louisville, April 27
Louisiana	F. A. LaRose, 211 Camp Street, New Orleans	New Orleans, May 20
Maine	Wm. J. Maybury, Saco	Augusta, July 1
Maryland	J. McP. Scott, Hagerstown	Baltimore, June 15
Massachusetts*	E. B. Harvey, State House, Boston	Boston, May 11
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor, June 8
Minnesota	W. S. Pillerton, St. Paul	St Paul, June 1
Mississippi*	S. H. McLean, Jackson	Jackson, May 11
Missouri	J. A. B. Adcock, Warrensburg	Kansas City, May 4
Montana*	Wm. C. Riddell, Helena	Helena, Oct. 5
Nebraska	E. J. C. Sward, Oakland	Lincoln, May —
Nevada	S. L. Lee, Carson City	Carson City, May 3
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord, June 29
New Jersey	J. W. Bennett, Long Branch	Trenton, June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe, April 12
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo, May 18
N. Carolina	B. K. Hays, Oxford	Asheville, June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks, July 6
Ohio	Geo. H. Matson, Columbus	Columbus, June 8
Oklahoma*	F. P. Davis, Enid	Guthrie, April 13
Oregon*	B. E. Miller, Portland	Portland, July 6
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg, June 22
Rhode Island*	G. T. Swarts, Providence	Providence, July 1
S. Carolina	H. H. Wyman, Aiken	Columbia, June 8
S. Dakota*	H. E. McNutt, Aberdeen	Watertown, July 14
Tennessee	T. J. Happel, Trenton	Memphis, Nashville, Knoxville, May —
Texas	C. B. Foscue, Waco	Cleburne, June 22
Utah	R. W. Fisher, Salt Lake City	Salt Lake City, July 5
Vermont	W. Scott Nay, Underhill	Burlington, July 13
Virginia	R. S. Martin, Stuart	Richmond, June 22
Washington*	K. Turner, Seattle	Seattle, July 6
W. Virginia	H. A. Barbee, Point Pleasant	Huntington, April 13
Wisconsin	J. V. Stevens, Jefferson	Madison, July 13
Wyoming	S. B. Miller, Laramie	Laramie, June 23

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

American National Red Cross Text-book on First Aid and Relief Columns. By Major Charles Lynch, Med. Corps, U.S.A. 32mo, 247 pages; cloth; illustrated. P. Blakiston's Son & Co., Philadelphia.

Genitourinary Diseases. By Francis S. Watson, M.D., assisted by John H. Cunningham, Jr., M.D. In 4to, two volumes; 1,101 pages; illustrated; cloth. Lea & Febiger, Philadelphia, Pa.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. 8vo, 333 pages; paper; subscription price, $6.00 per annum; illustrated. Lea & Febiger.

Sixth International Dermatological Congress, held at the N. Y. Academy of Med., Official Transactions. Edited by John A. Fordyce, M.D. 8vo, Vol. I, 520 pages; Vol. II, from page 521 to page 944; cloth; illustrated. New York Press, New York.

Über Abdominale Schmerzanfälle. Von Prof. Dr. L. Kuttner, 8vo, 69 pages; paper. Carl Marhold Verlagsbuchhandlung, Halle, a. S.

Indikationen und Technik der Entfettungskuren. Von Prof. Dr. Paul Friedrich Richter. 8vo, 38 pages; paper. Carl Marhold Verlagsbuchhandlung, Halle, a. S.

Die Atonische und die Spastische Obstipation, Ihre Differentialdiagnose und Behandlung. Von Privatdozent Dr. Gustav Singer. 8vo, 46 pages; paper. Carl Marhold Verlagsbuchhandlung. Halle, a. S.

Das Indikationsgebiet des Alkohols bei der Behandlung innerer Krankheiten. Von Prof. Dr. George Rosenfeld. 8vo, 48 pages; paper. Carl Marhold Verlagsbuchhandlung. Halle, a. S.

Das Koma diabeticum und seine Behandlung. Von Dr. A. Magnus-Levy. 8vo, 54 pages; paper. Carl Marhold Verlagsbuchhandlung. Halle, a. S.

State Board of Health, Mass. 8vo, 616 pages; cloth. Wright & Potter Printing Co., State Printers, Boston, Mass.

Ergebnisse der Inneren Medizin und Kinderheilkunde. 4to, 708 pages; paper. Preis, M. 20 mit Porto M. 25; illustrated. Verlag von Julius Springer, in Berlin, Germany.

The Rectum, Its Diseases and Developmental Defects. By Sir Charles Ball, M.Ch., F.R.C.S.I., Hon. F.R.C.S. (Eng.). 8vo, 332 pages; cloth; illustrated. Oxford Med. Publications, Oxford Univ. Press Amer. Branch, New York. Price $9.00.

Diseases of the Heart. By James Mackenzie, M.D., M.R.C.P. 8vo, 386 pages; cloth; illustrated. Oxford Med. Pub., Oxford Univ. Press, American Branch, New York. Price, $7.00.

Vaccine Therapy and the Opsonic Method of Treatment. By R. W. Allen, M.D., B.S. (Lond.). 8vo, 244 pages; cloth; $2.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

L'Examen Fonctionnel de l'Intestin. By Dr. Adolphe Schmidt. 8vo, 88 pages; paper; illustrated. Vigot Frères, Éditeurs, Paris, France.

Transactions of the Amer. Otological Society, Forty-first Annual Meeting. Vol. XI, Part I. 8vo, 233 pages; paper. Published by the Society.

Transactions Amer. Protologic Society, 1908. 8vo, 146 pages; illustrated; cloth.

Studies in Puncture-Fluids. By O. C. Gruner, M.B. (Lond). 8vo, 280 pages; cloth; illustrated, 7s. 6d. H. K. Lewis, London, England.

Klinik für Psychische und Nervöse Krankheiten. Von Robt. Sommer. III Band, 2 Heft, from page 75 to page 182, 3 Heft, from page 183 to page 290. 8vo. Carl Marhold Verlagsbuchhandlung. Halle, a. S.

Scientific Laboratory Help in Diagnosis. A Little Booklet for the Guidance of the General Practitioner and the Specialist, showing the Usefulness and Advantage of the Laboratory Report. The Abbott Alkaloidal Company, Chicago, Ill., 1908.

Backbone. Hints for the Prevention of Jelly-Spine Curvature and Mental Squint. A Straight-up Antidote for the Blues and a Straight-ahead Sure Cure for Grouch. Collected from Various Sources and Arranged by S. De Witt Clough, Ravenswood, Chicago, 1908.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending April 3, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	478	212
Diphtheria	320	32
Measles	1077	34
Scarlet Fever	373	19
Smallpox	4	—
Varicella	213	—
Typhoid Fever	26	5
Whooping Cough	62	8
Cerebrospinal Meningitis	10	5
Malarial Fever	—	—
Totals	2563	315

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending April 2, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Arkansas, Allbrook	Jan. 1–Mar. 25	40	..
California, Los Angeles	Feb. 27–Mar. 6	2	.
Oakland	Feb. 28–Mar. 7	1	.
Sacramento	Jan. 1–31	22	.
"	Feb. 1–28	7	.
Georgia, Macon	Mar. 14–21	1	.
Illinois, Chicago	Mar. 13–20	2	.
Danville	Mar. 14–21	1	.
Galesburg	Mar. 6–13	1	.
Peoria	Feb. 13–20	24	.
Indiana, La Fayette	Mar. 8–22	5	.
Kansas, Kansas City	Mar. 6–20	12	.
Topeka	Mar. 13–20	8	.
Wichita	Mar. 6–20	5	.
Kentucky, Fulton	Feb. 1–22	27	.
Lexington	Mar. 6–20	2	.
Newport	Jan. 20–Mar. 20	34	.
Paducah	Mar. 6–13	2	.
Louisiana, New Orleans	Mar. 6–20	3	Imported
Winnfield and vicinity	Jan. 1–Mar. 24	33	..
Massachusetts, Boston	Mar. 13–20	2	.
Lawrence	Mar. 6–13	1	.
Minnesota, Minneapolis	Mar. 6–13	3	.
St. Paul	Jan. 1–31	37	.
Missouri, Kansas City	Mar. 6–20	4	.
Rich Hill	Dec. 5–Mar. 20	5	.
Montana, Butte	Mar. 9–16	1	.
Nebraska, Lincoln	Feb. 1–21	8	.
New Jersey, New Brunswick	Mar. 6–20	2	.
Perth Amboy	Mar. 24	18	.
Plainfield	Mar. 6–20	3	.
New York, Buffalo	Mar. 13–20	1	.
Ohio, Cincinnati	Mar. 5–19	10	.
Columbus	Dec. 26–Mar. 2	14	.
South Carolina, Winnsboro	Feb. 21–Mar. 21	5	.
Tennessee, Knoxville	Mar. 6–13	5	.
Murfreesboro	Mar. 15–31	1	.
Nashville	Mar. 13–20	4	.
Texas, El Paso	Mar. 9–16	3	.
Fort Worth	Feb. 1–28	3	.
Galveston	Mar. 5–12	1	.
Houston	Feb. 28–Mar. 13	2	.
Laredo	Mar. 19	1	.
San Antonio	Mar. 13–20	2	.
Virginia, Richmond	Mar. 13–20	1	.
Washington, Spokane	Mar. 6–13	1	.
Tacoma	Jan. 24–Feb. 7	11	.
"	Mar. 7–14	4	.
Wisconsin, Appleton	Mar. 13–20	1	.
La Crosse	Mar. 6–20	3	.
Milwaukee	Feb. 28–Mar. 20	24	.

SMALLPOX—FOREIGN.

Algeria, Algiers	Feb. 1–28	..	20
British Honduras, Stann Creek	Mar. 4–11	6	1
Canada, Halifax	Mar. 13	2	.
Yarmouth	Mar. 21–27	1	.
China, Tientsin	Jan. 16–23	4	1
Egypt, Alexandria	Jan. 14–28	6	..
Cairo	Feb. 6–8	68	33
France, Paris	Feb. 27–Mar. 6	5	..
Great Britain, Bristol	Feb. 27–Mar. 6	5	..
Greece, Athens	Feb. 27–Mar. 6	.	1
India, Bombay	Feb. 16–3	..	24
Calcutta	Feb. 6–13	..	171
Madras	Feb. 13–19	..	1
Rangoon	Feb. 6–13	.	6
taly, General	Feb. 21–Mar. 7	14	..
Florence	Mar. 3–10	2	..
Naples	Feb. 28–Mar. 6	15	..
Japan, Kobe	Feb. 13–20	4	1
Java, Batavia	Feb. 6–13	3	..
Portugal, Lisbon	Mar. 6–13	6	..
Russia, Moscow	Feb. 20–27	32	5
Odessa	Feb. 27–Mar. 6	6	..
St. Petersburg	Feb. 13–20	7	1
Vladivostock	Feb. 4–14	1	.
Siberia, Valencia	Feb. 19–26	5	..
Spain, Valencia	Jan. 29–Feb. 26	..	5
Turkey, Smyrna			

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Original Articles.

FREEZING AS A THERAPEUTIC MEASURE; LIQUID AIR AND CARBONIC ACID SNOW.*

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"SOME are born great, some achieve greatness, and some have greatness thrust upon them:" and some, alas! do not receive the credit that is their due. The latter fate threatens to befall the late Dr. A.

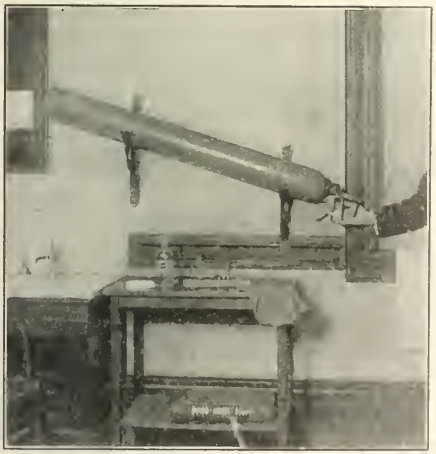

FIG. 1.—Liquid carbonic apparatus. The drum is shown on the wall brackets; socket wrench on distal end of valve; chamois chamber for making snow, previous to closing; on the table are molds for compressing and shaping the snow, also the ether bottle and cup to hold the ether for dipping before application.

Campbell White who was the first to use liquid air as a therapeutic measure. In 1899 he published in the MEDICAL RECORD the first report of his work We who use liquid air are but followers of Dr. White, and to him should be given all the honor that is due to a discoverer. And yet his name is seldom found in the literature of the subject.

Many of the early experiments of Dr. White were made at the Vanderbilt Clinic, in the Dermatological Department, through the courtesy of Professor George Henry Fox, of the College of Physicians and Surgeons. From these, we, of the clinic, learned how to use liquid air, and have continued to use it until recently, when, on account of a stoppage in the supply, we began the use of carbonic acid snow as a substitute.

In 1905 Dr. C. T. Dade, one of the clinical assistants of the Dermatological Department of the Vanderbilt Clinic, who had taken special interest in the use of the air, was invited to give a demonstration of it before the American Dermatological Association then meeting in New York. This suggested to Dr. W. A. Pusey of Chicago, who was present, the possibilities of liquid carbonic acid gas as a substitute for liquid air. To him is due the credit of devising the method of using this agent in the form of snow. Shortly after the above-mentioned meeting we heard of Dr. Pusey's experiments with carbonic acid gas and obtained a drum of it for the clinic. Our early attempts at using it were not successful. It was not until September, 1907, when Dr. Pusey was in this city to attend the meeting of the Sixth International Dermatological Congress that we learned how to make the snow. He very courteously went with one of us (Dr. Hubbard) to the office of the manufacturer of the gas, and showed his method of working. Since then the same one of us has further developed the technique, as will be described later.

By one of those curious coincidences so often occurring, at about the time the use of liquid air suggested to Dr. Pusey the substitution of liquid carbonic acid gas for it, that is in 1905, the attempts to use ethyl chloride as a freezing agent for certain diseases of the skin suggested to Dr. M. Juliusberg, in Germany, the use of liquid carbonic acid gas as a substitute for it. He employed it in the form of a spray with a special apparatus, and reported some successful results.

FIG. 2.—Snow chamber filled with solidified carbonic acid.

Liquid Air was first made in appreciable amount by Dewar in England about 1877. Since then several machines for making it have been devised. The liquid air used by Dr. White was supplied by

*Read before the Medical Society of the County of New York, March 22, 1909.

Charles E. Trippler of this city and made by a machine invented by him. In his machine the atmospheric air is dried and cleared from impurities by chemical filtration, and then forced by means of a horizontal double-acting pump into a tank under a pressure of 100 pounds to the square inch. From

Fig. 3.—Application of the carbonic snow to the lesion in a case of lupus erythematosus; the operator is timing the application, watch in hand.

tank No. 1 it is drawn by a second horizontal pump of similar capacity and forced into a second tank under a pressure of 800 pounds to the square inch, passing on its way through coiled copper tubing jacketed with water in circulation to cool the pipes and remove the heat from the air. In this tank it

Fig. 4.—A case of lupus vulgaris on the ear, showing the glistening fluid exuding from a recently formed blister following the application of carbonic snow.

remains until cooled thoroughly. Then a third pump forces the air through another coil of copper tubing jacketed with water flowing in a direction opposite to the flow of air, into tank No. 3, under a pressure of 2,000 pounds to the inch. From this tank it goes into a container. This is a thin, strong metal box set in wool packing. In the upper two-thirds of the container there are coils of tubing jacketed with water. When the air is shown by the gauge to be under proper pressure, and by the thermometer to be of proper temperature, it is allowed to escape from the lower part of the lower

Fig. 5.—Vascular nævus on the labium majus of an infant before treatment.

coils through small cocks with minute openings into the lower third of the container, which is a partial vacuum. The air escaping into the vacuum, and already very cool, rapidly expands, and becomes still colder. About two-thirds of the air escaping is lost, but one third remains as a liquid in the container, which can be drawn off through a cock as wanted, just like any other liquid.

Liquid air looks like water, and can be poured out of the container like it. When the finger is dipped in it and hastily withdrawn, it feels like water, but the finger comes out dry. When it is thrown on the floor it strikes with a thud, and instantly disappears as steam without dampening the floor. Viewed through the glass container it seems to be boiling quietly, and a delicate vapor floats over the mouth of the flask. The temperature of the air is — 252.5° C. So great is its expansive power in its effort to return to its natural state as atmospheric air it can not be corked up, as it would blow to atoms anything but the strongest steel cylinders. It is handled in what is called a Dewar bulb, a flask of glass so blown that there is one flask inside of another with a vacuum between. This is placed in a case, and packed all round with wool to prevent too rapid evaporation of the air. Its mouth is partially closed with a loose plug of absorbent cot-

Fig. 6.—The patient shown in Fig. 5, six months after the application of carbonic snow.

ton so as to allow of the escape of a small amount of vapor that is constantly coming off from the liquid. In this way a litre of the air may be kept for several days.

Carbon Dioxide or Carbonic Acid Gas is a gaseous compound of carbon and oxygen. It is made

in various ways, commonly by the action of hydrochloric acid on calcium carbonate, and purified by passing it through a solution of permanganate of potassium. It is a colorless gas, about one and a half times as heavy as air, with a feeble odor, and slightly acid taste. Its temperature is — 31° C. By

Fig. 7.—A case of epithelioma before the application of carbonic snow.

mixing it with ether and allowing the mixture to evaporate the temperature can be lowered to — 100° C. The gas is caused to liquefy under pressure with the aid of a cooling device, somewhat like that used in making liquid air. As it is under a pressure of only 900 pounds to the square inch and has nothing like the expansive power of liquid air it is delivered in steel cylinders. These are familiar to many of you in connection with soda water fountains. At one end of the cylinder is a brass adjustable valve operated by a socket wrench at the tip. The vent hole, which is at one side of the valve, is covered with a brass hexagonal cap. Opposite the vent hole is a safety valve covered with a round, knulled, perforated cap set to 1,800 pounds pressure. This valve is never to be tampered with, as it preserves the drum, and prevents undue pressure, explosions, and danger. In point of fact there is no danger in handling and keeping these cylinders. The manufacturers of the gas assure us that they have never had an accident with the thousands of cylinders they have sent out. As they are tested by hydraulic pressure up to 3,700 pounds, and as they are charged under a pressure of only 900 pounds, when the gas liquefies, it is easy to understand why no accident has occurred.

Methods of Application.—1. Liquid air is best applied by means of swabs made by wrapping absorbent cotton around pieces of wood. These can be made of any size or shape required to fit any lesion. Care must be had to use a sufficient amount of cotton to absorb enough liquid to produce the effect desired. In very small lesions we have to freeze a little more than otherwise would be necessary since very small swabs would not hold enough to do effectual work. The swab is dipped into the liquid, when withdrawn it is given a sharp jerk to remove superfluous liquid, and then it is applied to the part to be treated with pressure varying according to the effect we wish to produce.

2. Carbonic Acid Snow. In order to make snow for freezing purposes the cylinder containing the gas must be placed on a stand, or on a rack fastened to the wall, and at an angle of about 45 degrees. (See Figure 1.) This prevents the freezing of the valve, and permits the making of a soft and easily moulded mass of snow. It is well to have the valve end of the cylinder fastened firmly by a strap, as at times the valve is hard to turn. The cap covering the vent hole is now to be removed, and all is ready for the making of the snow. This forms on account of rapid evaporation of the gas through some porous material, wrapped around the vent.

There are several ways of gathering the snow. Dr. Pusey first used a chamois leather bag made by taking a piece of the leather, making several turns with the straight edge about the vent hole, and folding the piece back on itself. Dr. Hubbard, after a number of experiments, invented the apparatus which we now use almost exclusively. It consists of a piece of brass pipe of diameter great enough to fit round the vent hole. This is cut longitudinally in two parts, which are then united on one side with a piano hinge. It is perforated with a number of holes, and covered with chamois leather on both surfaces. The leather is two or three inches longer than the tube, so as to allow of its being turned back over it. The best results are obtained by wrapping a little absorbent cotton about the vent hole and placing a plug of the cotton in the further end of the tube before applying it to the vent hole. When ready to make the snow the chamois bag, or the Hubbard apparatus, is applied to the vent hole and the gas is allowed to escape by turning the nipple at the extreme end of the cylinder with the small wrench that comes with it. The air is allowed to escape slowly at first, and then more rapidly. At first there is a whizzing sound as of gas escaping under pressure; sometimes there is some sputtering and jerking of the tube or bag, which need give no concern. A bluish gas will be seen to escape, and in five or ten seconds fine flakes of snow will blow through the

Fig. 8.—The patient shown in Fig. 7; the epithelioma has disappeared after the application of carbonic snow.

chamois. That is a sign that the apparatus is full of snow. Then the gas is turned off and the apparatus removed. It will be found to be full of snow. (See Figure 2.)

When the snow is gathered it may be moulded in any shape by working it in the bag or packing it

in molds made of sections of iron or brass pipe of different diameters. Pusey advises the use of square shaped molds so that if more than a single area is to be frozen the edges may not overlap. For very small lesions ear specula make admirable molds. There is no difficulty about removing the

Fig. 9.—Nævus pilosus in a girl of 6 years; before treatment.

snow from the molds as in a few moments by evaporation at the sides the mass grows small enough to allow of pushing it out. If the snow is properly made in the Hubbard apparatus it will be compact enough without packing it in molds, and can be whittled down with a knife to any desired size or shape. Though the temperature of the snow is about − 78° C., it can be safely handled and manipulated if the fingers are protected by the chamois or a glove. When drawing the gas, for further protection of the hands, it is well to wrap a towel about the apparatus.

The Effects of Freezing.—Juliusberg cut out pieces of frozen skin for microscopical examination. Bowen and Towle summarize his findings in their report as follows: He found that freezing caused an occlusion of the blood vessels with subsequent anemia, necrosis, and atrophy of the epithelium in proportion to the intensity of the application.

There is no difference in the effect on the tissues whether we use liquid air or carbonic acid snow except that the air being more than three times as cold the effect is more rapidly attained by the former. The Mayo brothers found that mixing ether with the snow made it freeze more rapidly, which we might expect from the investigations as to temperature of the gas as already quoted. The snow is not to be mixed with the ether or chloroform, but the cone is to be lightly dipped into it just before it is applied to the skin.

In order to avoid confusion we will speak hereafter only of the effect of freezing with the snow.

With a sizzling noise the place of contact with the cone is instantly frozen hard, turns white, looking like white ice, and when tapped with a firm object it gives a sound like that of striking wood. The depth of the freezing will depend upon the amount of pressure used and the length of time of the contact. Thus we have the effect under control. It is difficult to give exact rules as to the length of time and the amount of pressure to be used in a given case. As in many other procedures experience guides the operator. As a working rule it may be stated that the more superficial the lesion is the shorter should be the time of freezing and the less the amount of pressure. Ten seconds with moderately firm pressure will freeze the part stiff. In a few moments the part will thaw, there will be a zone of redness about it and in a short time vesicles will form on it. In a day or so a slight crust will form, which when it falls will leave a scarcely perceptible scar. In a short time this may disappear entirely. Twenty or thirty seconds with firmer pressure will freeze still deeper. Thawing will take place more slowly, and in the course of six to eight hours will be followed by the formation of a tense bulla. The bulla dries into a dry crust and leaves a slight scar. With longer applications and with deeper pressure the effects are exaggerated. Thus with freezing of about fifty or sixty seconds there follows a bulla that dries down into a dry eschar that does not fall until about three weeks. The dryness of the crust in all cases is a peculiarity of the action of the snow or air. The scars left by deep freezing are always soft and pliable, more beautiful from a cosmetic standpoint than those left by any other destructive agent.

It is rarely necessary to apply the snow for more than thirty seconds. If it is first dipped in ether or chloroform the time must be reduced as the effect is increased. All crusts should be removed before freezing. Whitehouse advises covering lesions on mucous membranes with a thin piece of gauze to avoid freezing the swab fast, when liquid air is used. He has found that the reaction is less marked in senile and ill nourished skins than in those that are firmer and well nourished. As a rule it is best not to repeat the freezing, where repetition is necessary, until the effects of the first freezing have been recovered from. In very many cases only a single freezing is required. In all the ten years during which we have been employing this method of treatment we have never seen any untoward effects. At times and in places where there is looseness of the tissues, as in the neighborhood of the eye, there may be a great amount of swelling so that the eye may be closed. This is uncomfortable for the patient, but absolutely without danger. The frozen part should be left alone after freezing. If a bulla forms there is no harm in pricking it. Crusts must not be removed, but allowed to separate of themselves. When they fall a sound skin is left.

Fig. 10.—The patient shown in Fig. 9, after several applications of carbonic snow; child still under treatment.

Is this method of treatment painful? The freezing causes slight pain in some subjects, while in others there is no pain at all. If we could concieve of an instantaneous frost bite, as of the ears for instance, we could appreciate that the part would become numb so quickly that no pain would be felt.

The thawing out is painful; sometimes very much so. We have seen men and women shed tears and show evidence of pain while the tissues were thawing, and this pain may last for several hours. But it is not nearly bad enough to deter us from using the method, and may be greatly mitigated by the application of cold water.

It may be asked which is better, liquid air or carbonic acid snow? If the air could be always obtained it would be preferable on account of the ease with which it is applied, the rapidity with which it acts, and its comparative painlessness. But the supply of air is most uncertain. For months we have been unable to procure it. The advantages on the side of carbonic acid snow are: (1) It is always to be had. A cylinder can be kept in one's office for the making of snow at any time, or the snow can be made at any drug shop where soda water is sold. (2) Lesions, no matter how small, can be frozen with it. Unlike liquid air we do not need to freeze any larger surface than necessary, as we can whittle the mass down to any size required.

Therapeutics of Freezing.—It is as a destructive agent that freezing is used for the most part. Dr. White used liquid air for the stimulation of ulcers, and for producing anesthesia for surgical purposes. For the latter purpose it acts quicker than ethyl chloride. It is sufficient to produce only a superficial freezing. Some have used this anesthetic action to quiet the pain of zoster. Here the cold is applied to the spine. We have not tried this.

Dr. White advocated its use for the treatment of boils and carbuncles. He applied liquid air for this purpose in the form of a spray from a bottle with a cork perforated to let two glass tubes pass through. When the finger was placed over the shorter tube, the air came in a fine stream of spray from the other tube that went down into the liquid. In this way the air was forced into the openings of the carbuncle or boil, and the surface was slightly frozen.

As many of Dr. White's early experiments were made at the Vanderbilt Clinic, and as freezing in one form or another has been employed there ever since, it is probable that our experience has been greater than that of any other clinic. We have, unfortunately, very incomplete records of the hundreds of cases we have treated. Our experience has impressed upon us certain definite conclusions.

We feel sure that the *best* treatment for *lupus erythematosus* is freezing. Every case of this most intractable disease has been cured when the patient has given us the opportunity to complete the treatment. The disease is capricious, and recent cases often yield to other remedies and disappear without a scar. It is best then to try other simpler remedies in recent cases. But in chronic patches, where there has been more or less deep destruction of tissue, freezing is the remedy of choice. Of course, it does scar, but the scar is soft and pliable, and the disease is sure to scar of itself. We have seen many patches heal with a single freezing. In this disease it is not necessary to freeze deeply. When the cone is dipped in ether, fifteen seconds is usually enough.

Nævi of all sorts are amenable to freezing. Superficial vascular nævi are readily destroyed in from fifteen to fifty seconds. Angiomata likewise yield readily, though they sometimes require a second application. If of large size so as to form tumor-like growths, sometimes the color is removed but the tumor remains. Port wine marks do not respond as well as other forms of vascular nævi. Pigmentary nævi are easily removed. Hairy nævi also must be frozen deeply, using firm pressure for one or two minutes, so as to destroy the hair follicles. Though they may have to be frozen several times, at last the result is a brilliant one. No other method gives better results, and all other methods require far more time.

Epitheliomas especially of the rodent ulcer type, we have come to regard as a special field for freezing. A cure is effected more rapidly than by any other form of caustic, and with less pain, and the scar is of the best. In them the pressure must be firm, and the time of freezing from half a minute to a minute and a half, depending upon the depth of the ulcer and the thickness of its walls. Other forms of the disease may be cured by it, and in inoperable cases it should always be tried. *X-rays* do not stand in comparison with liquid air or carbonic acid snow in the treatment of superficial epitheliomas. They are very slow in producing a cure, and their use is always attended with dangers. Freezing is rapid in results, and its use is entirely devoid of danger. We have been able to follow some cases for years without recurrence. In other cases recurrence does take place, as is apt to be the case after any form of treatment. But it is an easy and expeditious matter to destroy the small points of the relapse.

Keratosis senilis is readily removed by freezing. *Warts, papillomata, tatoo marks, powder stains, hypertrophied scars, keloid, tuberculosis verrucosa cutis, chloasma,* and *scrofuloderma* have all yielded to freezing.

We believe that Dr. White's application of freezing with liquid air as a therapeutic agent is one of the most important of our time. We commend the use of freezing as a most reliable method of treatment. We believe that we will learn before long how to use it not only for purposes of destruction but also of stimulation, and thus greatly broaden its field of usefulness.

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THE EARLY DIAGNOSIS OF SYPHILIS AND THE TECHNIQUE OF EXAMINATION FOR THE SPIROCHÆTA PALLIDA.*

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In 1905 Schaudinn,[1] and later Schaudinn and Hoffmann, described the constant presence of the *Spirochæta pallida* in luetic lesions. Since that time an enormous amount of work has been done, and the apparent distinct relationship of this organism to both congenital and acquired forms of the disease seems definitely proven. This organism does not fulfill all the requirements of the four rules of Koch as regards its etiological connection with the disease, since it cannot be cultivated on artificial media. Nevertheless, practically all authorities are convinced of its definite etiological relationship. It has been pointed out by Hoffmann[2] and others that the same state of affairs holds true for the malarial protozoan and the leprosy bacillus, still no one questions the etiological relationship of these organisms to their respective disease processes. In relapsing fever, until very recently, the organism (*Spirochæta obermeieri*) could not be cultivated on any of the ordinary media in use. Morris, Pappenheimer, and Flournoy[3] have recently been able, however, to secure a certain amount of multiplication in citrated blood.

Metchnikoff and Roux[4] were among the first to demonstrate experimentally that syphilis could be inoculated in apes. More recently Neisser, through experimental work carried on in Java during the past two years, has been able to produce successive lesions by inoculation from one generation to another, demonstrating the pale spirochete in all.

The organism is present in the secretion of the primary sore and in the neighboring lymph glands. In the secondary stages it has been constantly found in a large proportion of cases. In the secretion of mucous patches, fissures on the tongue, and luetic condylomata it is particularly abundant. It has been obtained from the spleen during life, and Schaudinn and others have obtained it from the blood in secondary syphilis, although as a rule it can be found in the blood only with extreme difficulty. It has been repeatedly found in the inflammatory zone near the periphery of gummata by Schaudinn, Hoffmann, and others. In the congenital form, its presence has been repeatedly demonstrated in the liver, spleen, lungs, blood, heart, suprarenals, pemphigoid bullæ, etc., following the early work in congenital forms of the disease, by Buschke and Fisher and by Levaditi.[5]

For the demonstration of the organism, Goldhorn's or Giemsa's stain, or the method of Levaditi may be used. Levaditi recommends a slightly modified silver impregnation method used by Ramon y Cajal for staining nerve fibrillæ as satisfactory for the demonstration of the spirochete in the tissues. Thin slices are fixed in 10 per cent. formalin for 24 hours, then washed in water for an hour; then submerged in 96 per cent. alcohol for 24 hours. The slices are then placed in 1.5 per cent. silver nitrate solution in a dark incubator at 37° C. for 72 hours. After washing in water for about 20 minutes to remove the excess of silver, the tissue is placed in the following: Pyrogallic acid, 4.0; formalin, 5.0; distilled water to 100.0, for 48 hours in a dark bottle at room temperature. After washing in water for a few minutes the slices are put through increasing strengths of alcohol and imbedded in paraffin. The cut sections should be thin. The spirochetes appear black. Weak carbolfuchsin makes a good contract stain for the tissues.

For simple staining of secretions from the primary sore, mucous patches, secretion obtained by puncture of lymph glands, etc., or by expression of secretion from papules or bullæ, the stain recommended by Giemsa (modified Romanowsky) has been found generally satisfactory. (It is best to obtain the Giemsa stain in solution ready for use.) The films are fixed in absolute alcohol for ten to fifteen minutes and dried between filter papers; drying in the air or careful agitation of the film over the flame answers the same purpose. The stain is diluted with distilled water (one drop of stain to 1 c.c. of water and well shaken). The solution may be made alkaline by the addition of a 1 per cent. solution of potassium carbonate in the proportion of 1 drop to 10 c.c. The stain should be applied for from 30 minutes to one hour; washed thoroughly in water, dried between filter papers and mounted in balsam. The pale spirochete takes on a distinct pale red color and the spiral twistings are distinct and well preserved; the *Spirochæta refringens* is stained blue and the spirals are flatter and wave-like.

The stain of Dr. L. B. Goldhorn likewise gives good results. The entire staining process requires about one-half minute. The unfixed cover glass dried in the air is covered with the prepared dye, which should be kept anhydrous, and is poured off after three or four seconds. The cover class is immediately dipped slowly into water for three or four seconds holding the preparation side downward to avoid precipitation. It is then washed and stood upright, not flat, to dry. Gentian violet solution heated on the cover glass or slide also gives good results (Herxheimer). For staining the flagellum present at each pole of the organism, Löfflers flagella stain is satisfactory.

For examination of fresh unstained secretion, the oil immersion 1/12 (Zeiss Apochromat. 2 mm, aperture 1.3 or 1.4) with compensation ocular No. 6 or 12 may be utilized. The preparation should be as thin as possible (a little physiological salt solution may be allowed to flow under one edge of the cover glass if too thick), and the edge of the cover glass may be rimmed with vaselin to prevent evaporation. The illumination should be intense, and the Abbé condenser lowered to the point of clearest

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definition. As a rule, the ordinary chromatic oil immersion 1/12 does not give clear definition for this work. A large Welsbach or Auer gaslight is better than sunlight.

The rays may be concentrated and focused on the microscope mirror by using between the source of

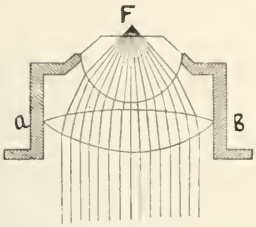

Fig. 1.—Abbé Condenser; A-B represents aperture of condenser for direct light showing convergence of rays on field F (after Novy)

light and mirror, an ordinary convex magnifying glass of about 10 cm. diameter. The spirochetes should be sought for about the edges of cell particles, leucocytes, or erythrocytes to which they frequently adhere by their thread-like prolongation or flagellum. Rimming the cover glass with vaselin to exclude the air, as has been shown by Hoffmann and Beer, makes it possible for the organism under these conditions to preserve its motility for weeks. As a rule, however, unless kept warm, it loses its motility in an hour or two. The above described method requires practice on the part of the observer and is much inferior to the method described below for examination of fresh unstained material by means of the dark-field illuminating condenser which can be applied to any microscope. The principle of this condenser is such that a system of plano-convex lenses so reflects the light that *reflected* light only comes through for the illumination of the object. The field itself is dark, while the object to be examined is illuminated. It is in this contrast that the definition of the object is clearly outlined. The degree of illumination within certain limits depends upon the size of the diaphragm which cuts out the direct rays, and the intensity of the light.

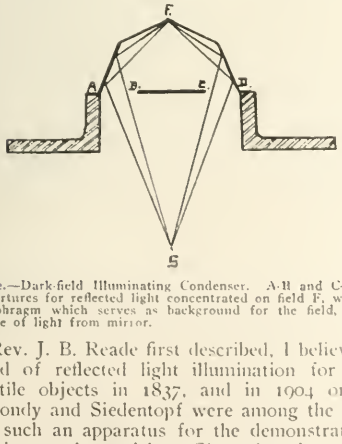

Fig. 2.—Dark-field Illuminating Condenser. A-B and C-D represent apertures for reflected light concentrated on field F, while B-C, the diaphragm which serves as background for the field, is dark: S, source of light from mirror.

The Rev. J. B. Reade first described, I believe, this method of reflected light illumination for feeble refractile objects in 1837, and in 1904 or 1905 Zsigmondy and Siedentopf were among the first to apply such an apparatus for the demonstration of ultramicroscopic particles. Since that time various European optical firms have improved and perfected the instrument, under the name, "Dunkelfeld-Spiegelkondensor."

In the ordinary Abbé condenser the principle involves the illumination of the field and object by concentration of the rays of *direct light* on the field F, as follows:

In the new dark-field illuminating condenser reflected light only is concentrated upon the object which is intensely illuminated, while the field is dark (see Fig. 2).

By this system of illumination ultramicroscopic particles, living bacteria, and organisms of feeble refractile power, such as the *Spirochæta pallida*, are more clearly defined than by any other method of examination in vogue. As mentioned above the degree of illumination depends upon the size of the diaphragm, interposed between the source of light and the object, and the intensity of the light. In the ordinary Abbé condenser (Fig. 1), the degree of direct illumination depends upon the size of the aperture A-B, while in Fig. 2, showing the condenser for indirect reflected rays, the illumination depends upon the size of the outer aperture A-B and C-D; the greater the outer aperture A-B and C-D, the greater the illumination. Conversely, the greater the inner aperture B-C, the less the reflected ray illumination.

The earlier Reichert condensers gave the inner

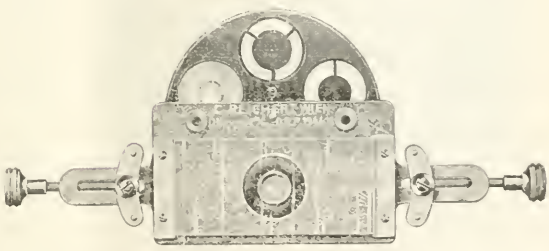

Fig. 3.—Dark Field Illuminating Condenser. Type Fb

aperture B-C a numerical value of 1.1, while the new Leitz instrument also has a value of 1.1. Such values necessarily restrict the outer aperture through which the rays of reflected light pass, making it necessary to employ for best results a source of light of comparatively greater intensity, such as the arc-lamp. Carl Reichert[6] of Vienna, in order to render the use of the instrument possible with ordinary Auer or Welsbach gas lamps, or with the Nernst electric lamp, has been able to reduce the value of the inner aperture B-C from 1.1 to 0.85. A reduction much below the value of 1.0 would allow direct rays of light to pass through, a result which would impair the utility of its purpose. The reduction from 1.1 to 0.85 increases the value of the outer aperture for reflected light, *i. e.* gives more light upon the image, and the ordinary inverted Welsbach gas light or the Nernst electric lamp (preferably the former) gives excellent results, especially if a concentrating mirror is interposed between the light and the reflecting mirror. The Nernst 32-watt lamp gives, with 110-volt direct current, about 160 candle power.

The Leitz instrument, which has a value of 1.1 for the inner aperture, gives, in my experience, excellent results in spirochete examination if a light of greater intensity, such as the arc lamp, is used. In my work I have used the Reichert Spiegel-Condenser new type, Fb, a cut of which is given below.

This can be attached to any microscope stage, and costs in Europe $20. A smaller instrument, type F (Fig. 4), is also made by Reichert, costing $10. In the use of either of these, the Abbé condenser is removed from the microscope. The large instrument, type Fb, is more convenient to use, since it has a revolving disk, which gives any numerical value for the inner aperture depending upon the size of diaphragm revolved into position, from 0.85 to 1.45, and, in addition, a ground glass disk and a small Abbé condenser which can be revolved into position instantly for examination of stained tissues or bacteria, urinary sediments, etc. The smaller instrument, type F, must be removed and the Abbé condenser put on for ordinary microscopic work, which necessitates, in ordinary laboratory routine, certain inconvenience.

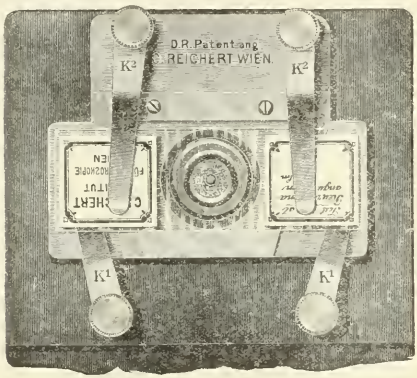

Fig. 4.—Dark Field Illuminating Condenser. Type F.

Technique.—From a suspected primary lesion a smear is made after cleansing with a cotton swab, securing, if possible, some of the serum which exudes as a result of irritation with a small curette or the platinum wire. A drop of warm salt solution is placed on a thin slide. The secretion obtained by curette or wire is mixed with the drop and a clean cover glass inverted over it. Or one of the enlarged inguinal glands is seized between the fingers and its center punctured with a hypodermic syringe, through which a drop or two of gland juice is aspirated. A smear is prepared in much the same way from a mucous patch, bulla, or condyloma latum. A drop of cedar oil is interposed between slide and condenser, not between cover glass and lens. The No. 7 Leitz dry objective with No. 3 ocular, or, as I have found best in my work, the No. 8 or No. 12 compensating ocular is used. The No. 7 objective with compensating ocular No. 12 or No. 18, while requiring more intense illumination, gives better results, since the size of the organism is at least doubled, *i. e.* a magnification equal to a combination of 1.12 oil immersion and No. 3 ocular. If the oil immersion 1.12 is to be used with the dark-field condenser, the lens should be returned to the manufacturer to be fitted with a diaphragm which has been found necessary for this work.

The spirochetes, if present, are seen as illuminated spiral-like organisms, moving in wave-like motions across the field. In some preparations they are very abundant, while in others some search is necessary to find them.

A little practice will serve in differentiating the pale spirochete from other organisms present in the specimen. In mouth lesions, tonsillar plaques, and tongue fissures one must differentiate it from *S. buccalis* and *S. dentium*. In fresh smears kept warm by allowing a little warm salt solution to flow under the edge of the cover glass from time to time, the motility of all of these forms can be preserved for an hour or two. As a rule, however, *S. pallida* loses its power of locomotion sooner than the others.

In a fresh specimen the organism is very active, the spiral windings very thin and sharp, well differentiated, and regular. The flagellum at the end of *S. pallida* is very thin in proportion to the thickness of the body, while the end of the body is thicker than in most of the other forms. The flagellum of *S. pallida* is also longer as a rule than in other forms. The characteristic spiral movement of *S. pallida* is forward and backward, and when it attaches itself to a leucocyte it remains quiet often for a considerable time, even in fresh preparations. Hoffmann has stated that the other forms attach themselves less often to cells present in the smears. At times *S. pallida* has a distinct sideway pendulum movement. It is more feebly refractive to light than the other forms commonly found, and the windings or spirals are more acutely bent. The other spirochetes met with most commonly are *S. balanitidis* and *S. refringens*.

If one is careful to cleanse the lesion with a pledget of cotton wound on an applicator before obtaining the material on a sterile platinum wire, and especially if the lesion is irritated with the wire after such cleansing, so as to secure an exudation of "irritation serum" from the deeper layers of tissue, the commoner forms of spirochetes are less seldom found. As a matter of fact, I have in the past few months examined the secretion from a considerable number of unclean mouths, from so-called "canker sores," stomatitis and lesions of the gums, pyorrhœa alveolaris, and the secretion of the glands about the glans penis, from small ulcers about the cervix and cervical lacerations, without in any instance finding an organism closely resembling the *S. pallida*. The *S. balanitidis* and *S. refringens* will more or less frequently be found in the secretion obtained from the glans penis, vulva, or vagina, but the differentiation of these organisms is not as a rule difficult.

The Early Diagnosis of Syphilis.—Hoffmann[7] has shown by inoculation experiments that *S. pallida* is present in the blood three weeks before the manifestation of the roseola. The blood of a suspect was inoculated into an ape with the result that there developed at the point of inoculation a typical papule which contained *S. pallida*.

By the time the primary lesion has developed sufficiently to become noticeable the infection has already reached the lymph channels of the skin papillæ, with free access to the larger lymph streams. In fact, at the time of the original infection, within a few hours, in all probability the organisms have reached the lymph channels of the skin papillæ. Neisser has shown by excision experiments on apes that this probably occurs within 8 or 10 hours. As Hoffmann has stated, the fact that such rapidity of lymph infection occurs speaks against any other mode of transmission than the lymph stream. The spirochete does not, so far as present experiments show, reach the blood-vessels or begin to wander through delicate capillary walls until somewhat later. Probably the first changes that result locally after the invasion of the finer lymph channels are in the form of a lymphangitis and perilymphangitis with

obstruction of lymph flow and edema. This becomes more marked throughout the incubation period, about three weeks, and during the period of development of the organism in large numbers, until finally, through the inflammatory process set up by them in the walls of the small veins and capillaries, an obstructive endophlebitis and arteriolitis results. Necrosis of the connective-tissue cells is a concomitant part of the process with an abundant emigration of lymphocytes into and about the area of infiltration. This is soon accompanied by a certain amount of hyperplasia with the new formation of delicate blood vessels, as pointed out by Ehrmann. The characteristic hardness of the initial lesion is in part due to the swelling of the surrounding lymph vessels as a result of the obstructive lymphangitis, in part as the result of edema and the filling of the tissue spaces with lymphocytes.

The swelling of the neighboring lymph glands, so far as present knowledge goes, probably is merely the result of a protective hyperplasia against the invasion of the organism and its poison, not because the glands serve as particular breeding grounds for multiplication. The neighboring glands, however, do contain *S. pallida* in large numbers, coincidental with the development of the primary lesion, and thence they find their way into the lymph circulation and, somewhat later, the blood. They reach the blood stream before the development of the so-called secondary manifestations, probably by two or three weeks. They have been found in large numbers during the very early periods of the disease in the spleen, suprarenals, and bone marrow.

The Importance of Early Diagnosis and Early Treatment.—Since we now have a method at our disposal by means of which an early diagnosis can be made from any suspicious genital, lip, or mouth lesion, it goes without saying that such a method should be utilized in every case before passing judgment as to the harmlessness of the process. Negative findings do not of necessity mean that the process is not luetic, any more than one or two negative sputum examinations for tubercle bacilli indicates that the case may not be tuberculous. Positive findings, however, at once make clear the nature of the condition, and a large percentage of primary sores, mucous patches, condylomata lata, and indurated lymph glands adjacent to the primary lesion will show *S. pallida* by the method outlined above.

Neisser, Hoffmann, and others have recommended with much wisdom the excision of the primary lesion as soon as the *S. pallida* is found, with the idea in view that at least an important focus of spread to others and to the general circulation of the patient himself will be eradicated. In view of the fact that the spread from the primary lesion to the lymph circulation takes place comparatively early in the ulcerative process of the primary sore, such excision, if practicable, should be done early. In many cases we may not be able to see that excision is carried out with the removal of a fair amount of healthy surrounding tissue. The next best thing to do will be thorough, actual cauterization, preferably under an anesthetic, followed by a mercurial ointment. Where such a procedure cannot be carried out, the use of a mercurial ointment, such as a 10 per cent. white precipitate ointment or a 10 per cent. calomel ointment, may be recommended. The patient should also be brought under the constitutional effect of mercury as soon as possible. It is no longer necessary to wait for the development of so-called secondary symptoms, since, by getting the patient as early as possible under treatment, the rapid multiplication of the organisms may be controlled and the development of secondary symptoms ameliorated.

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COLTON BUILDING.

WHY MASTOIDITIS IS SOMETIMES MISUNDERSTOOD.*

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DETROIT, MICH.

THE misunderstanding of what is generally called mastoiditis acuta is responsible for grave and sometimes fatal errors. For this misconception must be blamed, not only the hesitator, through whose wavering an easily controllable process of destruction becomes difficult, and sometimes impossible to be redressed, but also the injudicious physician who advises immediate operation in all suspected cases, advice which is promptly resented, and which is proven in many instances to conflict with the foretold outcome of the disease. Both men are conscientious and medically more or less well educated; why, then, are we confronted with such a discrepancy of opinions?

This difference of opinions must be attributed to the fact that both are right at times. Some will take no chances, and know that an operation is generally much less dangerous than perils involved by waiting. Many have the fear of the unknown and magnify in their minds the risk of a skilfully performed operation. Leaving aside, however, those fortunately rare cases of fatal outcome, even in spite of comparatively early operation, a better understanding can be reached by giving more weight to the pathophysiology of acute inflammations of the temporal bone, so far as it is known.

This pathophysiology of diseases of the temporal bone is of more recent date. Undoubtedly the rules of general surgery apply also here, but the construction of the temporal bone presents considerations of its own which are of vital importance. First of all, we must not forget that the mastoid process is only a part of the middle ear. Furthermore, as Politzer has shown, the pneumatic cells of the mastoid process contain pus in cases of purulent tympanitis. If the presence of pus in the mastoid cells would always mean an acute mastoiditis with affection of the bone itself, or if this presence of pus would always lead to serious complications or death, the whole question could be solved very easily.

Why does the presence of pus in the mastoid not always lead to serious consequences? G. Boeninghaus gives the following explanation: "In most cases this empyema heals as smoothly as the empyema of the tympanic cavity. . . . In other cases (according to Bezold, in 9 per cent.) the inflammation reaches the osseous structure of the mastoid process and destroys it. Pathologico-anatomically it is an osteitis rarefícans simplex. The periosteum

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of the osseous trabecula, the outer layer of the mucous membrane of the mastoid cavities, swells up by hyperemia and infiltration (Scheibe, 1904) to twenty times its former thickness. This inflammation progresses to the marrow through the vessel channels of the osseous trabecula, which hereby loses its fat-cells and becomes granulation tissue. The resorption of the osseous trabecula (Scheibe) now progresses from the periosteum and from the marrow in the usual manner by lacunary melting (Howship's lacunæ) with the aid of giant cells (osteoclasts). This resorption of bone is introduced and accompanied by hyperemia and infiltration of the inner mucous membrane, which points to the lumen of the mastoid cavities, and which swells up, to from forty to eighty times its thickness, to flap-like granulations, which keep their epithelium only at their bottom (Scheibe). After the osseous trabecula have been resorbed these granulations form one single mass together with the granulating bone-marrow. This may sometimes fill up the entire newly formed cavity. The melting of the corticalis proceeds also lacunarily from the periosteum, from the outer periosteum as well as from the mucoperiosteum. In the corticalis, however, we find the Sharpey's fibres (Scheibe) instead of the narrow spaces with its osteoclasts, those connective tissue fibers which penetrate from the outer periosteum into the corticalis just as in any other bone. The irritating cause which leads to osteitis seems to be only pus, which stagnates or is entirely retained in the meshwork of the cavities, because as soon as the outflow of pus is regulated by spontaneous or artificial perforation, the resorption of the bone ceases (Scheibe), contrary to what occurs in osteitis rareficans tuberculosa, and the opposition of new bone starts in the ordinary manner through osteoblasts, but only in a comparatively modest way. We have no real analogy of this osteitis of the mastoid process in the whole pathology of the osseous structures. During recent years, the short and proper term, mastoiditis acuta, has become familiar in place of osteitis rareficans simplex, and rightly displacing the older terms caries and empyema of the mastoid process, since the term caries carries with it the idea of continually progressing, tuberculous destruction of the bone, and the term empyema means only pus retention in a natural cavity, and not in a cavity created, to a great extent, through the melting of the walls."

Bezold says: "The cause of the fact that a perforation occurs and that no absorption of pus in the cells takes place must be sought for not in the nature, nor in the quantity, nor in the virulency of the pyogenic organisms, but in special anatomical conditions: superficial position of the cells, thinness and dehiscencies of their walls, and especially the pressure of single giant cells. . . . The formation of osteoclasts and their bonewrecking occupation comes to a standstill as soon as the pus is evacuated, and a layer of cells containing one large nucleus takes their place on the walls of the diseased spaces. They are the osteoblasts which at once form osteoid substance, and this later on becomes ossified all around and in the focus. At a greater distance from the focus of suppuration the occupation of the osteoblasts and the formation of osteoid tissue begin long before the evacuation of the pus. . . . The natural opening of these cavities does not occur as the surgeon dictates it, that is, exclusively toward the outside; the enlargement of the cavity takes place eccentrically in all directions."

Koerner remarks that the main difficulty consists in deciding whether we have before us a still resorbable empyema of the pneumatic cavities, or a melting process in the bone. He adds: "The later the spontaneous perforation ensues, or the later the paracentesis has been made, the greater is the probability of the co-affection of the bone. When perforations in the posterior upper quadrant have repeatedly been blocked from the inside by hypertrophy of the mucous membrane, or by granulations, so that retention of pus follows which betrays itself by pain and fever, we have to do with a co-affection of the bone. Especially suspicious are the high-situated nipple and volcano-like perforations. In profuse suppuration which does not cease in from two to four weeks, I have always found destruction in the bone. If the suppuration, however, decreases even slowly, it does not prove a co-affection of the bone, even if it lasts longer than four to six weeks. As already mentioned, many acute middle-ear suppurations show, in the beginning, swelling of the periosteum and tenderness of the mastoid process on pressure. So long as pus has not found a free outflow through the drum membrane, these phenomena only prove that the coating of the pneumatic cavities participates in the inflammation. If they do not disappear immediately after the perforation of the drum membrane and after the establishment of a free outlet, a suspicion that the bone is also affected is awakened. If they make their appearance only during the time when the outflow of pus through the drum membrane is not interfered with, the co-affection of the bone is certain."

Koerner makes the very significant remark regarding a fact which I also have observed in my practice, as no doubt all of us have, that the general condition shows an improvement when the inflammation of the ear improves. He says: "The physician who observes and treats not only the ear but also the patient can recognize hereby the progressing process in the bone before outer signs present themselves in the mastoid process."

A physician of Detroit accidentally saw, in the beginning of July, 1908, in a summer resort in Canada, Master J. C., of P., 14 years old, whose general condition appeared to him to be very bad, and he advised immediate consultation. The boy had had measles in April. Both ears were discharging in May, very freely. He had pain all over his head, which somewhat disappeared the day before he consulted me. For two days he complained of pain behind the left ear. The discharge from his ear was less in the last two weeks than it had been before. I found the mastoid very tender on pressure. On July 14, after incising the drum membrane, I opened the mastoid extensively in Harper Hospital. The dura of the posterior cranial fossa was exposed by the destructive process to a large extent; the cortex was soft, and yet this patient traveled and went to a summer resort in order to regain his health, upon advice of his physician. Recovery was prompt.

In cases of this nature the term mastoiditis may be misleading. It is apparent that a suppuration which reaches beyond the cells of the mastoid process proper cannot, and therefore should not, be called a mastoiditis. For instance, an involvement of the retrolabyrinthine cells cannot be called mastoiditis, because these cells are located in the petrous bone. Zuckerkandl (in Schwartze's Handbook) says: "Besides the pars mastoidea, also the part of the petrous bone located between the semi-

circular canals and the sulcus sigmoideus falls into projection of the pneumatic spaces. This harbors the mastoid antrum, which passes only exceptionally beyond the anterior border of said venous channel in the horizontal projection. Only that lower portion of the antrum which reaches in its descent into the mastoid process comes within the region of the sulcus sigmoideus, which is mostly surrounded by mastoid cells."

It would be correct, I think, to establish a clearer conception of the destruction by calling the affection by its proper name. A detailing nomenclature might be too lengthy, *e. g.* "tympano-mastoideo-petritis," or "tympano-mastoideo-squamitis," etc. It would simplify matters if we would call "tympanomastoiditis" a process in which the tympanum and mastoid cells alone are involved, whereas a process in which other cells than the mastoid cells participate might be called "temporitis" (from os temporale).

In connection with this question we must be aware that we must consider numerous groups of cells which are at times encountered in the temporal bone. In Escat's "Technique Oto-Laryngologique" we find an excellent tabulation of these cells. He mentions ten distinct groups, namely: 1. The zygomatic cells. 2. The cells of the tegmen tympani. 3. The cells of the squama. 4. The cells of the main body of the mastoid process. 5. The cells of the tip of the mastoid process. 6. The cells around the facial ridge. 7. The cells above the lateral sinus. 8. The cells below the lateral sinus. 9. The cells between the lateral sinus and the facial ridge; and 10, the cells toward the rear of the petrous bone. To these must be added—11, the other perilabyrinthine cells (Politzer). 12. The so-called paramastoid cells which are sometimes found —I do not think always, but sometimes very pronounced—posterior to the tip of the mastoid process, practically forming a second tip. The cells medial of the incisura mastoidea may be identical with the cellules sus-sinusales (see No. 8) mentioned by Escat. 13. The cells of the upper wall of the external canal. 14. The cells between the antrum and the meatus, near the upper posterior quadrant of the drum membrane. (A periosteitis or subperiosteal abscess of its inner-upper portion causes the pathognomonic symptom of sagging of the upper posterior wall of the canal [Koerner]. 15. The cells on the roof of the antrum. 16. The cells on the floor of the tympanic cavity. 17. The cells around the entrance of the Eustachian tube. 18 The cells on the rear of the canalis caroticus (Politzer). While not belonging to the temporal bone, we must further mention—19. Those pneumatic cells of the occipital bone which are found sometimes (according to Politzer), and which are connected with the mastoid cells (Hyrtl's pneumatic occipital bones).

Politzer gives the following résumé: "The pneumatic cell spaces originate from the mastoid antrum; they reach backwards to the sutura occipitalis, they surround the lateral sinus and the emissarium Santorini. Downward they reach the tip of the mastoid process, the inner surface, and the incisura mastoidea. Upward and forward they reach the linea temporalis and the root of the zygomatic process. They completely surround the auditory canal with the exception of the anterior lower wall. Inwardly they reach sometimes the tip of the pyramid. They frequently surround the labyrinth on all sides and are also directly adjacent to the bulb of the jugular vein, the osseous part of the Eustachian tube, and the posterior part of the canal for the carotid artery."

In connection with this schedule it may be well to remember that the fatality of some of the cases after tympanitis may be explained by the appearance of a meningitis originating from the retrolabyrinthine cells.

These retrolabyrinthine cells were the subject of a very instructive discussion in the *Verein für Chirurgen Berlins*, on Feb. 24, 1908. Passow, speaking of the cases of unsuccessful opening of the mastoid antrum, said, in part: "In acute and subacute cases of otitis which show the tendency to become chronic or to diminish the power of hearing, the subject of the opening of the antrum is generally reached smoothly if the indication is properly met, and if the operation is carried out technically correctly. Furthermore, a cure does not take place if pus is not evacuated from all cells, *i. e.* from the cells below the tympanic cavity, or in the pyramid, or in the petrous bone, or around the labyrinth. Very frequently the suppuration heals spontaneously in these, but sometimes it carries with it the gravest complications by propagation and penetration of pus into the labyrinth and into the cranial cavity." Of this Passow cites some instances in which a meningitis developed and led to death during a few hours. Therefore, he recommends looking for all diseased parts during the first operation.

Jansen said in part: "The cause of these fatalities is to be found in a deep extradural abscess emanating from retrolabyrinthine cells. Fortunately the disease process does not leap in bounds into the deeper parts. As a rule, we have before us a process proceeding *per continuitatem*."

When we furthermore take into consideration the fortunately rare cases of acute affection of the temporal bone which lead rapidly to death, we must confess that we are far from being able to give an absolutely certain prognosis in a number of instances. The element of uncertainty, however, does not allow us to preserve a hesitating attitude in doubtful cases.

Koerner makes the following statement: "When one is convinced, after considering everything that has been said about the symptoms and diagnosis, that we no longer have in the mastoid process an empyema but that the bone also is diseased, then the postponement of the operation cannot be justified. When only the probability of the affection of the osseous structures is present, it is better to operate than to wait, because the operation in these acute cases carries no other danger than that of the narcosis, provided the technical skill is sufficient, whereas hesitation not infrequently causes the death of the patient through intracranial complications."

Of course, the question of anesthesia needs careful consideration. In this connection it may be well to consider latent tuberculosis more than has been done heretofore. Perhaps we can recall in our own practice, or in the practice of our friends, one or another case in which the narcosis cannot be excluded entirely as at least a contributing cause, if not as a main factor, in producing serious consequences in this respect.

Conclusions.—1. At the present time it is impossible to reach an absolutely certain decision regarding the necessity of surgical interference in some cases of affection of the temporal bone.

2. In most cases the groups of symptoms, and in

many cases the presence of one or two marked symptoms, make surgical interference appear imperative.

3. The danger of general inhalation anesthesia in any operation, especially in persons suffering from tuberculosis, should not be forgotten. The employment of local anesthesia might be more thoroughly tested in cases in which the general anesthesia is contraindicated.

4. The temporal bone contains numerous groups of cells which may come into consideration in an affection of the same, and therefore the term "temporitis" may be a better name than "mastoiditis," which is sometimes misleading.

5. The construction of the temporal bone is such that a process can go on in the depth without betraying itself by very plain symptoms; marked symptoms may appear suddenly, and in some instances they pronounce the death sentence of the patient.

270 Woodward Avenue.

REPORT OF TWO UNUSUAL CASES OF APPENDICITIS.*

By ALEXANDER NICOLL, M.D.,

NEW YORK.

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During the past summer, in a series of 190 operative cases, 75 of which were laparotomies in which the appendix was investigated either as the pathological organ for the removal of which the operation was done, or incidentally during operative

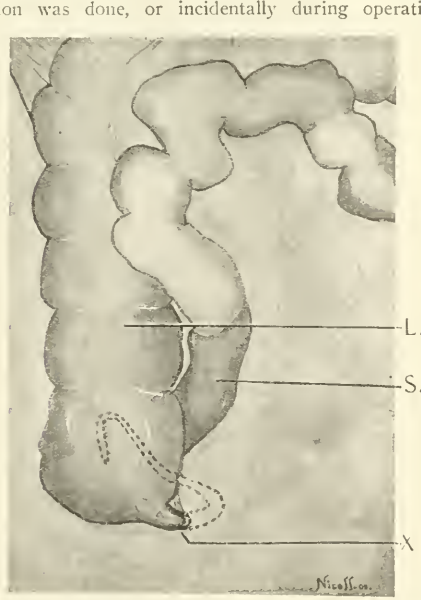

Fig. 1.—Extraperitoneal appendix; diagrammatic; L. I., large intestine; S. I., small intestine; X, point at which appendix loses peritoneal investment and turns into retroperitoneal space; dotted line represents the extraperitoneal portion of the appendix.

measures directed toward some other intraabdominal structure, two very unusual appendicular conditions were encountered which seem to me to be of sufficient rarity to justify description. The first of these cases was one in which there was severe and general infection of the peritoneal cavity, together with obstruction of the small intestine, and in spite of prompt operation the patient died of general peritonitis. The second case was not associated with any such severe infection, and the patient made a perfectly satisfactory and rapid recovery. The histories of the cases are as follows:

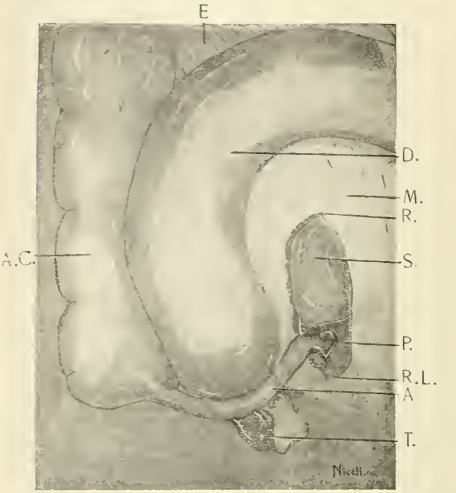

Fig. 2.—Intestinal obstruction due to constriction of small intestine by gangrenous appendix; diagrammatic; D, distended small intestine above point of obstruction; M, mesentery of small intestine; R, upper end of gap in mesentery of small intestine; S, portion of small intestine seen through gap in mesentery; P, posterior abdominal wall to which end of appendix is adherent; RL, lower end of gap in mesentery of small intestine; A, appendix surrounding loop of small intestine and constricting it; T, recurrent portion of loop of small intestine below the point of constriction by appendix; AC, ascending colon; E, posterior surface of transverse mesocolon.

Case No. 646.—The patient was a hard-working, muscular man of about twenty-seven years of age. He had had the ordinary diseases of childhood, which had left him without sequelæ of any sort. He stated that he had never had any serious abdominal trouble at any time. He had never, to his knowledge, received any severe blow upon the abdomen nor had he had any attack similar to the one which brought him to the hospital for treatment. Three days previous to admission he was seized suddenly with pain in the pit of the stomach, cramps all over the abdominal area, and vomiting. He did not recall that he had been noticeably constipated for the few days immediately preceding his attack. The most persistent feature of the first few hours of the attack was vomiting. During the two hours immediately following his seizure he had several watery movements from the bowels. The vomiting and pain continued and increased in severity, and he no longer had any movement from the bowels. Thinking that he had eaten something that disagreed with him, he took several doses of salts and followed this up with more cathartics. Enemata were given without producing any movement of the bowels, and the pain and vomiting persisted. During the next two days his symptoms persisted and grew gradually worse. On the third day he was admitted to the hospital.

On admission his temperature was 102.8°; pulse, 130, and of a distinctly peritoneal character, and respirations were rapid and typically thoracic. He

*Reported before the Society of the Alumni of St. Vincent's Hospital, October 14, 1908.

was profoundly shocked. The abdomen was greatly distended and tender. He referred his pain to the lower part of the abdomen immediately below the umbilicus, and it was in this region that the tenderness was most pronounced. The patient vomited several times while in the ward, the vomitus being bile-stained and not fecal. Enemata were given without result, not even gas being passed from the rectum. A blood-count taken just before operation showed 17,000 leucocytes to the cubic millimeter.

Operation.—The abdomen was opened in the median line below the umbilicus. Pus was found free in the lower part of the abdominal cavity and was of the thin grayish-yellow variety associated with low resistance. The small intestines bulged from the peritoneal cavity and were enormously distended, dark red in color, filled with fluid, and "meaty" in appearance. Midway between the point at which the appendix is usually located and the median line the constricted portion of the intestine was found and this constriction was produced in a most peculiar and unusual manner. The appendix, which was about four and one-half inches long and gangrenous at its distal end, extended inward and upward, encircling a loop of small intestine and constricting it; beyond the constricting portion the appendix ran through a gap in the mesentery and was adherent, at the distal extremity, to the posterior abdominal wall. (See Fig. 2.)

The gap in the mesentery was most peculiar in appearance and unlike anything I have ever seen It was not a rent but an actual loss of substance, about two and one-half inches long by an inch and one-half wide. It had more of the appearance of a wound made after death than a condition occurring in the living body as the result of trauma or disease. Incidentally there was no history of either trauma or disease in this case. The edges of the gap were slightly ragged, and neither reddened, indurated, nor bleeding. There were about it none of the signs of inflammation which might be expected from its relation to the acutely inflamed appendix. The appendix was not adherent to the mesenteric border, but was adherent to the posterior wall of the abdominal cavity.

The loop of small intestine was withdrawn from the loop of the constricting appendix without any very great difficulty, and was found to be in good condition at the point of constriction. The appendix was removed by ligature and cautery. Gauze drainage was inserted into the pelvis, in the right and left iliac fossæ, and the abdominal wound was closed with through-and-through sutures of silkworm gut. The patient's condition was such that layer suturing was out of the question. In spite of stimulation the patient did not rally, and died about ten hours after operation.

Perhaps as peculiar an appendicular condition occurred in another case with a much less severe infection. The following is a brief résumé of the case.

Case No. 999.—A woman, aged thirty, was taken with the usual signs of an acute catarrhal appendicitis and was treated by means of ice-bags, rest, etc. She came to me in the interval following her attack, and upon examination I found a point of tenderness on the right side of the abdomen half way between the site of a normally located appendix and the position of the gall-bladder. Incidentally examination by vagina disclosed a right-sided parovarian cyst. In consideration of the high location of the point of tenderness a retrocecal position of the appendix seemed probable.

Operation.—The abdomen was opened in the median line below the umbilicus in order easily to reach and to remove the pelvic cyst. The cyst was removed and a portion of cystic ovary was resected. The appendicular region was then investigated, and after some difficulty in locating the base of the appendix this was brought into view. The base of the appendix was ligated and cut through with the cautery and the mesenteriolum, which was about a quarter of an inch long, was ligated and divided. The appendix was found to be in normal position for about one-half inch of its length and then turned sharply backward, dipped through the posterior parietal peritoneum, losing its peritoneal investment, ran upward in the retrocecal areolar tissue for two inches, and then turned abruptly upon itself and ran downward and outward for an inch and one-half. In order to remove the appendix it was necessary to incise the posterior parietal peritoneum. This was done, and the appendix was drawn from its bed of fat. The small peritoneal wound was closed with fine catgut and the abdomen was closed in the usual manner with layer sutures. It was rather interesting to note that only the intraabdominal portion of the appendix was inflamed, the extraperitoneal portion being undeveloped, not inflamed, with a lumen for only a short distance, and tapering off into a solid fibrous cord. This patient made a rapid and complete recovery.

123 West Seventy-fourth Street.

GONORRHEAL CONDITIONS IN WOMEN.*

By ANDREW J. LOVE, M.D.,

NEW YORK.

In speaking to you on gonorrheal conditions in women, I shall speak with special reference to gonorrhea as a cause of mutilation and sterility in women, and as a reflection of this disease in their male consorts. Up until a few years ago gonorrhea was regarded as an entirely local disease in contrast to syphilis. The physician looked upon it with a sort of indifference. A disease to be treated if a patient presented himself for treatment, otherwise it would run its course and get well of itself. Even to-day many of the laity regard gonorrhea in no graver light than they do a "bad cold," and think that a man who hasn't had it is a tenderfoot who is to be pitied. But since the warning of Noeggerath, in 1872, and the discovery of the gonococcus, by Neisser, in 1879, and in the light of recent research, gonorrhea in all its bearings is coming to be regarded as one of the most treacherous if not the most deadly foe with which our civilization has to deal.

Prof. Janet, in his "Social Defense Against the Venereal Peril," in speaking of its frequency says, "If we compare from a social point of view the importance of gonorrhea with that of syphilis, gonorrhea is to syphilis as 100 is to 1, not only from the standpoint of the number of persons attacked, but also from the standpoint of the gravity of the lesions and their perpetuity, which to-day gives to the surgeons three-quarters of their work and conducts finally, both men and women, to sterility."

Dr. Tabor Johnson emphasizes the importance and widespread influence of the gonococcus as a factor in disease and particularly in sterility. He says, instead of its being the woman who is at fault, in nine cases out of ten of childless mar-

*Read at a meeting of the Valentine Mott Society, December 29, 1908.

riages, as was formerly believed, it is probable that the man is at fault in far the larger proportion of cases; that gonorrhea is responsible for most cases of salpingitis and for specific endometritis.

The principal difference between gonorrhea in the male and in the female is one of anatomy, and this anatomical difference is accentuated in the female genitalia by the short urethra together with the opening into the peritoneal cavity through the Fallopian tubes. The gonococcus either takes lodgment in the urethra, infecting Skene's ducts, or finds cozy corners in Bartholin's ducts and glands or in the cervical canal.

In the majority of cases that present themselves early to the physician for treatment, the disease may be arrested by confining the patient to bed, keeping the bowels open, enjoining perfect cleanliness, and swabbing out the parts with some mild antiseptic. But as a rule this is not the case. As there is more or less leucorrheal discharge in women, a mild case of gonorrhea will be mistaken for the usual discharge; or the woman, from a standpoint of false modesty, will refrain from going to the doctor until the acute stage is past. The discharge gradually subsides, all of the symptoms improve, and she takes comfort in her false security. It is several weeks or months after this that the doctor is consulted. Then the picture is entirely different, and its treatment is another story. The cocci have burrowed deeper into the cervical glands or passed higher into the cavity of the uterus, setting up a specific endometritis; or have passed through the uterine walls, invading the periuterine tissue, with abscess formation, infiltration, and agglutination; or have passed out through the Fallopian tubes, destroying the ciliary cells of these structures, or caused sacculation and abscess formation in the tubes, effectually destroying their lumen; or have attacked the ovaries with consequent cystoma, abscess, prolapse, and fixation with the partial or complete destruction of function. All cases, however, do not follow such a violent course, for there may be every degree of invalidism from a chronic endocervicitis to a complete perversion of the functions of the uterus and adnexa. Edgar reports several cases in which the disease had given no evidence of passing higher than the cervix and in that location was apparently well. These women became pregnant, and everything went well until after confinement, when an acute attack of gonorrhea lighted up with the result of infecting the body of the uterus, tubes, and ovaries. The subsequent salpingitis blocked the tubes, resulting in sterility, constituting the class known as "one child sterility" cases.

Then there are others who contract gonorrhea early in pregnancy which subsides in from four to six weeks. The woman goes on to full term without having trouble. After confinement reinfection occurs which ends in sterility. Almost all of these cases become sterile after one child, and if they become pregnant, almost, or never, go to full term. The placenta becomes infected in places where the nutrition is disturbed, or specific metritis so interferes with the circulation that the ovum is arrested in development with subsequent abortion. In the event that a child comes to full term it is, as a rule, handicapped with an inferior constitution, ekes out a miserable existence, and soon succumbs to some intercurrent malady.

It is a disputed point as to whether the gonococcus enters the pelvic cavity through the uterine walls or through the tubes. There is abundant evidence of both. The organisms are found deeply imbedded in the body of the uterus as well as in the tube itself. But whether they enter through the tubes or through the uterine walls, the end results are about the same. For both paths lead but to sterility.

In the tubes the irritation causes inflammation and infiltration. They are usually sealed at one or both ends, plastic material is poured out around the point of greatest infection, with more or less pelvic peritonitis. There have been reported a few cases of general peritonitis, but this is rare. When the gonococci become sealed up in an abscess-cavity, they soon die. In other situations, however, their virulent action on the pelvic tissues so reduces the vitality that the colon bacillus and the staphylococcus find easy entrance, giving rise to a mixed infection. These last-named bacilli spend their force and soon die, but the gonococcus imbeds itself in the tissues and goes into a sort of slumber only to be aroused by sexual excitement, overexercise, traumatism, or some other condition, reducing the vitality of these tissues. Then new areas of inflammation develop. The ovaries are often covered with inflammatory tissue, which makes ovulation either imperfect or impossible. The tubes are sacculated with pus, or are distorted in such a manner as to close up the lumen. The irritant action of the bacteria on the lining membrane of the tubes destroys the ciliary or hair-like cells and makes transmission of the ovum into the uterus impossible.

Gonorrhea is the greatest cause of sterility in both male and female; in both, it is probably a greater cause than all others combined. Noeggerath, as early as 1872, read a most prophetic paper before the American Gynecological Society on "Latent Gonorrhea," which brought down great odium on his head. He claimed that gonorrhea, in the male as well as in the female persists for life in certain sections of the organs of generation, notwithstanding its apparent cure in a great many instances. "There is a form of gonorrhea," he said, "in both sexes, called latent gonorrhea, which may infect a healthy person with either acute gonorrhea or gleet. Latent gonorrhea in the female manifests itself as acute, chronic, or recurrent perimetritis, or ovaritis, or as catarrh of certain sections of the genital organs; finally about 90 per cent. of sterile women are married to husbands who have suffered from gonorrhea either previous to or during married life." It may be contended that 90 per cent. is too high, which is probably true, but other writers, Neisser, Crolax, Gruenwald, and others, place it from 40 to 70 per cent.

A committee of seven appointed by the Society of Prophylaxis of Venereal Diseases, in this city, to investigate gonorrhea in women, reported that 30 per cent. of all married women treated by gynecologists in private practice had gonorrhea, contracted from their husbands.

It is a pathetic picture to see a sweet and virtuous young woman, who has been recently married, come with a story like this: She has been married about five months; previous to her marriage she had had no trouble with her menses, but for the last three periods she has been suffering with her genital organs, and her complaint continually gets worse. She first had a general malaise following the menses, which lasted several days. Then she had a greater and longer flow than usual and had

to remain in bed a week or more, and she is now tender over her ovaries and is suffering from an abundant leucorrhea. The story is plain, and you at once know that she has been married to a man who had gonorrhea a short time before his marriage, but the discharge having ceased and active symptoms having subsided, he thought himself cured. She looks up to him as a paragon of virtue and righteous manhood, but he leads her to a bed of disgrace and infertility, and to a life of decrepitude.

It is stated by Noeggerath that 80 per cent. of all men between the ages of 18 and 28 either now have or have had gonorrhea. It is appalling to contemplate the number of men, who marry innocent wives, and who have latent gonorrhea which they transmit to them, and both cut short their fruitfulness and make them invalids for life

It is claimed that in some individuals one attack of gonorrhea gives a greater or less immunity, a sort of vaccination, and that gonorrhea in prostitutes is the cause of their sterility. A recent investigator found that out of a number of well prostitutes, whom he examined, 30 per cent. had gonorrhea, and that out of a number who presented themselves for treatment for various illnesses 75 per cent. proved to be gonorrheic. These women usually have the disease in its latent form. They are in a sense vaccinated by the gonotoxin, so that they may cohabit with men who have the disease in a virulent form and yet do not contract it. But on the other hand, if such a woman should have intercourse with a man who has not had gonorrhea, he would contract it in all its fury. Moreover, a man who has had gonorrhea one or more times, and in whom there is an apparent cure, may not take it from a prostitute who is likewise suffering, but may convey the same to his innocent and trusting wife, whose vagina is virgin soil. This is but a part of the tragedy, for the climax is reached only when he accuses her of infidelity.

In man, too, gonorrhea is a fruitful source of sterility. Recent investigations not only prove that gonorrhea, as a disease, must stand up as a general one, that it causes inflammation of the joints, muscles, endocardium, and the like, but that in all cases in men who have bilateral epididymitis it causes them to become sterile. A married woman under such circumstances not only has a husband who is sterile, but from the same cause, transmitted to her during his early career, impregnation and childbearing for her are impossible.

According to some authorities, 75 per cent. of all women operated upon for pelvic disorders are victims of gonorrhea, and 60 per cent. of all abdominal surgery would cease if it were not for gonorrhea. It is not possible to state accurately just what per cent. of these cases are gonorrheal, because in from 30 to 40 per cent. of pus cases operated upon the pus proves to be sterile, but most abdominal surgeons are running their percentages of gonorrheal pathology in the pelvic cavity higher.

Another fruitful source of sterility is due to vulvovaginitis in little girls. Sara Welt-Kakels observed in her clinic at Mt. Sinai Hospital in ten years, from 1893 to 1903, 190 cases, being 1.6 per cent. of all children admitted. The largest number occurred in children between two and five years of age.

L. Emmet Holt reports his investigations in the New Babies' Hospital, in this city, in 1902. One case of vulvovaginitis was inadvertently admitted. In a very short time eleven cases developed, with a yellow purulent discharge and the characteristic symptoms of this stubborn disease.

It is often communicated from mother to child while sleeping together. A marked demonstration of this kind occurred in Posen, Germany, in 1870, when 236 little girls, ranging from six to fourteen years were taken ill, within fourteen days, of vulvovaginitis. They had all been bathing at a public bathhouse, and it was necessary for from two to four girls to bathe in one tub.

The gonococcus has the effect of arresting the development of the genital organs in these children, and consequently in them we find the infantile uterus, long, thin, and imperforate tubes, and ovaries that do not mature a normal ovum. These girls grow up to be women who are hopelessly sterile.

It is not here, according to Darwin's theory, the survival of the fittest, for in all these cases, both in the young married women and in the little girls, the gonococcus is plucking our sweetest flowers, and is sapping the best blood of the nations.

3440 Broadway.

TWO INTERESTING CASES.

EXTENSIVE PERITONITIS; PERFORATION OF THE RECTUM.

By James H. Stevens, M.D.,

Boston, Mass.

These two cases are believed to be worthy of report because every case of general peritonitis recovering is of interest to the surgeon, and is always open to more or less question, and the second case is interesting etiologically at least. The folds of peritoneum are many, and I confess that personally I always feel that cases of general peritonitis which recover are, in the vast majority of cases, open to doubt. Every surgeon has had a number of cases which he classes as general peritonitis in which recovery has taken place; but it seems to me that the entire question is one of what we call general peritonitis, and unless the case comes to the necropsy table I do not see how any surgeon can be absolutely certain that his case is one of actual general peritonitis. He knows that a great amount of peritoneal surface is involved; it certainly appears to him at operation a generalized condition, but the folds of peritoneum are many, and in the face of what appears a generalized process he is not prone to push into every recess of peritoneum to satisfy himself if it, too, is involved in the process.

The following case, I think, illustrates this and also illustrates what I believe to have been a great mistake in the treatment of these cases in the past, namely, the use of large quantities of salt solution to flush out the abdomen.

Case I.—A clerk, aged 48, who had never before suffered from symptoms referable to his appendix, was taken with pain in his abdomen and was seen twelve hours after the initial symptoms. The usual signs of peritonitis were present; a temperature of 103°, a rigid abdomen, constipation, etc. He was operated upon sixteen hours after the initial attack at the Elliot Hospital. The intestines were distended and covered with pus and exudate. The appendix was swollen to the size of half a fist and absolutely gangrenous. It was lightly adherent to the posterior abdominal wall, but nowhere else was there any attempt on the part of the peritoneum to wall it off by adhesions. The wound was enlarged

upward and downward to give a free opening. Pus was present outside the ascending colon and under the liver, every coil of intestine which could be seen was bathed in the same purulent exudate, and the hand carried to the left side was followed on withdrawal by quantities of pus. So far as any one could see, it was a generalized process and was considered as such by both myself and my associate. The appendix was tied off and large gauze and rubber tissue wicks were used for drainage (no tubes being used), one in the pelvis, one to the posterior abdominal wall where the appendix had been held, one running upward outside the ascending colon, and one carried to the left between the coils of intestine where usually I never place a drain. The abdomen was not washed out, the worst of the intestinal coils which presented themselves were lightly wiped with gauze, and the wound was left wide open. The patient was placed in Fowler's position. Neither one of us expected him to recover, and his convalescence was a protracted one. The entire deep fascia as far as the median line sloughed away. He developed a septic pneumonia, but recovered finally, and was discharged, and is to-day well, barring a very large abdominal hernia. It is unfortunate in this case that no culture was made, and therefore the offending organism is not known. As so many recoveries from general peritonitis, due to the pneumococcus have been reported, and especially on account of the lung complication, it is possible that this case was due to this cause, but the especially interesting features of the case to me, and the only reason for reporting it, were the rapidity and virulence of the process and the treatment without another incision and without flushing out the abdomen, together with the drainage by rubber tissue wicks inside of tubes.

Was it a general peritonitis? This simply depends on what one calls a general peritonitis and whether such a condition can be diagnosticated absolutely outside the autopsy room.

Case II.—This presents what is, at least to me, a unique cause of traumatic perforation of the rectum. The patient, a young and fleshy woman, was taking a rectal enema of oil, using a hard rubber hand syringe with a two-inch nozzle, in the semi-sitting position. She lost her balance and fell, pushing the entire syringe with the exception of the ring handle, into her rectum. The pain was excessive, but the syringe was easily withdrawn and as the patient did not find blood, following its withdrawal, she became convinced that no injury had resulted. The pain in the lower abdomen continuing she took an enema of a quart of salt water, which was partly expelled. During the night, following the accident, the pain continued; she vomited, but being so much better the following morning, she went to her work (that of a bookkeeper), but was compelled to lie down some of the day.

Twenty-four hours after the accident I was called to see her. Her temperature was 102°, her pulse 100. Her abdomen was somewhat distended, tympanitic, but with little rigidity. The pain was better, but was still present, and on vaginal examination was pronounced on lifting the cervix. She was sent to the hospital. A rectal examination, without ether, disclosed a rent in the right anterolateral wall of the rectum (knee chest position) four to four and a half inches above the sphincter. On November 23, at the Elliot Hospital, twenty-six hours after the initial injury, I opened her abdomen, disclosing the internal tear low down in the pelvis, extending between the uterorectal folds. There was a little dark blood-stained exudation in the cul-de-sac and a local peritonitis. The operation was without special interest and without special difficulty, save for the distention of bowel, due to lack of preparation, and a very fat abdominal wall. The rent was sutured and the wound drained with a cigarette drain.

On December 11, while progressing satisfactorily, she suddenly sat up in bed with a sharp pain in her left chest, and became cyanotic and dyspneic. Her respirations were 45 per minute and the pulse ran up to 160 and was barely perceptible, while edema of the lower lobe of the left lung developed rapidly. A diagnosis of probable pulmonary embolus of small extent was made and her convalescence was a long and stormy one. The drainage wound closed satisfactorily on January 7, and she was discharged on January 26, 1909.

The case seems of sufficient interest to report, on account of the manner of the injury and from the fact that a large enema was taken immediately following, without a more serious peritoneal involvement twenty-six hours after the injury.

261 Beacon Street.

Drainage of General Purulent Peritonitis in Women by Way of the Perineum.—A. Giuliani says that the dictate of surgery as to the point at which drainage should be made to be effective is that the opening should be at the most dependent point. When we drain a general peritonitis with collections of pus in the *culs-de-sac* we are doing an unsurgical thing because the pus cannot escape freely in this way. For drainage he advocates the perineal route. Here the opening is made at the most dependent point and the pus is often pushed out as if by a force from above. The chief disadvantage is the difficulty of doing this operation rapidly which is experienced by those unaccustomed to this route while the good of the patient demands a rapid operation. In men drainage should be made by way of the sacrum or parasacral region or by the lumbar region. Perineal drainage may be made by way of Douglas' *cul-de-sac* or by a combined abdominoperineal method.—*Lyons Médical.*

Traumatic Rupture of Large Intestine; Operation; Recovery.—W. H. Battle reports the case of a woman of 33 years run over by an omnibus. She was admitted to hospital and in ten hours had rallied sufficiently to be operated on. A diagnosis was made of rupture of the large intestine, with commencing inflammation along the course of the descending colon. An incision was made through the outer part of the sheath of the left rectus. Examination of the abdominal contents led to the belief that there was a rupture of the gut behind the peritoneum with a communication directly into the peritoneal cavity. A second incision was made backwards through the abdominal wall at a right angle to the primary cut just below the ribs, and further incision of the peritoneum to the outer side of the flexure gave access to a space containing soft fasces, which had escaped from a hole in the bowel the size of a penny at or below the splenic flexure of the colon; the space containing the extravasated fecal matter extended upwards into the retroperitoneal tissue behind the spleen and could hardly be cleansed, for the fecal matter was ground into the cellular tissue. The opening in the bowel was closed with interrupted silk sutures which did not enter the lumen, the torn edges being inverted. The peritoneum, which had been packed off during the treatment of the bowel, was now cleansed, and some ounces of blood-stained offensive fluid removed from the pelvis. The wound was partly closed, the peritoneum being sutured off from the parts affected by the injury, a tube was passed into the splenic region, a plug placed over the sutured portion of bowel and brought out at the posterior extremity of the transverse incision. The woman recovered after a somewhat prolonged convalescence. The author says that symptoms of rupture of the large bowel following trauma are as a rule the same as with similar conditions in the small bowel and gives some statistics concerning cases similar to his own which have been treated in St. Thomas's Hospital, to which his patient was admitted.—*British Medical Journal.*

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New York, April 17, 1909.

A NEW THEORY OF SURGICAL SHOCK.

THE value of experimental physiology as a faithful handmaid to surgical progress has been so amply demonstrated within the past few years, that it hardly needs illustrative comment. Among the many problems that have presented themselves for investigation in the laboratory, those associated with surgical shock have been among the first to challenge attention. The epoch-making researches of Crile on surgical shock are still fresh in the mind. That the last word has not yet been uttered upon the subject, is evident from the recent interesting contribution from Yandell Henderson (*American Journal of Physiology*, April 1, 1909).

As the result of a painstaking series of investigations in his laboratory at Yale, this author contributes an entirely new and original hypothesis on the causation of shock following laparotomy, and offers suggestions as to its prevention and relief. The gist of his argument is that surgical shock is the result of a diminution in the amount of carbon dioxide in the blood. This condition, which is known as acapnia, is brought about in a number of different ways. The stimulation of afferent nerves causes accelerated breathing (hyperpnea), which in turn causes a diminution in the CO_2 content in the arterial blood. Hyperpnea is also brought about by the inhalation of ether, which is a respiratory stimulant. The cessation of peristalsis, which is a well-known phenomenon following abdominal section, and which is generally regarded as a manifestation of surgical shock, is essentially the result of inhibitions. The acapnia is a factor in the central and reflex inhibition of which the splanchnics are the efferent paths. The exposure of the viscera to the air causes an exhalation of CO_2 and a local acapnia, which is a factor in the peripheral inhibition. Henderson believes that general acapnia from hyperpnea, and local acapnia from exposure are the initial causes of surgical shock after laparatomy. Furthermore, he maintains that when the loss of CO_2, both by way of the lungs and by direct exhalation, is prevented, and the blood gases are maintained at a nearly normal percentage, peristalsis can be directly observed in the stomach and in the small and large intestine.

That there is an actual loss of carbon dioxide from the surface of the exposed peritoneum, is not a mere conjecture, but has been subjected to definite volumetric determination. Thus, it has been found that the minimum rate of exhalation of CO_2 from exposed peritoneal surfaces is 0.15 to 0.20 c.c. per square centimeter, in the first half-hour. This is forty times the rate of exhalation of this same gas from the skin. That this rapid loss of carbon dioxide from the blood circulating in the peritoneal capillaries is closely associated with the intestinal torpor following abdominal section, is proved by the following fact: Exposing the abdominal viscera to a current of air at body temperature, and saturated with moisture, rapidly induces congestion, and a loss of tonus and mobility. Aeration of the viscera in this manner was an effective measure for the production of shock. On the other hand, it was found that the restoration of the body's supply of CO_2 was effective as a method of relief from all except the extreme stages of acapnial shock.

The practical bearing of these experiments is obvious. They indicate clearly that the CO_2 tension in the nerve centers and in the tissues and fluids of the body is a factor in the maintenance of tonus (in the broad sense of the word), of the same order of importance as temperature, oxygen supply, osmotic pressure, and the equilibrium of anions and cations. In the light of these investigations, one can readily perceive the importance of avoiding as much as possible the exposure of the peritoneal surfaces during operations on the abdominal cavity, which operations should, moreover, be terminated as rapidly as feasible.

THE WAR ON RATS.

THE first annual meeting of the Society for the Extermination of Vermin was held in London, on March 24, under the presidency of Sir James Chrichton Browne. It will be in the recollection of our readers, that this society was inaugurated in Great Britain rather more than a year ago, and that its object was to prevent the damage to property and the injury to health worked by the rat. It is stated that in England and Wales alone, every year rats do damage amounting to over £15,000,000. At this meeting the president enumerated some of the ways in which rats brought about death and disease: by boring communications from drains into dwellings; by gnawing through water pipes and gas pipes; by running over food with filthy, contaminated feet; by gnawing at food with filthy teeth; by causing loss of sleep and nervous trepidation; by carrying disease through the mediation of fleas. Professor Anderson, a great authority on the subject, has said that the damage done by rats in Great Britain was greater than the damage done by the cobra and tiger in India, while in India itself and in Australia it was now fully recognized that by means of rat fleas plague was propagated and that the only method of abolishing plague was to destroy the rats.

It is believed in England that rats can be stamped out as surely as leprosy and malaria have been stamped out there, and as yellow fever is being extinguished in tropical and subtropical America. The fact, however, must always be borne in mind that

the rat is no contemptible foe. It is one of the cleverest and most cunning of animals, and the manner in which it continues to evade the traps laid for it by its enemies and to live despite all the obstacles placed in its path, almost provokes admiration and pity for its fate.

The importance of the extermination of rats in India and in other places in which plague is present goes without saying. A flea is capable of holding in its stomach no less than 5,000 plague germs and as rats will carry a very large number of fleas and simply swarm in India, it can be easily understood how essential to the abolition of plague is the extermination of rats. Sufficient stress has not until recently been laid in this country on the prevention of rats landing from ships. Rather, perhaps, it might be said that enough importance is not paid to the destruction of rats on board ship. It may be a difficult, but it cannot be an impossible task to destroy rats on ships, and for all reasons of health steps should be taken to effect this object. In the latest annual report of the Public Health and Marine-Hospital Service, Surgeon-General Wyman urges an international crusade against rats on shipboard. He thinks it practically impossible to exterminate rats on land, but entirely feasible to rid the shipping of the world of them, and there is every reason to believe that his suggestion is practicable.

In Great Britain, owing in some degree to the energetic action of Mr. Rider Haggard, clubs have been formed in all parts of the country in order to destroy vermin. The results of this crusade have been exceedingly satisfactory up to the present time. A few protests have been raised against the destruction of rats by zoophil neurotics, but in the main the only objection has been in the form of doubts, in view of the magnitude of the task, regarding the feasibility of accomplishing its execution. There is room in America for the establishment of antivermin societies and clubs.

MEDICAL COMMISSIONS.

There must be something queer about the practice of medicine, or rather the practitioners of medicine, for we are repeatedly told that they are lamentably lax in their business methods and, in the same breath, that they are harpies, preying on the poor as well as the rich, and grafters of the most cunning stamp. It is without doubt true that the majority of medical men are poor financiers, subjectively and objectively; they are slow in collecting what is due them for honest work and as a necessary corollary they are often equally slow in paying what they legitimately owe. On the other hand the accusation is not infrequently made, especially against surgeons and specialists, that they are exorbitant in their charges for service and concerned more in securing prompt payment than in relieving the sick. It is natural, perhaps, that this accusation should lie rather against surgeons than internists, for the former have the appearance of doing more than the latter. The work of the mind is less tangible than that of the hand, and the workers themselves, as well as their patients, are apt to value it less highly. The management of a case of typhoid fever demands the exercise of as much mental acumen as the removal of a diseased appendix, and the anxiety of watching over such a case for days and weeks is greater and "takes it out" of the practitioner much more, but the surgeon often gets ten or twenty times the fee for his work, and it is paid promptly and with little murmur, while the general practitioner must wait long for his fee and maybe never gets it.

It is no doubt a sense of this inequality in compensation that has led to the custom of what is euphemistically called "dichotomy," or division of the fee between the surgeon and the general practitioner who has called him to operate upon his patient. It is hardly correct to call this a "custom," for we believe it is the exception, yet that it is occasionally done is certain. Where there is smoke there must be some fire, and there would not be so much discussion of the subject in the journals, in society meetings, and in private conversation did it not exist. In the abstract there is something to be said in favor of the practice, for it is analogous to what prevails in the business world where a commission is the legitimate reward to the man who brings together those who want a thing and the one who can supply it. But to those who regard the practice of medicine as something higher than pure business, a means of livelihood indeed, yet, above and beyond that, a mission for the relief of human suffering, the thought of taking what a man has paid for his life and dividing it behind closed doors with the physician whom he has trusted and whom he is also to pay for his services, is repulsive. A secret commission, even in Wall Street, is not regarded altogether with favor.

There is still another form of "graft" in the medical profession, or rather in its confines, that has recently been brought to public notice. We refer to the paying of a commission by a physician to the lay person who has sent him a patient. A prominent physician in Berlin was not long since exposed to public and professional scorn under accusation of this practice. According to a despatch to the *New York Times* he was charged by two physicians with bribing hotel porters and others to direct wealthy patients, principally foreigners, to his office. A number of other practitioners of lesser rank are under the same charge. At a meeting of the Berlin Medical Society, on March 24, the accused physician, who is president of the society, retired from office pending an investigation by a court of honor. He denied the charges and said that he merely paid the head of a Russian "institute for medical consultations" for his services as interpreter in the case of some wealthy Russian patients he had recommended, and that he gave some money to a couple of hotel "portiers," who were importunate in their demand for a commission, in order to get rid of them. We have no doubt he will be fully exonerated, but there are others in Berlin and elsewhere who, it is asserted, have a regular arrangement with hotel employees to send them patients. The accusers of Senator maintain

that the practice of paying commissions for rich patients has long been rife in the German medical profession.

This is the same in principle, of course, as the division of the fee between the family physician and the surgeon, but it seems somehow a little worse. We have never heard of its practice here and we question whether it exists, in this form at least, for here the large hotels all have physicians to whom they refer their ailing guests, and there is therefore no chance for competition and consequently no occasion for feeing the "steerer" of the suffering rich. Moreover we have not so many "fleeceable" travelers here in the shape of rich and money-spending foreigners to tempt the man of science from the path of rectitude and honor.

We cannot believe that either form of "graft" is common here or among physicians anywhere. Medical men are, as a rule, too neglectful of their material interests, and if we hear more of those who err on the side of being over solicitous in securing their just dues and more, it is because they stand out conspicuously as exceptions in a body of men concerned rather with the scientific and humane aspects of their life work than with its financial possibilities.

The Excitant of Trachoma.

The chronic inflammation of the conjunctiva, which goes by the name of trachoma and which is responsible for so many cases of partial or total blindness, has for a long time been the subject of earnest study by ophthalmologists. Its contagiousness classed it among diseases caused by parasites, but, though many microorganisms have been described as causative agents in the disease, no conclusive results have been attained. However, in the *Deutsche medizinische Wochenschrift* for March 25, 1909, Dr. Greeff presents a study of a new structure which he has found in the secretions and in the tissues of the affected conjunctivæ, and his findings go far to establish the fact of some causative relations existing between these structures and the disease. He has found, namely, that conjunctival cells and secretions in trachoma harbor a great many small rounded organisms, that are smaller than the smallest cocci known at present, that stain with difficulty by the Giemsa method, and that appear to be surrounded, when gathered into groups, by a distinct capsule. The mere finding of such structures would not, of course, establish their connection with trachoma. Greeff, however, has studied a great number of other diseases of the conjunctiva without ever finding any structures similar to the "trachoma corpuscles"; moreover, his pupils have succeeded in demonstrating the organisms in patients in various parts of the world. In addition, Halberstädter and Prowazek, working independently in Java, have discovered organisms in the diseased conjunctivæ of trachoma patients, that answer Greeff's descriptions of his structures. Greeff warns other workers of the difficulties with which the demonstration of these structures is surrounded, because of their small size and peculiar staining relations. Negative results, therefore, must not be considered as disproving his findings, at first, for training in looking for the "trachoma corpuscles" is necessary before they are easily found. As he gives, however, all the methods which have proved successful in his hands, and presents good pictures of the organisms, as well, control investigations by other workers may be expected to appear in a short time.

The Inhalation Treatment of Tuberculosis.

In medicine, as in other phases of human activity, we are apt to think that what is is best, and that old and practically abandoned methods must necessarily be useless. This belief prevails in spite of the teachings of history and with every swing of the pendulum or tilt of the seesaw we seem to be in the right place and the region whence we came and to which we are pretty certain to return looks from the distance darkened with the mists of error. The present method of treatment of tuberculosis by fresh air and rest and feeding seems rational and effective, and, so far as fresh air is concerned, it is without any doubt a great advance over the old-time method of living in close rooms carefully shielded from the night air and from any suspicion of draught. It is questionable, however, whether we have not swung too far from chemotherapy. We have done well to banish the sweet and nauseous cough mixtures which dammed back the secretions that do harm by their retention and which took away the little relish for food that remained, but we have become perhaps too pessimistic regarding the value of certain drugs that may repress if they do not kill the tubercle bacilli and pus germs which the unaided organism is powerless to combat. Creosote, for example, was at one time regarded with much favor in the treatment of pulmonary and laryngeal tuberculosis, and it still has its advocates. Beverley Robinson, writing in *American Medicine* for March, renews his plea for this remedy given internally and by inhalation, and contends that by its use the disease may often be arrested, even when a definite cure is not achieved. This drug can be employed in the ways suggested without interfering with the modern open-air methods, and when we consider the numerous failures of the latter in all but incipient cases it does not seem wise to reject altogether what many experienced physicians of the old school regarded and still regard as almost specific in tuberculosis of the respiratory organs.

Dr. Atkinson.

The older members of the American Medical Association will recall with affection Dr. William B. Atkinson who was for many years their active and untiring secretary—a man of most kindly and genial disposition and one of unfailing courtesy to all, never puffed up with a sense of the dignity of his office and ever ready to lend a willing ear to any member who had a question to ask or a misunderstanding to be settled. In a recent issue of the *Medical Standard* it is stated that this good man is now living at an advanced age (he is 77 years old) and in comparative poverty, and the suggestion is made that the Association grant him a pension of one hundred dollars a month. He served the Association faithfully and to the best of his ability, giving to it a great part of many of his best years, receiving an insignificant salary and few thanks from those at whose service he was. We agree with our contemporary that it would be a graceful act on the part of the Association to vote him a pension

"in recognition of the services he rendered during the many lean years when his personal influence meant much to the struggling Association," and we venture to assert that nothing which the House of Delegates may do at the Atlantic City meeting would receive more hearty approval of all the voiceless members than the granting of a pension to this beloved ex-secretary.

News of the Week.

The Care of School Children.—Acting on suggestions made by Dr. Henry D. Abbott, recently appointed medical inspector of the Bayonne (N. J.) public schools, the Board of Education of the city will install in each school scales for the measuring and weighing of all pupils at stated intervals. A card system will be introduced upon which the records of the pupils will be kept. Dr. Abbott has also advised the Board to abolish the practice of dusting with feather dusters, and to insist that soft damp cloths be used.

Inspection of Babies.—The Bureau of Child Hygiene of the Department of Health, beginning on April 15, will on the receipt of a birth certificate send one of its nurses to the home in which the child was born. The work is under the auspices of the Conference on the Summer Care of Babies, which represents various public and private agencies cooperating in the work.

Junior Sea Breeze.—The Association for Improving the Condition of the Poor announces that the summer camp for babies on the grounds adjoining the Rockefeller Institute will be reopened next month for the fourth season, with a considerable increase in the accommodations.

Public Health Law Amended.—Governor Hughes has recently signed a bill amending the public health law relative to the establishment of hospitals and camps for the treatment of pulmonary tuberculosis. The law requires persons, associations, or municipalities proposing to establish such an institution to file a petition with the State Commissioner of Health. The Commissioner and the local health officer are authorized to approve or disapprove the plan. In case of a deadlock, the matter may be submitted to another board composed of the Lieutenant-Governor, the Speaker of the Assembly, and the Commissioner of Health. Under the previous law the location of such institutions was in the discretion of the Board of Supervisors.

Tuberculosis Day and Night Camps.—The Boston Association for the Relief and Control of Tuberculosis has received a gift of nineteen acres of land in West Roxbury from Mr. J. M. Prendergast. The land will be used for day camps for tuberculous women, and for night camps for men suffering from the disease but still able to work during the day.

Venezuela Quarantine Over.—For the first time since the outbreak of bubonic plague in Venezuela last year, the quarantine in New York against ports of that country was lifted on April 6, with the arrival of the steamship *Philadelphia* from La Guayra.

Civil Service Examinations.—The New York State Civil Service Commission will hold examinations on May 1, 1909, for the following positions: Assistant bacteriologist to the State Department of Health, at a salary of $1,500; assistant physician to the Rome State Custodial Asylum, at a salary of $000, with maintenance. Applications must be filed on or before April 24, on blanks which may be obtained on application to the State Civil Service Commission, Albany, N. Y. The Commission requests that a postal card be used in applying for blank forms.

Better Ambulance Service.—A conference of various city officials was called at the Mayor's office recently, to consider the improvement of the ambulance service in New York. It was decided that this could be best accomplished by the passage of the Newcomb-Robinson bill, which is now before the Legislature, providing for a general Ambulance Board, and every effort will be made to urge this. In the meantime the Trustees of Bellevue and Allied Hospitals have decided to establish a temporary ambulance station somewhere on the upper west side to provide for the immediate relief of the district formerly covered by the ambulance service of the Roosevelt Hospital.

Disease in Free Lunches.—Dr. William H. Heath, pure food inspector of the Buffalo Department of Health, says that many cases of diseases of the throat and mouth can be traced to the free lunch counters, where the forks and knives are repeatedly used with only slight rinsings. He declares that the saloon keepers must stop serving free lunches or else provide a clean service for each person.

The Editorship of "The Lancet."—Dr. Squire Sprigge, who has been chief of the editorial staff of *The Lancet* for fifteen years, has been formally appointed editor.

Dr. William A. Dunn of Boston, Mass., has been honored by Pope Pius X, who has conferred upon him the order of knight commander of the Order of Gregory the Great.

Dr. William Henry Howell, professor of physiology and dean of the faculty of the Johns Hopkins Medical School, will deliver the anniversary lecture before the Yale Medical School at the commencement in June.

State Board of Examiners in Osteopathy.—The Legislature of Nebraska has recently passed a law providing for the establishment of a State board of examiners in osteopathy. The use of drugs in the treatment of patients by doctors of osteopathy is prohibited.

The International Medical Congress.—Dr. J. H. Musser writes that he has received a letter from the Secretary-General of the International Medical Congress, to the effect that authors of communications have time to send in their papers until May 15, and if they are not able to prepare them by that date, they may be presented at the time of the Congress, with the understanding that such communications will be published in the second volume of the Congress Reports.

The Alabama State Medical Association will hold its annual meeting in Birmingham on April 20.

The New London (Conn.) Medical Association held its 118th annual meeting at Norwich, on April 1. The following officers were elected for the ensuing year: *President,* Dr. George H. Jennings of Jewett City; *Vice-president,* Dr. Patrick J. Cassidy of Norwich; *Clerk,* Dr. Edward C. Chipman of New London; *Councillor,* Dr. Edward P. Brewer of Norwich; *Censor,* Dr. Charles F. Brayton of Stonington.

The Brown-Redwood (Minn.) Medical Society, at its annual meeting on March 31, at New Ulm,

elected the following officers: *President,* Dr. F. A. Gray of Vesta; *Vice-President,* Dr. J. L. Adams of Morgan; *Secretary and Treasurer,* W. A. Brand of Redwood Falls; *Censor for three years,* Dr. G. R. Pease of Redwood Falls; *Delegate to the State Meeting at Winona in June,* Dr. G. F. Reineke.

The St. Clair County (Mo.) Medical Society, at its annual meeting at Belleville, on April 1, elected the following officers for the ensuing year: *President,* Dr. W. S. Wiatt, East St. Louis; *Vice-President,* Dr. George Hilgard, Belleville; *Secretary,* Dr. E. W. Lane, Edgemont; *Treasurer,* Dr. Adolph Hansing, Belleville; *Delegate to State Medical Society,* Dr. A. B. Gunn, Belleville.

Dust and Consumption.—It is stated in a recent bulletin of the Bureau of Labor that 14.8 per cent. of all deaths of males over 15 years of age in the United States are from consumption. The percentage of deaths from this disease among men engaged in dusty occupations ranges from 24.8 per cent. for those exposed to vegetable fiber dust to 36.9 per cent. for those exposed to metallic dust. Those showing the highest consumption mortality are grinders, among whom 49.2 per cent. of all deaths are from that disease.

The Late Dr. Murray.—At a meeting of the Society of Alumni of Bellevue Hospital, held April 7, 1909, the following minute and resolutions were adopted: It becomes the painful duty of your Committee to record the death of our colleague, Dr. Robert A. Murray, on February 27, 1909. Robert Alexander Murray was born, of Scotch ancestry, in this city fifty-seven years ago last January. He took the degree of Bachelor of Sciences at the College of the City of New York in 1871 and that of Doctor of Medicine in the New York University Medical College in 1873, and in the same year became an interne in Bellevue Hospital, serving on the second medical division. He was Visiting Physician to the Northwestern Dispensary, diseases of women, 1876-1883; Visiting Physician to the Workhouse and Almshouse Hospitals, 1880-1884; Visiting Obstetrician to the Maternity Hospital, Blackwell's Island, 1884-1895; Assistant Professor of Obstetrics, New York University Medical College, 1876-1886. At the time of his death he was Associate Obstetrician to the French Hospital, and Assistant Visiting Surgeon to the Woman's Hospital. He was a member of the American Medical Association; the Congress of American Physicians and Surgeons; the American Gynecological Society, as well as many local medical societies. He had been President of the Obstetrical, Medico-Surgical, and Northwestern Medical and Surgical Societies, Chairman of the Section on Obstetrics of the Academy of Medicine, a vice-president and acting president of the County Medical Society, and at the time of his death he was President of the Society of Medical Jurisprudence for 1909.

As a regular attendant at our meetings the wide range of his professional experience gave dignity to his participation in discussion, while his happy disposition endeared him to all. Above all he belonged to the type of physician fast disappearing, the "family doctor," and as the "family doctor" he became a martyr to his conscientious regard for his professional duty. Stricken with pleuropneumonia he was fifteen hours later forcibly taken from the bedside of a toxemic woman to his home and to the bed from which he never arose. Thus he was faithful to the end, for saith the Divine Physician: "Greater love hath no man than this, that he lay down his life for his friend."

Your Committee also presents the following preamble and resolutions:

Whereas it has pleased Almighty God to remove from the sphere of his earthly usefulness our colleague, Dr. Robert Alexander Murray; therefore

Resolved, that we note our sincere sorrow for the great loss we have sustained, that we appreciate fully his genial and attractive personality and his high and conscientious character.

Resolved, that we extend to the members of his family our heartfelt sympathy and sincere condolences in this their hour of grief and sorrow.

Resolved, that this memorial, and this preamble and resolutions be spread in full upon the minutes of this society, that a copy be sent to each of the two local medical journals for publication, and to the family of our deceased colleague.

(Signed) Richard Kalish, Edward D. Fisher, Committee.

Obituary Notes.—Dr. Robert Crane of Waterbury, Conn., died at the home of his son, Dr. A. A. Crane, on March 31, aged 88 years. Dr. Crane was graduated from the Yale Medical School in the class of 1847, and had practised in New Haven for nearly thirty years.

Dr. Charles J. Leclair of Danielson, Conn., died on April 1, of pernicious anemia, after an illness of three months. He was a graduate of Victoria University, Class of 1887, and a member of the Connecticut State Medical Society and of the Windham County Medical Association, having been president of the latter for two years.

Dr. Andrew B. Gorham of Wilton, Conn., died at his home of heart disease on March 30, aged 58 years. Dr. Gorham was graduated from the Yale Medical School in 1879, and had practised continuously in Wilton for thirty years. He was a member of the Connecticut State Medical Society.

Dr. Robert Eleazer Ensign of Berlin, Conn., died suddenly at his home on March 30, aged 75 years. Dr. Ensign was graduated from the Albany Medical College in 1857. He was consulting physician to the New Britain Hospital, and a member of the Connecticut State Medical Society. During the Civil War he served in the Sixth Connecticut Regiment.

Dr. Hugh J. De Ver of Waterbury, Conn., died suddenly of apoplexy, on April 9, aged 60 years. Dr. De Ver was born in Ireland and was educated at the University of Dublin and the University of Glasgow, receiving his medical degree from the latter in 1875.

Dr. Harry Ogden Fairweather of Troy, N. Y., died on April 8, as the result of a fracture of the skull while he was fighting a fire a few days before. Dr. Fairweather was graduated from the Albany Medical College, in 1896, and was an attending physician to the Troy Hospital. He was a captain in the Hospital Corps Department of the Second Regiment, N. G. S. N. Y., and a member of the Association of Military Surgeons of the United States.

Dr. Luigi Galvani Doane of New York died on April 4 in the house in this city in which he was born fifty-nine years ago. Dr. Doane was graduated from the medical department of the University of Michigan in 1871, and practised in this city until failing health compelled his retirement some years ago.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

X-RAY CANCER—HUNTERIAN LECTURE—TREATMENT OF ASTHMA —CHARITIES' COMMISSION—AMBULANCE SERVICE—SLEEPING SICKNESS—SURGICAL CONVALESCENT HOSPITAL—OBITUARY.

London, March 26, 1909.

Professor Cecil W. Rowntree of the Middlesex Hospital cancer research laboratories delivered a Hunterian lecture at the Royal College of Surgeons on the 17th inst. on *x*-ray carcinoma and an experimental inquiry into the conditions which precede its onset. Of the eleven cases that have occurred in this country, there has been one malignant, an abstract of which would illustrate what may happen in all. This one shows what may happen in the absence of early surgical interference. When first operated on he had been working with the rays for some years and had had severe dermatitis. For eighteen months he had had a growth involving a whole finger, irregularly lobulated, ulcerating, very foul. Skin on back of hand thin, atrophic, and there were numbers of pigmented warts. No enlarged glands. Amputation was done through the proximal end of the metacarpal bone in 1905. The hands remained stationary for some time, but severe dermatitis developed on the chin and on the part of the chest where the waistcoat was open. Last month the patient came again, with growths on the other hand, the first finger having sloughed off, and the second and third involved. On the chin an extensive growth, apparently cancerous. The second and third fingers with corresponding metacarpal bones were removed. No operation on the chin at present. Microscopic section of the first growth shows that it infiltrated surrounding structures and invaded blood-vessels in the manner of malignant growths. The second growth on the opposite hand had nothing to distinguish it from squamous carcinoma. This has long been thought to be connected with chronic irritation and the question arises whether the *x*-rays may be so classed or have a special action disposing epithelium to malignant degeneration. On this Professor Rowntree drew attention to the fact that *x*-ray cases are multiple, other cases almost always single. The resemblance of *x*-ray dermatitis, he said, to xerodermia pigmentosa had been noticed from an early period, and this resemblance is the more striking from the cases of xerodermia in which carcinomata has supervened. The *x*-ray cancer is generally of a low degree of malignancy and therefore the lecturer considered it probable that, instead of amputation, simple excision of the growth might be safely carried out before the ordinary appearances of cancer have been attained. But microscopic examination might show that when the naked eye did not.

The lecturer next gave a description of the results obtained by exposing mice, rats, and rabbits to *x*-rays for various periods and then to the effects of the rays on a nonvital part of these animals—their tails and ears. Sections of the skin of rats' tails showed three distinct regions: (a) The ventral surface unaffected, (b) dorsal surface destructive change, (c) the sides hypertrophied. More striking still were the results on the ears of rabbits, which are thinner than the rats' tails, and penetration occurred on the unexposed surface, which was more hypertrophied than the sides of the rats' tails.

The effects differed from those of ordinary irritants in that the *x*-rays showed a selective action, and, further, they influenced nutrition long after the exposure Moreover, they had a distinctly stimulant action. Having compared these results with those of other observers, the lecturer said the stimulant action had scarcely received sufficient attention. To it we might ascribe the epithelial and wart formation produced by small doses, as seen in the hands of workers, for the coat and shirt sleeves would be poor protection against large doses and only extreme care could prevent the hands of workers getting small doses. But more than the stimulus of epithelial tissues may occur. Probably there were two essential conditions for the formation of a squamous carcinoma: (1) The presence of a mass of cells capable of multiphiature; (2) a surrounding area of connective tissue in such a condition as to be vulnerable to epithelial invasion. These conditions seemed to obtain.

In regard to treating cancer with *x*-rays, all observers agree that it is only in very superficial conditions that amelioration can be expected. Of all malignant growths rodent cancer is most superficial. Only in that have good results been seen, and even in that discordant. In some the tumor disappeared after two or three exposures, in others healing and breaking out again, in others not healing at all. Possibly in some the dose has been too large and something like an *x*-ray burn produced; in others perhaps the dose was just enough to induce the retrogression of the superficial parts, while in the deeper parts it stimulated to greater activity.

The Therapeutical Section (Royal Medical Society) has held a discussion on "The Treatment of Spasmodic Asthma." It was opened by Dr. R. C. B. Wall, who remarked on the part which theory played in suggesting remedies, though it had produced little agreement, except in the opinion that during an attack there was diminished calibre of the bronchial tubes, and this probably through some influence on the central nervous system. But he acknowledged that the work of Brodie and Dixon supported the hypothesis of muscular spasm. Professor Dixon, who was present, subsequently showed tracings indicating diminished volume of the lungs, produced by stimulating the organs of a cat, and said a like result followed reflexly stimulation of nasal mucous membrane. The professor further illustrated the action of drugs which inhibited spasm, and said to produce asthmatic attacks two things were necessary—a neurotic inedulla and a peripheral stimulus. To return to Dr. Wall's paper, he said prophylaxis attempted to hinder the passage of nervous impulses to the lungs or prevent their origin in the center. Symptomatic treatment was directed toward widening the bronchioles, as by removing turgescence of their lining, or to relaxing the tone of their muscles. Environment as to temperature and climate was to be considered. He observed nasal defects in twenty-three cases; in fourteen of these treatment directed to this had been followed by great improvement, but in not one by a cure. Of drugs, he found potassium iodide, arsenic, and stramoniam most useful. Of the last he preferred the extract in smaller doses than the B. P. named. Toxic symptoms often occurred with three-quarters of a grain in twenty-four hours. Morphia was valuable, but there was danger of its leading to narcomania. Nitrites, atropine, and other drugs were useful in some cases.

Dr. A. F. Hertz, from personal experience, said the determined exercise of the will would sometimes prevent an attack. He had diminished one by resolute persistence in mental work. If a patient expected an attack it would come. Asthmatics should avoid places where they had had them. Dr. Spriggs had notes of forty cases and said patients who were quite free between attacks were hopeful, but those which only subsided into a chronic dyspneic state were very difficult. He had seen strict attention to diet and regimen give excellent results. Nasal treatment might do good or the reverse. In one case a series of most severe attacks were set up by removal of a polypus. He had had good results from injecting 1/100 of a grain of atropine and repeating in an hour if necessary. He uses this and amyl nitrite most often, except perhaps chloroform and morphia. If amyl produced relief, the patient should keep quiet and if possible sleep; on waking the worst would be over. Dr. Carmalt-Jones said that working in Sir A. Wright's laboratory he had isolated an organism and had prepared a serum which allayed dyspnea. Dr. Duncanson strongly recommended breathing exercises, especially in young patients.

The report of the Charity Commissioners was issued as a bluebook on Wednesday. It contains a record of unreported and new charities and returns of accounts of charitable institutions, trusts, etc. In reference to old-age pensions, questions of great importance have been raised and the advice of the commissioners sought. Trustees of charities wishing to benefit the largest number of people in need have sometimes desired to reduce the stipends of their pensioners and almspeople who have become entitled to the old-age pensions and apply the money saved to assist further persons in need.

The report of the committee on the ambulance service appointed by the Home Secretary states that the present system is greatly defective. They do not like the wheeled litter and would welcome the supersession by a rapid ambulance of all other modes of conveyance. They think the system organized by the asylums board for infectious cases might well be adopted for accidents and noninfectious cases. Small stations

should be established throughout the metropolis at which rapid ambulances, preferably motor, should be kept, and if possible a police officer trained for first aid who could accompany it in most cases. As to dealing with cases on the spot, whether accident or sudden illness, the report quotes the evidence of Sir Wm. Church that the experience of St. Bartholomew's Hospital was that the "first aid administered by the city police is excellent." Though that of the metropolitan force was not quite equal, "it was not bad," and with practice and help no doubt would rapidly improve. This the committee think would fit them for the new responsibilities proposed to place on them.

From the ninth report of the Royal Society's commission on sleeping sickness a further note may interest you. I have previously mentioned the importance of the fact that the regions where the tsetse is found are more restricted than was supposed and that success has attended the compulsory removal of the inhabitants to other localities. But then the habits of the natives render it so difficult to isolate any part as to render prevention almost impracticable. In order to secure the cooperation of the natives it is necessary to supply them with information and the assurance that there is no reason for their fatalism. For this purpose an address has been prepared in the native languages, the circulation of which among the more educated may bring about their cooperation, without which the task of exterminating the disease seems hopeless. Some of the chiefs have been impressed and have assisted somewhat in the removals from infected districts which have already been carried out. With compensation for the losses incurred, the natives will learn that their good is intended.

The project to establish a hospital in the country for surgical convalescents discharged from London hospitals is supported by many leading surgeons and is pretty certain to be carried out, as it is interesting the royal family and approved by the King. A trust deed has been adopted which binds the promoters not to purchase a house or site until they have in hand a sum producing from £900 to £1,200 a year to set the institution going. It is thought that many patients may be sent out earlier to such a hospital, where their unhealed wounds can be dressed with skill and they will have the advantage of fresh air.

The death is announced of Dr. James Hamilton Stirling, the eminent writer on philosophical subjects, who was educated for the profession and in early life held appointments as surgeon to iron and coal works in South Wales. He was a Glasgow citizen, born there in 1820, and studied at the university and afterward in France and Germany. In 1851 he gave up medical practice and devoted himself to literature and philosophy. In 1888 he was Gifford lecturer at the Edinburgh University, by which as well as by that of Glasgow he was made LL.D. Among his works may be mentioned the "Text-Book to Kant," the "Secret of Hegel," "Of Philosophy in the Poets," and his work on Hamilton and the philosophy of perception.

News has been received from India of the death at Cawnpore of Major J. S. Edye, R.A.M.C., at the early age of 45. He had served in the South African war, receiving the Queen's Medal with four clasps.

Deputy Surgeon-General Richard Hungerford died on the 19th of March in his seventy-fifth year. He took part in the Crimean campaign and was present at the siege of Sebastopol, receiving the medal and clasp as well as the Turkish Medal. Afterward he served through the Indian mutiny, being present at the storming of Mecangunge and the siege and capture of Lucknow, and received the medal with clasp for the campaign.

Dr. Charles Coates, F.R.C.P., of Bath died on Tuesday at the age of 83. He graduated M.D. at Edinburgh in 1857. He was consulting physician to the Royal United Hospital and had been long on the staff of the Mineral Water Hospital at Bath.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

THE MODE OF ACTION OF FULGURATION ON CANCEROUS TUMORS —THE LUYS PROCTOSCOPE—HUMAN OVARIAN GRAFTS—HOT AIR IN THE TREATMENT OF DIABETIC GANGRENE.

PARIS, March 25, 1909.

THE mode of action of fulguration upon cancerous tumors has been studied by Zimmern. Among the phenomena observed after fulguration of malignant tumors by the Keating-Hart method, one especially strikes the attention. This is the remarkable activity of the process of repair, the rapidity of closure, and the perfection of the cicatrix. The repair of the primary cancer tissue comes about by the production of abundant fibrous tissue. At the bottom of the fulgurated wound appears, first, after the fall of the eschar, supple, elastic granulation of a rose color. At the same time there occurs a reconstruction, a rapid centripetal development, which indicates a true reaction of the connective tissue under the influence of the current. To sum it up, the current of high frequency has the remarkable property of powerfully exciting the process of fibrosis. The current is essentially a precious auxiliary in surgery in torpid and malignant wounds. Since it increases the chances of rapid cicatrization, it permits of extended operations which formerly were impossible.

Pozzi also has observed the considerable cicatrizing power of fulguration. He advises the use of fulguration in two cases: First, when it is possible to remove the tumor entire; second, when a complete operation is impossible. In cases of small, easily removable tumors which allow of an operation extending well beyond their limits extirpation is preferable.

Pierre Fredet, in an interesting article on this subject, shows that we cannot as yet say that fulguration will cure cancer. It is only a palliative method, but one which is of great utility. For the present the best treatment for cancer continues to be broad and early extirpation. An early diagnosis, no hesitation, and no half-measures is the formula of the hour.

At a recent meeting of the Surgical Society Pierre Delbet presented a new proctoscope designed by Luys, which differs essentially from other similar instruments in that it is furnished in its interior with a special tube, fastened to one of its walls, which terminates at the external end of the instrument by an adjustment to which can be attached a rubber tube, which itself may be attached to an aspirating apparatus. The light is obtained from a minute electric lamp mounted on a long stem, which lights the interior extremity of the proctoscope. The great advantage of this instrument is that fecal matter never obstructs the view. If the feces are liquid they may be aspirated by the water tube; if they are semi-solid a jet of water is thrown in and aspiration then removes the feces softened by the water. Everyone who has practised proctoscopy knows how much the examination can be delayed by the presence of feces, and how slow and difficult it is to remove them with tampons manipulated at the end of long forceps. The changes made in this instrument are such as to render true service to the operator.

Quénu and Sauvé have recently recalled the importance of the internal ovarian secretion. It has a double rôle: A genital action, which begins with the fecundation of the ovule, and a general action, which appears to be synergic to the thyroid secretion, and the suppression of which causes the production artificially of the troubles which generally characterize the menopause. The preservation of the ovaries should be attempted whenever, in the course of a surgical operation, the surgeon finds himself obliged to remove the patient's ovaries by attempting to graft the removed ovary upon an appropriate site. Quénu has observed a human ovarian graft made ten months before in a woman of twenty-five years, who had undergone a bilateral castration for salpingitis. The ovarian graft was made on the skin of the abdomen, but it had not prevented the patient from suffering all the symptoms of ovarian insufficiency. On removing the grafted ovary Quénu found by histological examination that the mass taken away was formed entirely of connective and adipose tissues, with no trace of interstitial cells. The tissue of the ovary was completely degenerated. Mauclaire has attempted to graft ovaries subcutaneously at least twenty times. The results obtained have not been very encouraging. He believes that if the results are so often negative it is because the ovaries are insufficiently vascularized. Tuffier has made forty-seven ovarian grafts. In his early grafts he implanted the ovary between the folds of the broad ligament, but soon abandoned this procedure in favor of subcutaneous grafts. He found that when the graft took it always remained somewhat sensitive to pressure. Some patients had noticed at times a swelling of the graft without redness, sometimes reaching the size of a mandarin, but without any periodicity similar to menstruation. Menstruation never reappeared

and all the patients experienced the habitual troubles of the operative menopause.

Ricard presented at the same meeting five patients attacked by diabetic gangrene, who had been treated by hot air and cured. This is not a true cure, but an arrest of the evolution of the gangrene, for, properly speaking, there is no cure for gangrene; all the dead tissue is truly dead, and we know no way of giving life again to a tissue that has ceased to live. In the treatment of diabetic gangrene two things are necessary: First, the dead tissues are dried and carbonized; second, an active hyperemia is produced by projecting on the edges of the healthy tissues a douche of hot air at 60°-80° C. (140°-176° F.). We then see the tissues swell, grow red, granulations appear, the eschars are separated, and the process of cicatrization begins.

Delbet believes that infection plays an important rôle in the production of diabetic gangrene. This begins with lymphangitis, which easily becomes gangrenous in the sugar-containing tissues. Hot air acts especially by its antiseptic qualities. It arrests the gangrene by arresting the infection. Tuffier believes that superheated air between 50° and 120° C. (122° and 248° F.) finds its application as a treatment for diabetic gangrene from (1) the caustic action of the hot air douche, an excitant which stimulates cicatrization very rapidly; (2) as the bath of superheated air. It causes a hyperactivity throughout all the superheated zone, which diminishes the chances of invasion of the tissues by gangrene and helps cicatrization.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

MEETING OF THE PHILIPPINE ISLANDS MEDICAL ASSOCIATION.—REACTION OF CULTURE MEDIA IN RELATION TO THE MORPHOLOGY OF THE CHOLERA ORGANISM—CLINICAL FEATURES OF TROPICAL DISEASES—ACCOUNT OF THE TUBERCULOSIS CONGRESS—BACTERIAL VACCINATIONS—BERIBERI.

MANILA, P. I., February 26, 1909.

The fifth annual meeting of the Philippine Islands Medical Association took place in the Philippine Medical School Building, and the first session was held at 4 P.M., February 10. Addresses were made by His Excellency, the Governor General, and by the president of the association. The latter dwelt particularly upon the importance of the question of tuberculosis in the Philippine Islands.

The first scientific session was begun at 10 A.M., February 11. Papers were read by Dr. Henry E. Ruediger, entitled "Filtration Experiments on the Virus of Rinderpest with Chamberland Filter 'F,'" and by Dr. Y. K. Ohno, entitled "The Reaction of Culture Media in Relation to the Morphology of the Cholera Organism." In view of the constant presence of cholera in the Philippine Islands, this latter paper was of considerable interest, especially as the author has apparently shown that the form of the cholera organism can be varied, depending upon the class of media upon which it is grown. For instance, in peptone solutions of acid reaction the vibrios lose their spiral character and form a rod, while in strong alkaline media they shorten and appear as ovals or even spheroids. These observations were made with strains which had been kept in the laboratory for some time. In the dejecta of cholera patients which came to the laboratory for examination, the differences in form of the cholera organisms noted above were also found, depending upon the reaction of the stool. Dr. Ohno stated that at this time he was not prepared to report upon the character of the cholera vibrio found in vibrio carriers, but that his observations to date show that of seven vibrio carriers, in five of them the serum agglutinated the strain moderately, while two others had very low agglutinative value without showing any symptoms of the disease at a later date. From this result he concludes that there must be a local immunity in the intestinal wall which is different from the humoral immunity of Wassermann and Citron.

The next paper, by Dr. Thomas W. Jackson, Medical Reserve Corps, U. S. A., entitled "Some Clinical Features of Tropical Diseases," consisted of brief notes of the tropical diseases which he had encountered in his tour of service in the Philippines, and invited particular attention to the fact that he had not found ipecac to be either a specific or as valuable as many writers reported it to be in the treatment of amebic dysentery, and also that of the many theories advanced with regard to the origin of beriberi, he was unable to confirm any of them from his own observation.

The next paper, by Dr. Victor G. Heiser, Director of Health, entitled "The Third International Congress on Tuberculosis," gave a brief description of the congress, and laid particular stress upon the unanimity of opinion that existed throughout the civilized world with regard to the measures of a general public character which should be taken in order to grapple with the tuberculosis problem most successfully.

The next paper, by Dr. Eugene R. Whitmore, Captain, Medical Corps, U. S. A., entitled "Further Observation on Bacterial Vaccinations," is a continuation of the line of work which the author reported at the last annual meeting. His experience with opsonins has been satisfactory, especially in the treatment of gonorrheal cases. Otherwise, his experiences have practically been the same as those of other writers upon this subject.

There were four more scientific sessions held, at which the following papers, among others, were read: "The Nastin Treatment of Leprosy," by Dr. Oscar Teague, was negative in character, no results having been obtained after three months' trial of this method.

"Observations upon an Epidemic of Beriberi," by Dr. Louis Brechemin, Jr., Captain, Medical Corps, U. S. A. This paper brought forth nothing new with regard to beriberi, but produced a most lively discussion in which many of the members of the association took part. Considerable evidence was deduced that the disease is due to infection, and the probabilities are that it was conveyed by insects. Other speakers showed that in the outbreaks which had occurred recently in the Phillipine Islands the measures which have once been used successfully in the stamping out of the disease in a few weeks' time failed utterly a year later, and so it is questionable whether the measures which were formerly adopted had any real effect in limiting the number of cases. The discussions showed clearly that, although most of those who took part in them were physicians who have had large experience with beriberi, yet the data which they had collected was at best very contradictory, and nothing definite with regard to the origin of the disease can be deduced from it at the present time.

MEDICAL UNION.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Some time ago I saw in a publication authorized by the American Institute of Homeopathy that the whole number of homeopathic graduates in the United States for the year 1908 was 243. The statement came in the nature of a surprise, when it is recalled that a few years ago such graduates were turned out annually by the hundreds. Pursuing my investigations further, I find in studying the various announcements of the seventeen American homeopathic colleges that, accepting their own account of things, the end of that branch of sectarian medicine cannot be far off. It is dying at both the top and the bottom.

I do not write this to give offence to sectarian practitioners, for many of whom I entertain nothing but the warmest sentiments of respect, but what does the record show? The State University of the rich and progressive State of Iowa can muster only forty-three matriculates in its homeopathic department, an average of fewer than a dozen to each class. The University of Michigan, with its great local and foreign prestige, has seventy students in all four classes. One of the oldest homeopathic colleges has a faculty of thirty-six and a graduating class of one. It is gravely announced in black face type that "our classes are not so large but that we can take a personal interest in each and every student." As the whole number of matriculates was seventeen, it will be seen that, with a faculty numbering thirty-six, this statement is literally true. Another old college, with a large and able faculty, has far fewer in the classes than in the faculty. One college has a faculty of forty-six and a graduating class of sixteen. It publishes no list of its matriculates, whether from fear of criticism or from lack of resources is not stated. Another institution, with a graduating class of fifteen, has a faculty numbering about fifty. One of the oldest, strongest, and best equipped homeopathic colleges has a faculty of nearly a hundred and a graduating class of fewer than fifty. Its list of matriculates has diminished to about the same number as the faculty. It is as clear as anything can be in the future that further division in the ranks of the medical professional is not sustained by public opinion. A united profession is in sight.

Candid homeopathic physicians admit in private that the end of "organized" homeopathy is at hand, yet they

express some resentment at having to "surrender" something that appeals to them, from force of training, perhaps, as a principle to which they claim to be devoted.

May I not, in all kindness and candor, ask of the objectors some pertinent questions?

Who has asked you to give up any principle which your conscience and experience tell you is desirable?

Has any one asked you, much less required you, to practise his way, or to give up anything that you believe to be for the best interest of your patient?

You accuse us of stealing your thunder and of unconsciously practising your principles without giving you credit, but when have we ever objected to your appropriating our thunder or making the freest use of our methods, which we have never claimed as ours exclusively, but as belonging to all practitioners of our art? You charge us with not associating with you. Are you willing to keep company with us? If some of your methods are better than ours, is it not your bounden duty to seek us out and try to show us a better way? Granted that some —say all—of your therapeutic claims are true, is an honest therapeutic difference sufficient to divide the medical profession into hostile camps?

In conclusion, I hope that the regular profession the country over will make a determined and systematic effort to set the real facts before scattered sectarians, to the end that all may be brought within the fold of progressive medicine. I do not believe that many of them will require much urging. Certainly I do not believe that any regular practitioner is to be harmed by contact with any one outside the fold. MEDICUS.

POSTURAL DULLNESS AND AN EXPLANATION OF GROCCO'S SIGN.

To the Editor of the Medical Record:

SIR:—I have read the article of Dr. Albert Abrams in your issue of April 3, and wish to call attention to the fact that the postural dullness he attributes to a passive hyperemia can just as well be explained by temporary atelectasis on the side compressed (side on which patient is inclined or lies), this causing a corresponding emphysema on the opposite side of the chest by virtue of the increased air pressure at this site. This accounts for the hyperresonance which Dr. Abrams noticed but did not explain. Speaking of Grocco's sign he mentions having found it in normal lungs, attributing it to passive hyperemia, and making the dullness disappear by placing the patient in the prone position.

Another good explanation for this phenomenon, I think, is the following: Dr. Krönig demonstrated in cadavers that the healthy lung does not extend all the way down at the side of the vertebræ posteriorly, but deviates to the side in the lower portion, here leaving a triangular space without lung, and so accounting for the paravertebral triangular dullness. Now, if a patient be placed in the prone position the increased air pressure will fill out the lung posteriorly and extend the lung into this triangular space, and so obliterate the dullness.

JAMESBERG, N. J. JULIUS KAUNITZ, M.D.

THE INTRABDOMINAL USE OF OXYGEN.

To the Editor of the Medical Record:

SIR:—Your editorial on "Intrabdominal Use of Oxygen," in the April 3 issue of the Medical Record, prompts me to call your attention to two papers published by me in *American Medicine*, March 22, 1902,[1] and November 8, 1902,[2] on the oxygen bath for the peritoneum. In an advanced case of cancer of the breast, associated with great pain and dyspnea, I was enabled to give great relief by pumping the abdomen full of oxygen. The effect of this remedy was very striking, the infiltrated tissues, the bad heart action, the engorged lungs, and dyspnea all disappeared as if by magic. The action of the remedy seemed to depend upon a stimulation of the lymphatics, starting from a stimulation primarily in the peritoneum.

The thought occurred to me at the time that this oxygen bath would prove beneficial in tuberculosis of the peritoneum. I thought, too, of tuberculosis of cattle and the frequent involvement of the peritoneum in the general tuberculosis of these animals. I suggested this remedy to Professor V. A. Moore, of Cornell University, and he tried the experiment with infected cattle simply by pumping up the abdomen with an ordinary bicycle pump. This treatment seemed unavailing. Some died suddenly from the operation; with the others there was no improvement. I still believe that with more carefully conducted experiments we may learn something of the value of the remedy in tuberculosis conditions. The thought has also come to me that in a disease like pneumonia, a general infection with a local manifestation in the lung, this stimulation of the peritoneum and the lymphatics may prove of great value. I am not aware that the use of oxygen by inhalation has ever been anything else than a temporary relief in pneumonia, but I do think that its intrabdominal use does give some promise of a curative action in those cases which are grave and menacing. Unfortunately, I have had no opportunity myself to test this treatment, but I can see no danger from the procedure when properly done.

I was glad to see Dr. Bainbridge's article in the *Annals of Surgery*, and I hope the subject will come to the attention of the profession generally, and that the procedure will be thoroughly tested. EUGENE R. CORSON, M. D.

11 JONES STREET, EAST, SAVANNAH, GA.

1. A Simple Exploratory Laparotomy as a Palliative, and Perhaps Curative, Measure in Inoperable Carcinoma of the Breast; Preliminary Report of a Case.

2. The Oxygen Bath for the Peritoneum and Its Possible Value.—Second Report on the Cancer Case Relieved by an Exploratory Laparotomy.

Progress of Medical Science.

Boston Medical and Surgical Journal, April 1, 1909.

The Wassermann Reaction in Syphilis and Other Diseases.—R. L. Lee and W. Whittimore say that a positive serum reaction for syphilis is obtained in 89 per cent. of all cases of syphilis of whatever stage. In the active secondary and tertiary stage a positive reaction is obtained in 95 to 100 per cent. Known normal cases apparently give invariably a negative reaction. Some chronic diseases accompanied by marked emaciation near death may give positive reactions. This seems especially true of tuberculous cases, but under such circumstances there is usually no question of a differential diagnosis of syphilis. In other diseases the reactions are generally negative. The few positive reactions might well be explained by the possibility of the incidence of a latent syphilis. The authors prefix their conclusions with a description of their technical methods, which they claim to be somewhat simpler than that of Wassermann.

Recent Progress in the Treatment of Various Conditions Called Rheumatism.—R. B. Osgood opens his paper with a reference to the joint conditions produced by lactic acid, uric acid, infections, etc., all of which have been loosely called rheumatism. He comments on the wide use of salicin and its derivatives, and says that there are still grounds for questioning the specific action of salicylic acid except as a reliever of pain. The authors refer to serum therapy, but note the difficulty of knowing what serum to use. This is still an open question. Reference is also made to the hot bath plan of Schweninger and the Bier treatment. Palliative measures are referred to, and the author notes the tendency of recent years to regard acute rheumatic fever as an infection in which we have come to place much less reliance on drugs and far more on those measures calculated to combat the infection, and conserve those natural forces within the body where protective activities are called forth by the appropriate disturbance. The subject of infectious arthritis is led to a consideration of its causes and the destruction of the foci of infection. No drug is of any special service, though guaracol carbonate and the salicyl group will relieve the pain. We can do much by orthopedic apparatus to prevent deformity and subsequent disability. A detailed reference is made to various affections of the bursæ and other periarthrodial structures commonly considered rheumatic, but now recognized and referred to their proper respective structures.

New York Medical Journal, April 3, 1909.

Nature and Treatment of Neurasthenia.—S. T. Rucker says that experience has taught him to regard neurasthenia as a serious malady and one that is difficult to treat. The mistake is sometimes made of advising a patient who is in a state of nervous exhaustion to travel. The irritating annoyances incident to long journeys are well known to those who have traveled much. Many people who enjoy good health are fatigued by travel; the neurasthenia patient craves for complete rest and quiet. Travel, especially a sea voyage, is often beneficial after the patient

is convalescent. An occasional tour of sight seeing is also advisable to the neurasthenic business and professional man, but it is before a nervous breakdown occurs. The keynote to the treatment of neurasthenia is rest in bed, augmented by diet, hygiene, medicines, and suggestion. In this way the expenditure of energy is reduced to a minimum, lost strength is regained, and impaired function is corrected. Women respond more favorably to the complete rest cure than men. Separation from the environments of home and strictly excluding the injurious influences of relatives and friends, are large factors in treatment. The author then enumerates the remedies and therapeutic devices he has found of service.

Two Unusual Cases of Typhoid Fever.—The report is given by F. W. White, whose first case was that of a child of eleven years, in whom, about the tenth day of a moderately severe fever, then developed a parotid bubo, followed four days later by a consolidation of the base of the left lung posteriorly. The pus from the parotid contained staphylococci, but no pneumococci, though the latter were present in the expectoration. Patient recovered. The author's second case—fatal—was that of a woman of nineteen years, in whom at the end of the second week there occurred a severe nosebleed, easily controlled. This reappeared in a few hours and recurred at intervals within the next few days, and finally became uncontrollable. There was finally a large intestinal hemorrhage, but none from the gums, nor were there any hematuria or hemorrhagic manifestations in the skin. There was no autopsy. The girl had been subject to nosebleed, but not to other spontaneous hemorrhages. There was no history of hemaphilia.

Exophthalmic Goiter.—C. A. McWilliams gives a general description of this condition and summarizes the statistics of recent surgical intervention. In the author's opinion, nearly all the cases deserve treatment with the Rogers and Beebe antiserum before operation is advised. The object of this antiserum is to bring about destructive changes in the hypertrophied thyroid by a process of cytolysis. The nucleoproteids and globulins from the human gland are injected into sheep and hares and from these animals is obtained the antiserum for use in human beings. Osler gives a case three months of medical treatment before advising surgery. The surgical technics are described by the author, who notes that the surgeon's problem is to decrease the secreting power of the gland to a point where the bodily functions are brought to a normal activity. We may cut off the blood supply to the gland or remove more or less of the gland itself. One case is cited in detail and illustrates many of the points referred to by the author.

Journal of the American Medical Association, April 3, 1909.

Sanitation of the Tropics.—W. C. Gorgas gives a history of the eradication of yellow fever in Havana and Panama and describes what he would consider a model organization for this purpose in a tropical city. The stegomyia, the mosquito which transmits yellow fever, breeds principally around the dwellings of man, and the chief work of sanitation will have to be through the municipal sanitary organizations. The first step would be to have a correct system of accounts, but not too cumbersome. The next step is to get the authority to enforce the sanitary measures and to control their enforcement at every stage, fining the mosquito breeders, and power for the health official to abate the nuisance with his own force when the property owner will not do it, the cost to be made a lien against the property. This is a very important measure. A third ordinance should be passed for screening gutters, wells, cisterns, etc., so that mosquitoes cannot breed in them. He would also have a thorough system of inspection, and with these measures he holds that all that is necessary for yellow fever prophylaxis is accomplished. He gives an estimate of the cost of such an organization for a population of about 3,000 people, amounting to $1,900, and for 30,000 to only $5,000. In addition, the care of the sick should be looked after, and when a case occurs the patient should be promptly isolated and guarded to prevent infection of others. The same measures will be effective against malaria. The deaths from malaria prior to 1896 in Havana averaged about 250 per annum. This has fallen within the last year or two to less than fifty a year, and these, Gorgas believes, do not originate there, but are the natural incomers from the rest of the island. In a city situated like Havana this means the extinction of malaria. Concerted action in the various countries, he believes, would extinguish these diseases at once and without undue labor.

Aural Diagnosis.—G. E. Shambaugh describes the anatomy and physiology of the auricular apparatus and the methods of examining it for diagnostic purposes. He lays down the following propositions as established: "First, if the semicircular canals are normal and the ear is syringed with cold water, vertigo will result and there will be set up a nystagmus increased by directing the eyes toward the opposite side. If the ear is syringed with warm water the same symptoms will occur, but the nystagmus will be toward the same side. Second, should there exist an irritation of the endings of the vestibular nerve in the labyrinth, such as may be occasioned by a circumscribed suppuration in the labyrinth, there will be spontaneous nystagmus directed toward the same side. Syringing the ear with cold water will produce a positive reaction. Third, if there occurs a sudden destruction of endings of the vestibular nerve, such as would be occasioned by a diffuse suppuration in the labyrinth, there will be set up a spontaneous nystagmus directed toward the opposite side, but lasting only from a few days to several weeks. This nystagmus has its origin in the opposite normal ear. Syringing the affected ear with hot and cold water produces no response. Fourth, in case of long-standing destruction of the nerve endings in the vestibular nerve, such as occurs in chronic diffuse labyrinth suppuration, there will be no spontaneous nystagmus and no reaction can be obtained by syringing the ear with hot or cold water. Fifth, in case of cerebellar disease, such as cerebellar tumor, cerebellar abscess or a meningitis in this locality, there will occur a spontaneous nystagmus directed toward the affected side." Hence with pronounced rotating nystagmus and normal tympanum the presence of a cerebellar tumor may be suspected. On the other hand, the rotating nystagmus in a case of suppurative otitis media without fever but with severe deafness and nystagmus toward the affected side, while the syringing with cold water produces no response, suggests a cerebellar abscess. The complete destruction of the hearing in the affected ear would indicate a probable diffuse suppuration of the labyrinth. The failure to get caloric response on syringing points to destruction of end organs in the semi-circular canals. The only spontaneous nystagmus caused by this would be directed toward the opposite side. The lack of rise of temperature in most cases would exclude a meningitis, while a cerebellar abscess pressing on the vestibular nerve would produce a spontaneous rotating nystagmus which would be increased by directing the eyes to the opposite side.

Intestinal Localization.—G. H. Monks describes the mesentery and its characteristics, with those of the intestines, in different portions of the bowel. The characteristics of the loop of bowels in the upper portion of the intestine and of the mesentery attached to it, are the thickness of the walls, the large caliber, and the great vascularity, together with the numerous valves which can be easily felt through the walls. The attached mesentery, if there is not too much fat in it, exhibits large, long, straight vessels radiating to the intestine from arches (principally primary) deep in the mesentery. Ordinarily the mesentery is liable to be thin and to show the vessels. On the other hand, the characteristics of a loop of bowel near the lower end of the small intestine and of the attached mesentery are its thinness, small caliber, moderate vascularity, and lack of valves felt through the walls. The attached mesentery has relatively short, small, tortuous vessels, which spring from secondary or even tertiary loops deep in the mesentery. There is usually also more fat in this part. The transition between the two is gradual, but the surgeon can approximate the localization. Monks illustrates the situation in a general way by a cut in which the part over the first horizontal line lodges the uppermost third of the small intestine. If the incision is in the upper part of the abdomen, especially in the middle line or to the left of it, any loop of small intestine the surgeon meets will belong probably to the uppermost third of the gut; if his incision is in the middle part of the abdomen or in the left iliac, the loops belong probably to the middle third, and finally, if his incision is in the right iliac fossa or to the right of the rectus muscle, or even in the middle line between umbilicus and pubes, the loops will probably belong to the lowest third of the intestine. Monk describes a method by which in cases in which the abdominal wound is large enough to palpate the mesenteric root we can learn the right direction of the bowel. The loop is drawn well out of the wound, and its two extremities held upward by the assistant, the axis of the loop being kept by him parallel to the known axis of the root of the mesentery. The

surgeon's right hand is now applied to the loop in such a manner that his thumb is one side of the mesentery and his first two fingers are on the other. The thumb and fingers are then gently pushed downward in the direction of the root of the mesentery. If, by palpation of the mesentery, the surgeon detects no twist in it, he at once knows that the upper end of the loop (as it is then held) will, if followed up, conduct him to the duodenum, and that the lower end will conduct him to the ileocecal valve. If, however, there is a twist in the mesentery, the surgeon should withdraw his hand, remove the twist by turning the bowel, and examine again. When, finally, no twist remains in the mesentery, the surgeon knows that the end of the loop which is uppermost is the one which leads to the duodenum, and that which is lowest to the ileocecal valve. He describes also the procedure for protecting the intestines, when exposed outside the abdomen, by sheets of rubber, thus allowing the abdominal cavity to be more thoroughly inspected. In fact, the intestine and mesentery, including the whole small intestine, can be demonstrated by holding them on a rod above the abdomen. Also the intubation of the intestines for the purpose of emptying them can be effected best by the tube being introduced into the intestines through a small opening and not thrust into it, but having the intestine drawn over it as is done in the demonstration with the rod. The base of the pelvic fold of the mesentery forms an important landmark in the lower abdomen, that is, the lowest fold of the mesentery, and this is an important point in irrigating the abdomen, finding perforating ulcer, etc. It can usually be palpated through a wound in the lower abdomen, and the great fossa on the left of the abdomen may be reached by carrying the tip of an irrigating nozzle well around the pelvic fold and then pushing it upward. The lowest coil of the ileum can be picked up at once between the surgeon's thumb and finger by causing them to grasp the base of the pelvic fold of the mesentery and the loop of the bowel which is attached to it.

The Repair of the Internal Ring in Oblique Inguinal Hernia.—F. G. Connell emphasizes the importance of restoring the normal anatomic relations in the repair of oblique internal hernia, and points out the merits of the Ferguson operation, together with an elevation of the internal ring in preventing recurrence of the condition. The points he specially makes are, the suture of the transversalis beneath the cord, which causes minimization of the ring and the attachment of the internal oblique muscle to the other two-thirds of Poupart's ligament so that it covers and protects the internal ring. These measures result in a valve-like formation of the inguinal canal, which is important in preventing recurrence. They should be preceded by the removal of the sac at its neck with the redundant parietal peritoneum, and followed by the reunion of the divided external oblique aponeurosis and the formation of a suitable external ring. The article is illustrated.

Mild Atypical Typhoid Fever.—J. P. Bates reviews and analyzes sixty-three cases of mild typhoid, in a number of which a study of blood cultures was made. The analysis shows that over 32 per cent. of the cases were atypical, being resistant to quinin and too long in their course for malaria, while still too mild and short in their duration to meet the requirements of typical typhoid fever. There was a positive Widal reaction in all the cases included in this percentage, and the paracolon or typhoid bacilli were present in fully 24 per cent. A number of cases are reported, and the study shows that, instead of malaria similating typhoid, it is mild typhoid fever which similates severe malaria. At least this is the case in Panama, where the observations were made, and F. H. Harris has shown that the same forms occur in the southern United States. If the patient is put to bed and kept on rigid typhoid diet, the fever will subside in a few weeks or less. It is evident, also, what part such patients play in the spread of typhoid, as many of them will be bacillus carriers, and through them we will have a perennial source of the disease unless they are recognized and attended to.

The Lancet, March 27, 1909.

A Case of Retained Ovum.—J. L. Stretton notes the occurrence in a woman of fifty-four years operated on for a strangulated femoral hernia of a large procidentia of the uterus. It was decided to relieve the latter condition, the hernia having been attended to, and to ventrifix the uterus. At the operation for the latter a large strong lump was found in the left broad ligament and was removed. Recovery was uneventful. The lump consisted of a globular mass 5x3 inches, of smooth surface and stony hardness. On sawing it through it was found to contain a well-formed female fetus of about four and a half months. It was in perfect preservation and all the internal organs were easily made out. The envelope was everywhere invaded by calcerous deposit. The patient had been married thirty-two years. She had had two children in the first three years and two miscarriages later, but could not remember the exact date. The first of these was a formed child, the last consisted of blood and clots. At the second she was not attended by a physician, but was in bed for a week. It was certainly twenty years previously, which was probably about the date of the ovum.

Direct Esophagoscopy: An Unique Experience.—H. Tilley was called to see a baby four days old who had swallowed the teat of a "comforter." Symptoms indicated that it was lodged somewhere in the esophagus. Under chloroform the smallest bronchoscope of the Brünings outfit was passed into the gullet and when nearing the cardiac end (probably the phremic constriction) a white pulteous mass was seen and easily removed. It proved to be some cotton with which the teat had been stuffed. A second attempt removed the teat also. In a few hours the child was nursing in a normal manner. The author comments on the satisfaction afforded by direct vision in such cases as compared with the uncertainty of the old methods of allowing the foreign body to work its way or be pushed into the stomach. Proficiency in the use of the bronchoscope can be acquired even more readily than in the use of the laryngeal mirror. In the light of this disagreeable experience, the author strongly condemns the use of "comforters."

Some Points in the Treatment of Nervous Diseases.—The special maladies considered by J. Taylor are hemiplegia, disseminated sclerosis, tabes, paralysis agitans, infantile paralysis, and epilepsy. If hemiplegia has occurred from hemorrhage, we must keep the patient absolutely quiet and reduce the blood pressure; but if due to thrombosis, we must stimulate the circulation with strychnine and even alcohol, while purging must be carefully avoided. If syphilis is an element in the case, mercury should be commenced at once, while the iodide should be avoided as tending to lower pressure and to favor clotting. If we can prevent a recurrence of the hemorrhage and inflammation around the clot, a certain degree of improvement may be looked for. But if the heart is hypertrophied and the blood-vessels brittle, a recurrence of the hemorrhage is only too certain. In thrombosis cases, while internal remedies probably cannot render a vessel already blocked again pervious, yet if they are used energetically and periodically it may be possible to remove disease from other vessels, keep them pervious, and prevent subsequent thrombosis. Cases due to embolus in young people generally improve greatly owing to the taking on by the vessels around the affected area of the function of the vessels occluded. In disseminated sclerosis the poison seems to be liberated in a curious periodical way. Improvement often follows rest, regular massage, stimulating electrical treatment, and easily assimilated diet. While this disease is undoubtedly more common than formerly, the diagnosis is often doubtful and it has become the dumping ground of various cases, not all of which are of the classical type. In tabes those cases are most benefited in which the ataxy is the chief and most troublesome symptom. We should improve the tone and coordination of the muscles, and in the author's experience the Fraenkel exercise movements have given the best results. In controlling, or at least modifying, the severity of the tremor in paralysis agitans he has had the best results with hydrobromide of hyoscine, combined with a small amount of strychnine in an acid mixture. In infantile paralysis the effect of drugs in the acute stage is uncertain and doubtful, but after the acute stage has passed marked benefit follows passive movement, electricity, and mechanical support. In epilepsy our efforts should be directed against recurrence of the convulsions, and the bromides are our sheet anchor—sodium, ammonium, or shontium. The potassium salt is no longer used by the author. Petitmal is harder to overcome than the severer attacks. The bromides may be combined with nux vomica to prevent depression or with arsenic to lessen the tendency to acne. The time of administering the bromides must, of course, be determined with reference to the usual hour of attack

British Medical Journal, March 27, 1909.

Bilharziosis of Women and Girls in Egypt in the Light of the Skin-Infection Theory.—A. Looss says that any theory about the mode of infection with bilharzia, in order to be acceptable, must (a) account for the passages of the miracidium both from man to water and back again from water to man; it must (b) duly consider both the habits of the host and the biological peculiarities of the parasite. The theory of the infection taking place by the mouth along with food and drink must be refuted because it is irreconcilable with (a) certain biological peculiarities of the miracidium and (b) with the general distribution of the disease among the population of Egypt. The theory of infection by the miracidium entering the urethra or anus is utterly improbable for general parasitological reasons and in contradiction with a number of biological and anatomopathological facts; for example, the incapability on the part of the miracidium to resist the action of acids even if very diluted, the part played in the infection by the liver, etc. The theory of infection by the skin is in accordance with all the facts thus far known of the biology of the parasite, and the distribution of the disease among the inhabitants of Egypt. It shows how the chief sufferers, the children in town and the adult males in the country, live under conditions which from the epidemiological point of view are essentially the same, and give the miracidia the opportunity of passing within the short time of their life from man to water and from water back to man.

Natural History of Ulcerative Colitis and Its Bearing on Treatment.—H. P. Hawkins analyzes eighty-five cases of that form of bowel disease now known as ulcerative colitis. Of this number twenty were of the short, continuous type resembling bacillary dysentery and in thirty of these the illness was continuous from first to last, with little or no tendency to intermission or improvement. In fifteen of them the disease was fatal, while in the remaining fifteen the illness had lasted from two months to six years, and while they left the hospital still alive it is doubtful if many were cured. In many cases there was a history of dysenteric diarrhea extending over long periods of time. The author asks whether the short attacks and the long-continued cases are one and the same malady. The clinical evidence he thinks is in favor of this unity. He refers also to the hemorrhagic disease or lower segment type, and notes that in ten of his cases simple bleeding from the colon preceded the diarrhea and all other signs of colitis. As to this point, he is inclined to believe that it shows a distinct difference from tropical dysentery, for he has never observed in the latter disease such a stealthy mode of invasion. The severity of the disease and the degree of toxemia vary with the site of the disease in the bowel. In the majority of tropical cases the disease begins in the rectum and iliac colon and remains localized and ascends. In a few cases it begins in the cecum and descends. This latter form presents the more severe results, and a still graver toxic condition exists when the lower portion of the ileum is also affected. The higher the site the more severe and general are the symptoms; the lower the site the milder the symptoms and the more local their effect. The bacteriological evidence as to these various forms of the disease shows that there are three or four groups of cases. Of the author's eighty-five patients forty-one died. From the viewpoint of treatment two classes may be distinguished: (1) Dysenteric diarrhea. Short, mild cases may yield to bismuth and opium, but this is a treatment of one symptom only and not of the underlying condition. Ipecac is not a specific. The best results undoubtedly follow calomel and castor oil. The former should be given in small doses, combined with a little opium. Serum therapy is indicated, but the author has had but little experience with it. (2) Acute and chronic neurotic disease. Here we may use foregoing therapy, but local treatment soon becomes imperative. We have to choose between rectal irrigation, appendicostomy and irrigation, colostomy with irrigation, and artificial anus. The question must be decided from the severity of the toxemia and the probabilities as regards the extent of disease. The author's preference is given to colostomy.

Berliner klinische Wochenschrift, March 15 and 22, 1909.

Hematoma of the Vulva.—Liepmann reports four cases of vulvar hematomata which formed during the parturition and thus acted as an obstruction to the birth of the child. In all cases the rupture of the varicose veins leading to the formation of the swellings occurred spontaneously before any instruments were introduced. In three of the cases the babies were abnormally large, which fact may have determined the rupture of the veins. The duration of the birth act was much increased by this accidental obstruction, and in all cases forceps delivery had to be employed. Episiotomy and incision of the swollen mass had to be done before the instrument could be introduced. Liepmann does not think that varices or the existence of atheromatous changes in the blood-vessels is enough to explain their rupture. The cause lies in the constant pressure upon the vessels by an abnormally large or hard fetal head, the veins being anatomically predisposed to congestion during the birth act. Treatment should consist in forcing delivery before the hematoma has become very large; if the latter has occurred, incision of the swelling must be performed, followed by a forceps delivery.

Early Rising After Laparotomies.—Hartog says that the traditional practice of compelling patients to lie flat on their backs after an operation on the abdominal cavity is slowly passing away. Ries of Chicago was the first to insist upon the advantages of having patients leave their beds as early as possible. Secondary hemorrhage, breaking open of the wound, increased predisposition to hernia at the site of the wound, and finally embolism, have been put forward as the possible dangers of such practice; the first three are prevented by proper technique in closing all wounds made, the latter danger is present after all operations and does not seem to be increased by leaving the bed early. On the other hand, the advantages of this method consist in the great diminution of the danger of secondary pneumonias in the aged, the obviation of the necessity of catheterization and of the use of enemas in most cases, the increase of appetite, and, in general, the rapid recovery of the patient. Hartog's practice is to allow the patients to lie on the side the day of the operation, to raise the head of the bed next day, and to place them in a chair for one-half to one hour two or three days after the operation, if they express readiness to sit up. After this the duration of sitting up is gradually prolonged. Individualization is necessary, for no hard and fast rule can be made for all patients. Uncomplicated and afebrile post-operative course serves as the indication for allowing the patient up.

Wassermann's Reaction in Congenital Syphilis.—Thomsen and Boas have examined many cases of congenital syphilis in reference to the presence of the Wassermann reaction, and have come to the following conclusions: The anatomical examination of the placenta and the umbilical cord, with the examination of the blood according to Wassermann's technique, are sufficient to show whether an infant is or is not suffering from congenital syphilis. A positive reaction with the blood of the mother before labor has occurred makes it probable that the child, too, will be infected. In the organism of an infant, suffering from latent syphilis, there takes place an increase in the materials responsible for the appearance of the Wassermann reaction, which increase continues for the first few weeks of life. The reaction, therefore, if negative at birth, must be sought for later. The reaction seems to be constant in little children having clinical symptoms of syphilis; the same is true of children who are suffering from symptoms of late hereditary infection. It is possible, though not probable, that occasionally the substances that produce Wassermann's reaction may find their way from the mother into the organism of the infant, though the latter is not infected. In such a case the appearance of the reaction in the infant may mislead the physician.

Münchener medizinische Wochenschrift, March 23, 1909.

Pleural Effusions.—Königer says that if purulent effusions into the pleural cavity become early encapsulated, it often happens that serous effusions take place in some of the spaces thus produced. These serous effusions in no way communicate with the purulent effusions; they are free from bacteria and have an abundant cell-content, consisting mostly of polynuclear neutrophile leucocytes with a few lymphocytes and endothelial cells. Most of these cells are well preserved, only a few showing some of the changes characteristic of pus cells. These effusions cannot be explained by the clearing of purulent fluids resulting from sedimentation of their cellular structures. They are, rather, independent serous effusions that mark the inflammatory reaction of the pleura which limits the encapsulated purulent fluid. Very similar pictures are often

seen in abscess in gangrene of the lung, and even in suppuration in the neighborhood of the pleura, such as subphrenic space, liver, etc. Their clinical importance consists in the fact that they render the search for purulent effusions very difficult. An aspirating needle often drains them and thus misleads the operator in reference to the presence or absence of pus in the pleural cavity. Their cellular content, however, should always arouse the suspicion of their true character, and should always lead to further search for empyema.

Deutsche medizinische Wochenschrift, March 25, 1909.

Therapy of Malaria.—Nocht says that malaria belongs to the few diseases for which specific treatment is possessed by physicians. Quinine is the specific remedy; it alters markedly the morphology of most forms of malarial organisms, and destroys them, though some sexual forms prove to be very resistant to the drug. It is, therefore, impossible to cure any malaria by only a few doses of quinine, as the sexual forms give rise to new broods of parasites. Moreover, the female sexual forms of the parasite, the macrogametes, are capable of taking refuge in the spleen, of withstanding the action of quinine completely, and of causing a recurrence of the disease by giving rise to other forms of the parasite. No quinine therapy, therefore, can insure a patient from recurrences, if these mature sexual forms have developed in him. As these forms appear shortly after the infection the practice of waiting for several paroxysms in order to establish the kind of infection before administering quinine is a very pernicious one. The best time for the action of quinine is when most young forms are found in the blood; that is, just before and for several hours after the chill. The drug must, therefore, be given several hours before an expected paroxysm, so that time may be had for the quinine to reach the blood. One gram per day ought to be given and continued for five to seven days. After that the drug is to be given every two, then every four, every six days, and so on. This prevents the development of cinchonism. Six weeks should mark the period of administering the drug, which must be again given in the same way in case of recurrence or reinfection. A modification of this method of treatment is to give quinine for several days, with pauses of two, four, six days, and so on. This seems to affect serious infections much more favorably. Occasionally smaller doses of quinine given for a longer time are as effectual as large doses and should be preferred in treating chronic continuous malarial fevers. Among the preparations that may be used are quinine itself, quinine hydrochloride, quinine bisulphate, and quinine tannate. The latter may be had in almost tasteless form and is therefore well suited for children. Its use, however, does not insure against the appearance of hemoglobinuria in susceptible persons. All hard preparations of quinine, such as pills or tablets, must be tested as to their solubility; many of them are so little affected by the gastric or intestinal juices that they pass through the bowels unchanged and, of course, unabsorbed. There are no substitutes for the specific action of quinine; methylene blue acts much less slowly and not at all as surely. Arsenic and iron preparations are useful in convalescence because of the anemia that often follows malarial infection. The only contraindications to the use of quinine in malaria consist in idiosyncrasy in reference to the drug and the appearance of hemoglobinuria. Nocht concludes by saying that the thorough use of quinine is the whole secret of curing malaria; any continued fever that is not conquered by such therapy is not malarial.

French and Italian Journals.

Spontaneous Infantile Myxedema.—Auguste Beaudry says that although it is admitted that myxedema is caused by the suppression of the functions of the thyroid gland, we are reduced to suppositions to explain the symptoms that result from it. According to some, the thyroid elaborates a useful substance, the absence of which causes the symptoms of myxedema. The other theory is that its office is to remove from the blood deleterious substances, which accumulate when not removed and cause poisoning. In the infant the thyroid plays so important a part in nutrition that its absence causes an arrest of physical and mental development, varying in degree according to the age at which the difficulty occurs. We have congenital myxedema, spontaneous infantile myxedema, and operative myxedema. The author discusses the spontaneous form. The spontaneous myxedema of the infant differs from that of the adult in that its effect begins immediately with a complete arrest of the intelligence, and of the growth of the skeleton. It results in the production of a dwarf more or less of an idiot. If the thyroid action has been early suppressed we have a complete idiot; if suppression has occurred late we get an imbecile. From the moment of suppression the mental development ceases. The dwarf is also afflicted with a solid edema of the skin and mucous membranes. The face is swollen and expressionless. The tongue is thickened, voice hoarse, and nasal mucosa swollen. There is a marked repugnance to movement. Dentition is retarded and incomplete, the fontanelle remains open, the sensibility to cold is increased, and the pulse is small and compressible. Puberty is not established. According to some there is a congenital smallness of the thyroid, which, therefore, becomes insufficient, and since the gland plays an important part in the genital life of the female myxedema is more frequent in females than males. —*Le Journal de Médecine et de Chirurgie*, February 27, 1909.

Prevention of Diphtheria.—Giuseppe Pecori states that the prophylaxis of diphtheria includes various measures, some of them general, some peculiar to the individual, which must be combined intelligently in order to be of real value. The use of diphtheria antitoxin has lessened the mortality of the disease, but it has not lessened the morbidity, because it has made people more careless of contact with the patient. It has been shown that the patient is capable of giving the disease for the entire period during which he has the germs in his throat, which is often many weeks after convalescence has been established. Also the other persons belonging to the family, and the immunized children may carry the germs in a virulent form in the throat for a long time. To disinfect only the room in which the patient was kept for the first few days of the disease is futile, because he has been a carrier of germs for a much longer time. The school is particularly a place where these germs are spread. To have an efficient prophylaxis the author suggests the following measures: Isolation of the patient from the beginning of the disease until the throat and nose are free from germs. Exclusion of the children or teachers in the family from school until an official certificate can be shown stating that bacteriological research has shown throat of the patient and of all the members of the family to be free from germs. Disinfection of the entire house and of the school, and all places in which the patient has been during the disease.—*Gazzetta Medica di Roma*, January 1 and 15, and February 1, 1909.

Orthostatic Albuminuria.—Ernesto Ferraris-Wyss found among 338 children treated six cases of orthostatic albuminuria. He defines orthostatic albuminuria as that type caused in delicate children by the upright position, occurring only in the day time, and disappearing when the child is put to bed. The young patients are pale, have headache, dizziness, nausea, and other symptoms of general debility, but no kidney disease can be demonstrated. No casts or diseased epithelial elements are found in the urine. Autopsy has shown perfectly healthy kidneys when these patients have died of intercurrent disease. According to some authors, there is a debility of the heart present with rapid pulse. Of the nature of the albuminous body that appears little is known. There is nothing abnormal in the ocular fundus. The amount of albumin is one part to one and a half per thousand. Senator attributes this bility of the intestinal walls, congenital or acquired. This condition to circulatory disturbances or abnormal permeability of the intestinal walls, congenital or acquired. This condition does not occur after infective diseases, it is never transformed into a true nephritis; it is often cured; infectious diseases do not seem to be affected by this condition for the worse, the children passing through them like any other child, with no worse kidney complications. From the study of the author's six cases he concludes that this condition is not due to an alteration in the parenchyma of the kidney, nor to a pre-tubercular condition. The cause is probably of a circulatory nature, combined with disturbance of the metabolism of the individual.—*Rivista di Clinica Pediatrica*, January, 1909.

Antitoxin Per Rectum.—A writer in *The Lancet* urges the advantages of the rectal administration of diphtheria antitoxin. The mucous membrane of the rectum readily absorbs the serum. The patient lies on the left side on a couch, and a catheter is passed as far as possible into the rectum; to the catheter is attached the barrel of a glass urethral syringe into which the serum is poured; as a rule gravity is sufficient, but if the fluid does not flow readily the piston can be used in the ordinary way.

Book Reviews.

The History of the Study of Medicine in the British Isles. The Fitz-Patrick Lectures for 1905-06 Delivered Before the Royal College of Physicians of London. By Norman Moore, M.D., Cantab. Fellow of the Royal College of Physicians, Physician to St. Bartholomew's Hospital. Oxford: At the Clarendon Press, 1908.

The Royal College of Physicians of London has played so important a part in the development of medicine in the British Isles that its own history may be regarded as almost an epitome of that of English medicine as a whole. In these four lectures delivered before the Royal College Dr. Moore outlines the growth of medical science from the earliest records to the beginning of the eighteenth century, and has collected a large amount of material that is not only interesting, but should be of great value to future historians. In the first lecture he describes medical study in London during the middle ages, particularly as exemplified in the life of John Mirfield, a London practitioner under the reign of Richard II. The second lecture deals with medical life and study during the sixteenth and seventeenth centuries, and in the succeeding two the development of clinical medicine is traced with more detail, emphasis being laid on the work of Mayerne, Glisson, and Sydenham in England, and on the influence of Boerhave on the methods of the earlier Scotch and Irish physicians. The book abounds in citations from old records, many of which are in part reproduced photographically, and bears witness to the unusual industry of the author in searching the old cartularies and to his skill in deciphering manuscripts. Documents of much interest are the notes by Mayerne on the health of James I and his report on Queen Henrietta Maria drawn up at the time of her contemplated voyage to France in 1641.

Consultations sur la Grossesse, l'Accouchement, les Maladies des Femmes, et les Soins a donner aux Nourrissons. Journal d'un Praticien. Observations personnelles, notées au cours même des événements et commentées. Par H. Stapfer. Paris: Vigot Frères, Éditeurs, 1908.

This volume contains an account of some of the problems and difficulties occurring in the obstetrical practice of the author. Most of the cases are of decided interest, and many of the questions here solved are such as may present themselves to any practitioner. From the nature of the case, the book is much more personal in its tone than any textbook can be. Unfortunately, the cases are stated and discussed without any attempt at either order or arrangement; and the volume closes with an index of little or no value, the references being given, not to the pages of the volume, but to the consecutive number of the "observations."

Primitive Secret Societies. A Study in Early Politics and Religion. By Hutton Webster, Ph.D.; Professor of Sociology and Anthropology in the University of Nebraska. New York: The Macmillan Company, 1908.

This volume is a study of one of the most interesting chapters in Anthropology, namely, the secret societies, and the initiation ceremonies connected with the same. The separate chapters deal with: The men's house; the puberty institution; the secret rites; the training of the novice; the power of the elders; development of tribal societies; functions of tribal societies; decline of tribal societies; the clan ceremonies; magical fraternities; and diffusion of initiation ceremonies. The author has carefully arranged the large amount of material on these subjects collected by many scholars and travelers; and the present book is a suitable introduction to the larger works of Tyler, Frazer, Lubbock, Westermarck, McLennan, and numerous other writers. There are copious bibliographical references, so that the student of this subject can ascertain for himself the grounds on which the author's conclusions are based, and also have a guide for his own future studies.

An Alabama Student and Other Bibliographical Essays. By William Osler, M.D., F.R.S.; Regius Professor of Medicine, Oxford; Honorary Professor of Medicine, John Hopkins University, Baltimore. New York: Oxford University Press, American Branch; London: Henry Frowde, 1908.

Dr. Osler's reputation as an essayist of distinction and charm is too firmly established for the present volume to require eulogies in these columns, and there remains only the pleasant duty of calling attention to its appearance and giving some idea of its contents. As the title indicates, the volume is one of biography, and opens with an account of the life of Dr. John G. Bassett, an Alabama practitioner, during the middle of the last century, and who, though not among the famous, yet shows "that in the simple annals of such a career as the 'Alabama Student' a life may be as perfect as in a Harvey or a Locke." Both of the latter are the subjects of further essays, the one on Locke being made especially interesting by the detailed account of the celebrated operation on Lord Shaftesbury for hydatid cyst of the liver. Thomas Dover, physician and buccaneer, whose name is immortalized in the eponymic of a sudorific powder but who was also an enterprising privateer and the discoverer of Alexander Selkirk, the original Robinson Crusoe; and John Keats, the ill-starred apothecary poet, are the somewhat dramatic subjects of two other essays full of little-known information. New England receives fitting tribute in the appreciations of Oliver Wendell Holmes and Elisha Bartlett, and the influence of Louis on American medicine through the medium of the long list of his pupils from this country who subsequently attained eminence is discussed in another. Under the title "A Backwood Physiologist" Dr. Osler narrates the circumstances under which Beaumont was able to make on Alexis St. Martin the observations that did so much to place the conceptions of gastric digestion on a basis of fact. William Pepper and Alfred Stillé are two more of the moderns to receive graceful acknowledgment from the author's pen, while his essays on Sir Thomas Browne and Fracastorius are evidently inspired by the ardor of the bibliophile as well as the recognition of their prominence in the list of physicians distinguished for literary attainments. The recital of the names of those whose lives have been chronicled in this volume affords a sufficiently alluring promise of its matter, but the full measure of its fascination can be appreciated only by those who have experienced the pleasure of turning its delightful pages.

Textbook of Diseases of the Nose, Throat, and Ear. For the Use of Students and General Practitioners. By Francis R. Packard, M.D., Professor of Diseases of the Nose and Throat in the Philadelphia Polyclinic, and College for Graduates in Medicine, etc. Philadelphia and London: J. B. Lippincott Co., 1909.

This book is written on the basis of an experience of many years of teaching in a post-graduate school. Attention has been paid rather to practical points and their bearing on the everyday work of the practitioner. While only a few students become specialists, some knowledge of these subjects is absolutely necessary to every physician as there are probably no special branches of medical science which come so intimately in relation to the work of the general clinician as these do, and there are none in which a little knowledge may be turned to a more useful account. The foregoing ideas from the preface outline the task set by the author. He has succeeded admirably in its performance. The style is clear, illustrations good, and common sense appears on every page. The reader is not overwhelmed with too much therapeutics. Much is taught, but not too many things.

Surgical Memoirs and Other Essays. By James G. Mumford, M.D.; Instructor in Surgery, Harvard Medical School; Visiting Surgeon to the Massachusetts General Hospital; Fellow of the American Surgical Association, etc. Illustrated. New York: Moffat, Yard & Company, 1908.

Dr. Mumford is already well known as a medical historian, and the present collection of delightful essays can serve but to enhance his reputation as an agreeable and polished writer. In the opening series of chapters, comprising a "Narrative of Surgery," which already forms the introduction to a recently appearing system of surgery, the development of the art is traced as exemplified by the lives of a number of the greatest surgeons. The second essay is a most enjoyable one on "Teachings of the Old Surgeons," in which the author has collected a long series of instances showing that our predecessors, in spite of the fact that in most cases their practice was founded on the purest empiricism that frequently led to absurd conclusions, both recognized and applied many principles that are now considered fundamental in surgical treatment. Then follow several essays on great surgeons, such as Astley, Cooper, Benjamin Brodie, John Collins Warren, Jacob Bigelow, and Samuel Howe, and an address entitled "Studies in Aneurysm." Two more addresses to nurses and one on "History and Ethics in Medicine" complete the volume. Dr. Mumford's knowledge of medical history is profound, and he possesses the ability to make of the lay figures of the past real creatures of flesh and blood, with personalities that are full of human interest. The volume is one that could be read with much profit by all medical students, though perhaps it will be enjoyed even more by maturer minds.

Essentials of Medicine. A Textbook of Medicine for Students Beginning a Medical Course, for Nurses, and for All Others Interested in the Care of the Sick. By Charles Phillips Emerson, M.D.; Late Resident Physician the Johns Hopkins Hospital, and Associate in Medicine, the Johns Hopkins University. Philadelphia and London: J. B. Lippincott Company, 1908.

We have here a book that lives bravely up to the claims of its title page, and justifies its existence in every chapter. In his modest preface the author says: "Many American students lack perspective in their medical studies. They do not learn the A, B, C of the disease first and then proceed to its more difficult study. Our nurses too often know a great deal in a general, indefinite, inaccurate way. They seldom have a clear, sharp mental picture of the elements of a subject." This lack in medical students, nurses, and such of the general public as are interested in the subject is offered the most clarifying enlightenment in this volume, which manages to escape, in some quite wonderful way, the Scylla of dense technicality, without thereby falling into the Charybdis of medical baby-talk. Any layman of ordinary intelligence and application who will take the trouble to familiarize himself with the ground here covered (a pleasant task, for the style is entertaining as well as clear) will have acquired a broad, common-sense perspective on medical questions that will afford him a vantage ground for his whole lifetime. The book is, however, by no means to be despised even by the graduate in medicine, for though it states medical facts in more or less popular phraseology, it nevertheless states facts, and states them more clearly than many a more technically scientific treatise. For the layman who wishes to satisfy his legitimate curiosity regarding the human body and its ills there is no better book existant, as far as the reviewer's knowledge goes, than this.

Tono-Bungay. A Novel. By H. G. Wells. New York: Duffield & Company, 1909.

Any book put forth by so faithful an artist and so tireless a thinker as Mr. Wells is of interest to the intelligent portion of the reading public, his fiction no less than his philosophical retrospect or his daring prophesy. In "Tono-Bungay," his latest novel, he voices again, with sympathy, with humor, with deep insight, the new England of to-day—the *young* England of the twentieth century, reading her mission in terms of the future rather than of the past, rejecting outworn shibboleths, and wafting away the stale air of musty conventions in a breeze of healthy laughter. The men who are writing the books and the plays for this new phase of England's civilization dare to use the language of warning rather than that of blind admiration, and to attack with wholesome merriment certain national traits which filled Carlyle with foaming fury. Lest our readers become too puffed up, we may interpolate that it is not necessary for Americans to cross the Atlantic to examine these traits for themselves. The voices of these latter day John the Baptists are lifted to as good effect on Broadway as in Piccadilly, and "Tono Bungay" by many another name adds its electric glitter to our great white ways.

Apart from its interest as a story, its detailed account of the rise, propagation, and fall of Tono-Bungay, the patent medicine which gives it its name, is the last word of racy witty exposé, and ought to give the *coup de grace* to every advertised colored fluid with which the world is cursed—but it won't. Mr. Wells in his earlier days was a druggist, and his amazing account of the exploitation of this nostrum has a life-like air of reminiscence. "'You see,' said my uncle, in a slow confidential whisper, 'it's nice because of the' (here he mentioned a flavoring matter and an aromatic spirit), 'it's stimulating because of' (here he mentioned two very vivid tonics, one with a marked action on the kidneys), 'and the' (here he mentioned two other ingredients) 'makes it pretty intoxicating. Then there's' (but I touch on the essential secret). 'And there you are! I got it out of an old book of receipts—all except the' (here he mentioned the substance that assails the kidneys), 'which is my idea. Modern touch! There you are!'" But why do we quote? "Tono-Bungay" is a book to read and inwardly digest

Leçons de Clinique Obstétricale (Troisieme Série). Par le Docteur Queirel, Professeur de Clinique Obstétricale à l'Ecole de Médecine de Marseille, Membre Correspondant de l'Académie de Médecine. Paris: G. Steinheil, Éditeur, 1908.

This volume contains about twenty-five lectures on subjects connected with obstetrics. Most of them are on topics which are to be found in the ordinary textbooks, but a few are quite a little removed from the usual run of such lectures. Among these latter we would especially emphasize the lecture on Professional Secrecy. Other important chapters are those on Puerperal Eclampsia, Secondary Hemorrhages, on the harm done by corsets, and Spontaneous Delivery in a primipara with a contracted pelvis.

Modern Medicine. Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by William Osler, M.D.; Regius Professor of Medicine in Oxford University, England; Honorary Professor of Medicine in the Johns Hopkins University, Baltimore; Formerly Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and of the Institute of Medicine in McGill University, Montreal, Canada. Assisted by Thomas McCrae, M.D.; Associate Professor of Medicine and Clinical Therapeutics in the Johns Hopkins University, Baltimore; Fellow of the Royal College of Physicians, London. Volume V. Diseases of the Alimentary Tract. Illustrated. Philadelphia and New York: Lea & Febiger, 1908.

The diseases of the alimentary tract, to which the fifth volume of this system is devoted, are of such interest and importance to the practitioner as to have justified a special effort on the part of the editors to make their discussion both comprehensive and practically useful. The selection of the colloborators to whom the work was entrusted can meet only with approval, and inspection of the resulting series of articles shows that the writers have evidently all realized the opportunity for serving their fellow practitioners and have made the most of it. The allotment of subjects is as follows: Introductory discussion on diseases of the digestive apparatus, Dr. Charles G. Stockton; diseases of the mouth and salivary glands, Dr. David Riesman; diseases of the esophagus, Dr. John McCrae; functional diseases of the stomach, Dr. Julius Friedenwald; organic diseases of the stomach, Dr. Charles F. Martin; diseases of the intestines, Dr. Alfred Stengel; diseases of the peritoneum, Dr. Humphry Davy Rolleston; splanchnoptosis, Dr. Thomas R. Brown; diseases of the pancreas, Dr. Eugene L. Opie; and diseases of the liver, gall-bladder, and biliary ducts, Dr. A. O. J. Kelly. While the criticism might be made that in a work so largely intended to be one of reference a somewhat more extensive consideration of the recent work on the theory of digestion and its application to metabolic problems, as well as a fuller description of laboratory methods of diagnosis would have been justifiable, it is possible that the available space has been employed in a manner more likely to be useful in everyday practice and therefore of benefit to the majority of readers. That the volume is well adapted to the latter purpose is indubitable, and those who have found reason to admire its predecessors will have no grounds for disappointment in the present addition to the series.

The Systematic Relationships of the Coccaceæ. With a Discussion of Bacterial Classification. By Charles Edward Amory Winslow, Assistant Professor of Biology at the Massachusetts Institute of Technology, and Anne Rogers Winslow. New York: John Wiley & Sons, 1908.

One of the needs of the science of bacteriology at the present day is a satisfactory classification. The older methods were unscientific and bewildering, and most of the modern writers on the subject make use of schematic groupings that are entirely arbitrary. The present volume is an attempt at a classification which shows the natural relationships of the bacteria; and it represents a large amount of independent and personal work done in the laboratory of the Massachusetts Institute of Technology. From the preface we learn that five hundred different strains of coccaceæ were isolated from different sources—from the human body, in health and disease; from air, from water, and from earth. These were submitted to eleven definite and, in most cases, quantitative tests; and the results were analyzed with a view to the centers about which each character varied in the series as a whole, and to the general correlation between different characters. The volume contains chapters on The Problem of Bacterial Classification.—The General Systematic Relations of the Coccaceæ.—Methods adopted in the Comparative Study of the Cocci.—Subfamilies and Genera of the Coccaceæ.—The Genus Diplococcus.—The Genus Ascococcus.—The Genus Streptococcus.—The Genus Aurococcus.—The Genus Albococcus.—The Genus Micrococcus.—The Genus Sarcina.—The Genus Rhodococcus.—Summary of the Genera and Species of the Coccaceæ.—Key to the Genera and Species of the Coccaceæ, and a Bibliography. The authors have performed a real service, and the book will prove a valuable addition to bacteriological literature, both in the laboratory and in the library

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held March 22, 1909.

DR. H. SEYMOUR HOUGHTON IN THE CHAIR.

Control and Prevention of Ophthalmia Neonatorum.—The following resolutions were passed by the society: Resolved: That the item in the supply bill introduced by the Ways and Means Committee of the Assembly providing for an appropriation of $5,000 for the control and prevention of ophthalmia neonatorum and the prevention of blindness as recommended by the New York State Commissioner of Health, Dr. Porter, be approved by this society. Be it also resolved: That official copies of this resolution, signed by the president and secretary, be forwarded to Hon. Jotham P. Alls, chairman of the Finance Committee of the Senate, and to Hon. Edwin A. Merritt, Jr., chairman of the Committee on Ways and Means of the Assembly. It was also resolved that the Medical Society of the County of New York endorses the movement calling for an international congress for the prevention of ophthalmia neonatorum and for the prevention of blindness, and recommends it to President Taft for his favorable consideration, asking that he extend an invitation to the world to participate in a congress to be held in Washington, D. C., in 1910.

Mineral Springs and Gas Well Properties of Saratoga.—The following resolution was offered, but laid on the table: Resolved: That we heartily endorse the bill introduced in the State Senate by Hon. Edgar T. Brackett and in the Assembly by Hon. George H. Whitney, which empowers the State to acquire the mineral springs and gas well properties of Saratoga and to retain them as a State reservation for the free use and benefit of the people of the State of New York for all time to come, such a plan being in keeping with the State and national policy of conserving the natural resources of the country. Resolved: That official copies of this resolution be forwarded to the Senator and Assemblyman named in the resolution.

In Memoriam.—Dr. WILLIAM K. SIMPSON read that for Dr. Andrew J. McCosh.

Dr. L. BOLTON BANGS read that for Dr. William Tillinghast Bull.

Dr. HENRY GRISWOLD presented this for Dr. Robert A. Murray (read by the secretary).

Freezing as a Therapeutic Measure; Liquid Air and Carbonic Acid Snow.—Dr. GEORGE THOMAS JACKSON and Dr. S. DANA HUBBARD presented this communication. (See page 633.) Dr. Hubbard made a demonstration of the carbonic acid snow-making machine and treated several patients before the society.

Dr. CHARLES T. DADE said that ten years ago he read a paper on the use of liquid air in the treatment of lupus erythematosus at the Vanderbilt Clinic; the patient then reported had had no return of the disease. Without doubt the superficial forms of epithelioma could be removed by freezing. Dr. Jackson was right when he gave White the credit of introducing this measure. It was very important to get a crust over the sore, which should be allowed to remain *in situ* and not picked off; this usually fell off in two and three weeks. The pain resulting from the application of this measure was not an intense one; if a baby was treated at the time of nursing he would at once stop crying when put to the breast. All who had used liquid air and carbonic acid snow believed that better results were obtained from the liquid air; where three or four applications were required in using the carbonic acid snow but one application of the liquid air was required to get the same result. Again, thirty seconds was the time to get a certain result with liquid air; to get the same result with carbonic acid snow required one minute and five seconds. In true lupus no good results were obtained; but very good results were obtained in the treatment of the superficial forms of disease, such as the sclerodermata.

Dr. HENRY H. WHITEHOUSE said that his experience had been greater with the use of liquid air than with the use of carbonic acid snow. There was one factor in the first that did not obtain in the snow—the liquid itself, with which the swab was saturated, gave an added effect. So, instead of the three elements in the technique, the accuracy of contact, the amount of pressure, and the duration of the pressure which they had in the carbonic acid snow—they had in the use of the liquid air this other factor, the saturation of the swab with liquid air. Therefore one could get an effect upon larger growths with the liquid air than could be obtained with the snow. In a case he had reported some time ago, a case of epithelioma of the chin and extending to the mucous membrane of the lip, and which had become inoperable, he did not believe the use of the snow would have produced the good result that he obtained from the liquid air. There was a recurrence thirteen months after the first treatment, but this quickly responded to but three applications. It was now over three years since the last application; the patient was seventy-six years old and there was no recurrence.

Dr. JAMES D. GOLD of Bridgeport said that personally he preferred the liquid air, believing that with it he got better results than with the carbonic acid snow. With it the patients complained of less pain and fewer applications were required to get the same effects. He related four cases in which the liquid air had been used with benefit.

Dr. WILLIAM B. TRIMBLE also believed that the effects of the liquid air were superior to those of the carbonic acid snow. Especially good results were obtained in the black-haired nævi. In a large variety of nævi, however, better results were obtained by the use of hot water injections as first described by Dr. John A. Wyeth.

An Operation for Congenital Dislocation of the Hip; Exhibition of Cases and an Instrument Used in Performing the Operation.—Dr. RUSSELL A. HIBBS said that in all cases of congenital dislocation of the hip the head laid above the acetabulum, the great majority posteriorly on the dorsum of the ilium. The fact that the head was above the acetabulum, the shortening of the muscles and ligaments in consequence of this displacement constituted the chief difficulty to the reduction, assuming that the head and the acetabulum were approximately normal. Where there were abnormalities of the bony constituents of the hip joint the cases required special consideration. The dislocation above noted constituting the largest class, was the subject which he discussed. The most successful procedure in this class of cases thus far used was what was known as the Lorenz operation. In this the traumatism was considerable. The procedure he described was first used at the Orthopedic Hospital on April 30, 1907, and was based primarily on the fact that, in a given case, by flexing the thigh upon the abdomen and extending the leg, the head of the bone could be forced downward behind the acetabulum to a point below it. This had been confirmed by means of the *x*-ray in cases up to the thirteenth year. By flexing the thigh extremely in adduction and extending the leg, the muscles were made to exert in some measure the

same pressure in forcing the head downward that they exerted in holding it upward when the leg was in full extension parallel with its fellow, so that in this way the muscles which hertofore had furnished the chief difficulty to the reduction became a most important aid to its accomplishment. The greater tension put upon the muscles by the increase in the length of the limb after reduction made them contribute to the stability of the reduction and obviated the necessity of wearing plaster so long as after the operation of Lorenz. The problem was one of adopting some means to bring the leg back by abduction and extension, so that the head might be forced to travel upward by a more anterior route into the acetabulum. To accomplish this end there must be absolute control of the pelvis, and a trochanteric pad so shaped and held against the trochanter that it would force the head upward and forward. The table to accomplish this purpose he presented. He said he had operated upon thirty dislocated hips and had succeeded in placing the head in the acetabulum and holding it there in all but two cases. Seventeen of these cases were from two to four years of age, seven from four to ten, and six from ten to thirteen. In no case was there any traumatism whatever. The plaster was applied with the thigh and leg in that position which placed the adductors and hamstring group upon tension. The duration in plaster for the cases from the fourth year upward was from four to eight weeks. In those from two to four years, the experimental work led him to the conclusion that the plaster should be worn for three months, being changed at intervals of two weeks, gradually bringing the leg to a straight position. Dr. Hibbs presented four children upon whom he had operated, thus showing the good results he had obtained.

Penmanship Stuttering.—Dr. E. W. Scripture described one case to illustrate a disease of the same nature as stuttering in speech, the difference lying in the fact that the man stuttered in his penmanship and not at all in his speech. The patient was a teller in a bank and explained that he had suffered so much on account of his writing that he had been passed over in promotions and had even thought of giving up his occupation, that a nervous fear seized him the moment he took up a pen. Before beginning to write he would make a number of nervous strokes with the pen without touching the paper. There were cramps of the muscles of action resulting from a compulsive nervous fear that was aroused whenever the action was contemplated. This was the first case of the kind that Dr. Scripture had ever heard of. The therapy was based on the theory of stuttering that had substantiated itself for speech. The stutterer spoke in a peculiar voice that betrayed him to the practised ear even when he did not stutter. This voice was connected with his impulsive idea, namely, with the thought that he was going to stutter. To cure the trouble he was taught to use a form of speech that was entirely new to him, the speech of normal persons. As soon as he understood how normal persons inflected their voices with rising and falling melody and could imitate them, he could speak without stuttering. His voice was changed from a harsh, cramped one to a melodious, easy one. Applying this principle to the penmanship stutterer he sought a method of imparting thought by written characters that would involve graceful and easy movements of the arm and hand. This method had to be entirely different from penmanship and yet capable of gradual change to it Chinese writing brushes were bought, making it possible to use a free and graceful movement of the arm. A new alphabet was devised. It was constantly impressed upon the patient that he was writing in an entirely new way; as long as he had this feeling he would be free from the compulsive idea. The thought of acting in a new way was sufficient. The patient was progressing steadily toward a good cure.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Held February 16, 1909.

Dr. Joshua M. Van Cott in the Chair.

The Public Hospital System of Greater New York.—Mr. Robert W. Hebbard, Commissioner of Charities of New York, read this paper. He said that, instead of a hospital system in New York City, there was a woful lack of it. There was the unique spectacle of three different departments of the city government administering the hospitals of the metropolis. They were the Department of Health, the Department of Charities, and Bellevue and Allied Hospitals. There was as much reason for the existence of three different fire departments, or three different departments of police. Thus, tuberculosis in its different forms, incipient, intermediate, and advanced, came under the management of the three distinct bureaus mentioned above. The poor consumptive frequently did not know where to go, in applying for relief, subject as he was to be sent from pillar to post, in this ridiculous subdivision of authority and responsibility. The Mayor of the city had seen this confusion and recently had appointed a commission to consider this subject in all its bearings and to recommend an improved system to the Legislature. This commission had already drafted a report, setting forth the complexity of the situation. It had shown that while in Manhattan $10,000,000 had been appropriated or planned for in the way of hospital construction, not $1,000,000 had been appropriated for Brooklyn, to which the mass of the population was coming. The commission had recommended the extension of the hospital system to Brooklyn, the concentration of the hospitals under one head, and the preservation of the local autonomy of each borough. There had been under construction in Brooklyn a new hospital, the first one to be built by the city in that borough in thirty-five years. This was rapidly nearing completion on Ocean avenue and was to be opened in July, 1909. The duty of nominating the staff of the hospital had been placed in the hands of a committee of the Kings County Medical Society. Besides, the construction of the Bradfrod Street Hospital was soon to begin, as well as the erection of a new wing to the Kings County Hospital. There had also been projected a new pathological laboratory for the Kings County Hospital, and also a nurses' home. The commission was confident that the borough needed a number of emergency relief stations. The cooperation of the members of the Kings County Medical Society was counted upon. Medicine was taking great strides in New York City, and nowhere was this more marked than in Brooklyn Borough. The time was ripe for the medical men of the city to put an end to the lack of system that had prevailed in hospital organization. The Academy of Medicine and the City Club had been advocating the establishment of an ambulance system that would cover effectively every borough in the greater city.

The Biological Foundation for the Specific Therapy of the Infectious Diseases.—Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, of New York, read this paper. He alluded to the newer conceptions that had arisen as to the mode of con-

quest by the body of the various infections. These were overcome through the operation of the fluids of the body and the mobile cells, the phagocytes. The latter comprised two classes, leucocytes that dealt with bacteria, and those that were not so mobile and dealt with tissue elements that had suffered. In the blood there were also substances originally called alexins, which had the power of neutralizing the parasites that invaded the body. Alexins could better be defined as the equivalent of the complemental substances that acted between the bacteria and other substances in the blood and brought about the destruction of the former. The term alexins was originally applied by Buchner to the defensive principles in the body. These were normally present in the body. It was found to be relatively easy to produce outside of the body antitoxins, the introduction of which inside the body would serve to overcome the toxins produced by microorganisms. But in the case of the intracellular toxins, in which the infectious agent was bound up with the cell and did not exert its influence apart from the cell itself, it was not possible to produce antitoxic substances easily. The poison was freed only by the destruction of the cells. In case of recovery from a bacterial disease a second attack rarely occurred. An apparent contradiction to this statement seemed to be suggested by the occurrence of a relapse in typhoid, but here it was quite probable that the secondary attack was paratyphoid and not true typhoid. Recovery left behind in the body a relative degree of immunity. Although the biological foundation of immunity was well understood, that form of immunity in which the organism produced extracellular toxins had been more thoroughly investigated and understood than the form occurring in infections with organisms of the other type. Various parts of the body possessed unequal immunities. This was suggested by the manner in which infections tended to localize themselves. For example, typhoid was localized in the intestinal tract and the meningococcus in the central nervous system. The localization of infections was to a certain extent the expression of the mode of entry of the organisms into the body, but to a greater extent it was the indication of the varying degrees of resistance offered to the organisms by the different parts of the body. Thus the tetanus poison, which could enter at any point, localized itself in the central nervous system. But it had been found possible artificially to increase the immunities in particular regions, such as the connective tissue, with reference to the tetanus bacillus. Thus, when spores of this organism were introduced into the subcutaneous tissues, mixed with eosin, which confined their activity to the region injected, it was found that by means of repeated injections the connective tissue could be immunized; the tetanus poison could no longer enter the body through that tissue. The same result could be accomplished with the typhoid organism, in which a particular locality of the body could be brought to a higher degree of reactive immunity than the body as a whole. In the different forms of localized immunity the cells were left in a modified form. It had been sought to get some points of the manner in which the body brought about spontaneous cure. If one studied from day to day the course of healing in cerebrospinal meningitis, there would be noticed a diminution of viable meningococci existing outside of the leucocytes, and the diminution of the cells themselves; this was coincident with the clearing up of the infectious process. It was desirable to produce artificial means for promoting the same phenomenon. If an animal was immunized, a relatively small amount of antitoxic substance was produced. Other principles were generated which were not antitoxins; they had not the power of neutralizing toxins, but acted like lysins, opsonins, etc., and were effective when brought into contact with the organisms in a confined space. One of the main reasons for failure in this form of warfare against infectious organisms was that there was no means of bringing these agents into relationship with the microorganisms in a state of sufficient concentration. When injected into the blood-stream their uniform diffusion over the body prevented the attainment of this state of concentration. In places readily accessible, like the meninges, pleura, and the interior of the joints, it was conceivable that such a concentration might be attained. The ideal treatment was the serum treatment, the products used being the specific reaction products to the particular germs. These were the parasitotropic substances which were not injurious to the cells of the host, although they were not always effective against the parasite. It was unfortunate that it was not always possible to prepare these substances in a state of sufficient concentration. The future of serum therapy depended upon a better understanding of the resistance offered by the body to threatened infection, and of the phenomena that occurred in a spontaneous recovery. The question then presented itself: What was immunity that was not antitoxic? The knowledge of antitoxic immunity was so considerable that it was possible to predicate the degree of infection, its duration, and the localization of the process. On the other hand, the knowledge of immunity to microorganisms that did not produce extracellular toxins was slight. In the presence of these organisms one's attitude was to a certain extent hopeless. We were no further advanced than before the bacteriological era. Efforts to combat these organisms had been to a certain extent useless; on the other hand, they tended to eliminate themselves and the resulting immunity was considerable and lasted for many years. Undoubtedly the next step in advance was to get a closer understanding of the rebellious agents belonging to this class of infections. In combating them there was a new form of therapy which the speaker now desired to discuss. This was chemotherapy. This was, to be sure, an old form of treatment, as exemplified by the use of quinine in malaria and mercury in syphilis. But these were both instances of empiricism. The facts relating to specific chemotherapy had been worked out experimentally in the chemical and pharmacological laboratories. The beginning went back to twenty years ago, when Ehrlich began his investigations on the dyestuffs. He had found that methylene blue and neutral red had a selective action on certain parts of the body. The investigation of the relation between the dyestuffs and the cells became the basis of the side-chain theory. The dyestuffs were again coming to the front in the treatment of experimental trypanosome infections. It had been found by Koch that the aniline compound atoxyl was of curative value in the treatment of that form of trypanosome infection known as sleeping sickness. The disadvantage of its use was the fact that it occasionally produced blindness. Another objection was that the trypanosomes not destroyed tended to become more virulent than before. About this time Ehrlich took up the study of trypan red, which had been found so effective a cure in certain cases. Experiments with this suggested that it might be possible to so increase the efficiency of atoxyl as to increase its parasitotropic and reduce its organotropic properties. The object was to learn to shoot straight with the drug. The introduction of the glycocoll radical seemed to fulfill these requirements. This form of therapy was applicable not only to trypanosomiasis, but also to relaps-

ing fever, tick fever, and possibly also to syphilis. Mercury was, of course, a successful but not an ideal specific. Syphilis could be inoculated into monkeys and into the lower but not the higher apes. The direct inoculation of the syphilitic virus over the eyebrow of the macacus produced a lesion indistinguishable from the human lesion, and also persisting for two years. In the lower monkeys there were no secondary manifestations. The lesions remained localized. If a series of animals were taken, and inoculated by means of scarifying the skin over the eyebrows and rubbing in the virus, the lesion would be developed in four weeks. If two or three grains of atoxyl were given on the day following or as late as fifteen days following the inoculation, the disease would be prevented. The animals were not immunized, but simply protected. Reports of the use of this drug as a substitute for mercury did not give results that were as yet satisfactory. The modifications which atoxyl had undergone might make it more effective in syphilis, as it had in trypanosome infections. The Wassermann reaction was a valuable aid in the diagnosis of syphilis. Its principle depended upon the presence in the blood of infected individuals of an immune body. Dr. Noguchi had prepared the various factors of this test on bits of absorbent paper. The essence of the Wassermann reaction consisted in the fact that the blood serum of a syphilitic patient had its complement fixed when brought into contact with the extract of the liver of a syphilitic fetus. When such a mixture was added to the blood serum of a guinea pig which had been immunized to the human red blood cells and then heated so as to destroy the complement, the result was that no hemolysis occurred. On the other hand, the blood serum of a healthy individual, when mixed with the extract of liver of a syphilitic fetus, had its complement free. When further mixed with the heated immune serum of guinea pig and human red blood cells, the free complement caused hemolysis to occur. The necessary factors in the Noguchi modification of the Wassermann reaction were as follows: A drop of human blood, a drop of serum from a syphilitic patient mixed with salt solution; heated blood serum of the guinea pig immunized to human red blood cells, and the antigen, consisting of the extract of the liver of a syphilitic fetus. The three last were mixed and incubated in a tube carried in the vest pocket. When mixed later with human red blood cells if syphilis was present no solution of the cells took place but if syphilis was absent the corpuscles were dissolved. In the former case, the test being performed in a test tube, the intact corpuscles falling to the bottom of the liquid, this became clear; in the latter case, the destruction of the corpuscles caused a clouding of the liquid. The test was positive in 90 per cent. of suspected cases of syphilis, and as treatment was successfully carried out the reaction tended to disappear. This method was therefore a valuable criterion of the efficacy of treatment. By means of it relapses could be predicted even before the obvious physical evidences appeared.

NEW YORK ACADEMY OF MEDICINE

SECTION ON PEDIATRICS.

Stated Meeting, Held March 11, 1909.

DR. ELI LONG IN THE CHAIR.

A Case of Exophthalmic Goiter in a Girl Ten Years of Age.—Dr. M. NICOLL, JR., presented this case. The clinical data regarding the case were insufficient because observations had been made only during a week or two. The father was an Austrian Jew, forty-three years old, and had been in this country thirty years. He was a moderate drinker and probably an excessive tobacco chewer, but denied ever having had venereal disease. The physical examination was negative, except as giving evidence of a highly nervous mental condition, and a slight tremor of the face when speaking. His eyes readily filled with tears. The action of his heart was normal. The mother came from the same country as the father, had been married twenty-three years, had seven living children, and no miscarriages. The two youngest children, three and six years of age, seemed normal, and one girl of nineteen was said to be strong and well. The oldest boy had gone to City College for four years, but had given up work because of nervousness and weakness for the past three months. His thyroid gland at the upper part showed no hypertrophy, but his eyes had the prominence of his father's. His pulse was between 120 and 142 when he was seen at the clinic. A fourteen-year-old girl was said to have frequented the clinic for years to be treated for asthma. She had a chronic emphysema and when first seen had a typical asthmatic attack. These attacks came on in damp, rainy weather. Her pulse had ranged between 120 and 165, the latter during an attack of influenza. If there was an enlargement of the thyroid it was not palpable. A ten-year-old sister came to the clinic to have her eyes treated. She seemed to have an exophthalmus, fairly well marked von Graefe sign, and marked pulsation of the retinal vessels. The thyroid was distinctly enlarged. The patient was moderately nervous, but attended school regularly. Her pulse varied from 120 to 145. Her urine was normal.

DR. JOHN ROGERS, JR., said that the apparent heredity in these cases and the diagnosis was of interest. He believed that heredity increased the susceptibility. The parent might transmit a certain amount of weakness in certain organs or perhaps a diathesis. In the diagnosis of exophthalmic goiter there seemed to be one characteristic "fatigability," and the nervousness brought on by a little emotion or strain. He thought the condition could be made worse or better by the administration of thyroid or thyroid products. Dr. Riggs had been working in the Cornell laboratory for two years endeavoring to determine the iodine content of the thyroid gland and had proven that the ideas in regard to this were erroneous. In exophthalmic goiter the proportion of iodine to the weight of the gland was very much less than normal; this diminution was in direct proportion to the severity of the disease. This was probably due to some defect in the gland, which caused a failure to take up the iodine. These patients could be made better or worse by the administration of small doses of iodine, which showed their susceptibility to this agent. The various defects presented by the different members of this family, one having asthma, another headaches and constipation, another being feeble, and the father showing mental defects, seemed to indicate that the thyroid was intimately connected with nearly all the organs of the body. Any strain on the nervous system made the disease worse and any disorders of the digestion aggravated it. In fact, any intercurrent affection seemed to make the disease worse. He believed that this gland was concerned in the fundamental chemistry of every organ and tissue in the body and that it had an "activating" effect upon each. Both the quantity and the quality of the secretion had to be considered in every case. In some cases the quantity of the secretion was too great and had to be cut down by means of surgery or by a specific antiserum. In other cases the quantity was not in excess, but the quality was impaired and had to be "helped out," as it were, by one or another of the pure thyroid proteids, or by iodine. Every effort should be made to

improve the general nutrition, as this in turn affected the thyroid and the quality of its output.

A Case of Inoculation Tuberculosis Following Ritual Circumcision.—Dr. Sara Welt-Kakels presented a baby, six months old, born of healthy parents and breast-fed, in which there was no history of lues or tuberculosis. The parents had been married four years and had one other child, who was healthy. The baby was born at full term and at birth had been slightly asphyxiated. On the ninth day he was circumcised according to the orthodox Jewish ritual. The wound was sucked by the operator, who had followed his occupation for the past thirty years. He had a cough, and, in all probability, tuberculosis. Afterward the wound looked inflamed and the surrounding parts red and swollen. The child seemed feverish and suffered from a slight digestive disturbance. Some four weeks later the mother noticed a swelling in the left groin and consulted a physician, who prescribed an ointment. No improvement followed its use. In December the child was brought to Mt. Sinai Dispensary, showing a small hydrocele on the right side and a glandular swelling in the left groin. When the woman returned again some weeks later the prepuce looked edematous, a slight nodule was felt in its periphery, and fluctuation was felt in the glandular swelling. This was aspirated and a thin serous discharge, mixed with flocculi, escaped. Tuberculous infection was then suspected. Von Pirquet's test gave a positive reaction. The discharge was examined by Dr. Bernstein, who reported the presence of typical tubercle bacilli. In the latter part of February the enlarged and partly suppurating glands were removed under chloroform. Some of them were adherent and brittle, and had to be removed with the curette. A chain of glands situated near the large vessels were also removed *in toto*. Dr. Bernstein reported that sections of the glands showed tubercular giant cells, with areas of cheesy degeneration. Tubercle bacilli were also detected by the usual methods. The child was well fed, weighed 19½ pounds, looked rosy and happy; this was a living refutation that tuberculosis in infancy led to cachexia and marasmus. The temperature was normal and also the thoracic organs, although a few râles could be heard over the lungs. The spleen was still slightly enlarged, and, while there was still a deep sinus in the left inguinal region, it was gradually filling up with healthy granulations. It appeared from a study of inoculation tuberculosis following ritual circumcision reported in current literature that these cases were frequently looked upon as syphilitic, and valuable time was lost while employing specific remedies. It was important to make a careful diagnosis on account of the tendency of tuberculosis in infancy to become generalized, and this could easily be done by means of the microscope and the newer methods of examination. The prognosis of the case was dubious if one considered the great disposition to selection so characteristic of tuberculosis in infants. The outcome would depend on whether the process had been confined to the inguinal lymphatic glands or whether it had progressed to distant organs. The literature seemed to indicate that cases in whom recovery had apparently taken place afterward developed fatal tuberculous lesions. As Dr. Knopf had recently suggested, only persons who had shown the necessary skill before a medical board of examiners should be allowed to perform circumcision, and they should submit themselves to a medical examination every time they were called upon to perform this rite. Dr. Willy Meyer believed with Professor Maas that it was the duty of physicians to protest against ritual circumcision.

Dr. Henry Koplik said that while these cases of inoculation tuberculosis occurred occasionally they were becoming more and more rare, as the men who performed this rite became more enlightened. These men in New York City were as a rule careful and did their work with the necessary surgical precautions. While Dr. Koplik was in charge of the Good Samaritan Hospital and Dispensary he saw many of these cases and they were properly diagnosed as tuberculous. Dr. Koplik recalled a case that he had seen with Dr. Ware, where the child had but little constitutional disturbance and a slight cachexia. The cachexia usually appeared later and these children, as a rule, went to the wall, developing other forms of tuberculosis. Among the cases that he had seen, the earliest appeared three months after circumcision.

Dr. Charles Goodman said that the danger of the ritual circumcision lay in the old traditional custom of practising the act of sucking, after the prepuce had been divided. The purpose of this was not definitely understood, but was explained by some Hebrew writers as being hemostatic and styptic; by others as having a cleansing action, preventing inflammation of the wound. The dangers of this practice had been brought to notice in other countries. In 1845 the French Government permitted only Mohels properly qualified by instruction to perform circumcision, and at the same time abolished the suction part of the rite. In German Austria, and in other countries, the suction was performed with the aid of a cupping glass, thus permitting of all the traditions of the ritual of circumcision without the danger of infecting the infant. A case of syphilitic infection was reported in 1811 by Krakow. In the early years of Dr. Goodman's practice he insisted upon having the mohel brought to his office; here he gave instructions and warned him not to do suction without the circumcision glass. The licensing of only competent and properly instructed mohels would do away with the dangers to the innocent offspring.

Dr. Martin W. Ware said that after a period of incubation of four weeks the glands enlarged and the lesion assumed the characteristic appearance of a tuberculous sore, thus coinciding with the first appearance of the luetic adenopathy; the sore could pass for either one of lues or tuberculosis, thus rendering the clinical diagnosis somewhat difficult. The condition appeared to be on the wane. At such a tender age the glands were found to be extensively involved and the removal of them constituted a capital operation; after operation for tuberculous adenitis, the children did badly. Dr. Ware reported an interesting case of a child with inoculation tuberculosis of the lobule of the ear, due to piercing the ear with a needle and thread, after the thread had been moistened by the saliva of a tuberculous nurse.

A Case of Diabetes in a Boy Ten Years Old.—Dr. Henry Heiman presented this patient. The trouble began five months ago with thirst, increased appetite, increased frequency in urination, and loss of weight. The urine had a specific gravity of 1,032, the daily amount passed was 5,700 c.c., and sugar amounted to 285.0 in twenty-four hours. There were a few small hyaline, finely and coarsely granular casts and some epithelial cells. When Dr. Rudisch was requested to assume charge of the patient he ordered a diet which represented proteids 88.65, carbohydrates 29.72 and fats 114.12, representing a caloric value of 1,633.0. Atropine methylbromide was first given and then the sulphate was sbustituted. To-day the boy was caring for 105 grams of bread daily and without any disturbance in the sugar metabolism. What the ultimate outcome

could be in this case Dr. Heiman would not state. The boy had gained in weight and the sugar had disappeared entirely from the urine.

Dr. Rudisch said this case was of particular interest because of the age of the patient; in such young persons the prognosis was usually considered very unfavorable. This child of ten years, with diacetic and oxybutyric acids in the urine, taking carbohydrates all the time at home, he continued on a limited diet of carbohydrates, but the diacetic acid would not disappear from the urine. In such cases all authorities agreed that a certain amount of sugar was indicated; therefore, he gave the child fruit, hoping that the levulose contained therein would not be deleterious as starch or dextrose. He then gave the patient an absolutely strict diet of proteids, including meats, fish, and such vegetables as contained small quantities of starch, especially cabbage. To satisfy the boy's hunger, quantities of cabbage and other bulky vegetables were given. The boy's stomach must be kept full, or he would complain. Under this diet the diacetic and oxybutyric acids disappeared from the urine, proving that the presence of these acids was not always a contraindication to a strict protein diet, contrary to the opinions of most authorities. A little fat in the form of oil, not butter, was given. From his experience, he had found that one could decrease the amount of sugar excreted and increase the tolerance for carbohydrates more rapidly by the adminstration of atropine salts combined with diet than with diet alone. Sulphate of atropine should be given, commencing with small doses, and increased very slowly. The polyuria in the patient presented by Dr. Heiman had diminished, and he was passing now 2,000 c.c. of urine daily, whereas he had passed 5,000 c.c. before treatment was instituted. The prognosis in these cases was dubious, and the treatment must cover a long period of time. These patients should be kept where they could be watched with care, because they would use every means to obtain crackers, bread, and the like surreptitiously.

Pneumonia; A Bedside and Laboratory Study.—Dr. Augustus Wadsworth presented this paper. He said that he had found the study of experimental pneumonia very interesting and instructive. Other organisms besides the pneumococcus had been found as incitants of pneumonic infection, but, with improved technique and more extended study of the cases at autopsy, the importance of the pneumococcus had been more and more fully disclosed. Streptococci as primary incitants of lesions were less frequently found except in certain of the so-called secondary pneumonias of the exanthemata. Both streptococci and pneumococci were found in lung lesions; when the etiology was thus obscured precedence as a primary incitant should be given to the pneumococcus. Friedländer's bacillus was now thought to be more often a secondary or complicating, than a primary, incitant of the disease. Dr. Wadsworth said that in 1902 he had begun his researches designed to determine the effect of cultures of pneumococci of known but varying grades of virulence, when introduced under the skin, into the ear vein and through the trachea into the lung. These inoculations were made in normal rabbits, in rabbits predisposed systematically by poisoning with phenylhydrazin, in rabbits predisposed locally by injury to the lung through exposure to cold, and as the result of the introduction of foreign material directly into the lung, and finally in rabbits predisposed both locally and systematically. He had observed the following results: Subcutaneous and intravenous inoculations were harmless with cultures of inadequate virulence, or with virulent cultures the results were fatal from either quick or prolonged bacteriemia. In these experiments significant lung lesions never developed. Endotracheal inoculations alone gave rise to lesions comparable to pneumonia in man, but these varied greatly. Cultures which proved fatal when introduced under the skin or in the vein, frequently proved harmless when introduced through the trachea. Predisposition accelerated the development of the infection and its course. With virulent cultures the lung changes were less in extent and the bacteriemias were rapidly fatal. Bronchopneumonic types of reaction only were obtained when virulent cultures were used. Extensive lesions of the lobar type were obtained only when both the general system and the lungs were predisposed, and organisms of very low but sufficient virulence were introduced through the trachea; this balance of conditions was secured only with difficulty in the normal or predisposed rabbits. In order to secure exact experimental conditions, extremely virulent cultures of the pneumococcus were introduced through the trachea of the rabbit already partially immunized to this organism. Under these conditions extensive lesions, comparable to the diffuse pneumonias of man, were more often obtained. Experiments with the dog, which was naturally less susceptible to the pneumococcus, supported very strikingly these observations.

By means of systemic study with controlled conditions that would admit of accurate and significant comparison, it was possible to interpret the results of previous researches and to suggest with reasonable precision the subtle balance of conditions of bacterial virulence and tissue susceptibility underlying the different types of pneumococcus infection in man. Reactions of the bronchial type developed more frequently in conditions of greater susceptibility, while the lobar type occurred in conditions of lesser susceptibility or greater resistance. Examination of the blood had revealed the presence of the pneumococci and suggested that bacteriemia occurred in all stages of the disease and was possibly a constant factor in all cases. The finding of the bacteria in the blood proved that bacteriemia was an essential part of the disease, and not that lung lesions were due to them. Man constituted the chief source of the pneumococci, but streptococci were to be found everywhere. Virulent pneumococci were found in the mouths of from 20 to 30 per cent. of the inhabitants of our cities. Under the auspices of the Commission for the Investigation of Acute Respiratory Disease, appointed by the Board of Health of New York City, Dr. Wadsworth had taken up the problem of mouth disinfection in the prophylaxis and treatment of pneumonia. Complete disinfection of the mouth proved impracticable. This conclusion had been reached by almost every student of the problem. A mouth wash should be bland, nonirritating, isotonic, slightly alkaline, should diffuse readily with the secretions and cleanse the mucous membrane. It should possess disinfecting properties as well. The only solution which fulfilled these conditions to any satisfactory degree was one containing 20 to 30 per cent alcohol, 5 to 10 per cent. water, salts, and flavoring oils. At present attention could only be directed to decent care in coughing and sneezing, reasonable isolation of the sick, the hygiene of the mouth and pharynx, and the care of these secretions. Experience had tempered the concern caused by extensive lung involvement, except where there was mechanical interference with respiration endangering life; the serious signs and manifestations of the disease were not referable to the lung. The serious respiratory signs were those due to failure of the circulation. At autopsy

the fact was revealed that despite the large amount of exudate in the inflammatory processes the pneumococci were rarely numerous. Laboratory and bedside experience suggested that virulent pneumococci gaining access to the lung and there finding conditions favorable, developed with astonishing rapidity, inciting inflammatory exudative reactions and elaborating toxic products, which were rapidly diffused. Involvement of the general system then ensued; the onset of the disease was evidenced by a rise of temperature together with a chill.

The eosinophiles disappeared during the febrile period, returning just before the crisis or with it. Agglutination reactions varied just as in other diseases. The heroic measures of clinicians at the bedside failing to yield satisfactory results, attention in recent years had turned to the laboratory and to the student of immunity and serum therapy. An antitoxin was first sought, but in the absence of a toxin this was impossible. The use of watery extracts of leucocytes obtained from aleuronat pleurisies of the rabbit had been advocated, but, in his experience, this prolonged the course of the experiment and might save the animal, but only in infections of not too great virulence. To meet the indications obtaining in individual cases and to avoid the adoption of those measures which might interfere with the development of the immunity upon which recovery ultimately depended was no light task. One often hesitated, and when in doubt it was best to do nothing, or, as Dr. Northrup wisely said, open the window and feed the patient properly. Drugs were to be avoided except in the correction of errors of circulation or digestion, or for the comfort of the patient. The clinician and the research worker were mutually indebted to one another for much that was valuable in their several studies of pneumonia. Clinical data lent its practical suggestions to laboratory work, often serving to check useless effort and clearing the imagination of the vagaries to which theory was prone to fall a victim.

Dr. David Bovaird, Jr., said that the vital statistics of pneumonia showed that it was one of the acute infectious diseases which was not under control at the present time. The vital statistics of England for ten years showed that the number of deaths from contagious diseases had remarkably diminished, but that the number of fatal cases of pneumonia showed an increase. On the Isthmus of Panama pneumonia was the one disease that gave the greatest fatality. Greater importance should be given to the bacterial infection of the blood; these patients suffered from bacteriemia, rather than from consolidation of the lungs. On the one hand, children or elderly persons were seen with extensive consolidation of the lungs, who scarcely considered themselves sick and presented no evidences of serious illness. On the other hand, they met from time to time an individual in excellent health, very strong, taken down with a pneumonic process in which the extent of the pneumonia was slight, yet such a patient would become deathly sick and die of the pneumonic infection. Clinical and pathological observation also showed that death from an uncomplicated pneumonia was really a rare occurrence. On the autopsy table there would be found other lesions than pneumonic, such as an endocarditis, or a secondary invasion of the pneumococcus in the form of an extensive pleurisy, or pericarditis, or meningitis, etc. The point that impressed itself upon him was that, given a pure lobar pneumonia, uncomplicated, one would expect the patient to recover. On the other hand, the fatal cases showed some additional invasion of the pneumococcus.

Philadelphia Neurological Society.

At a stated meeting held March 26, Dr. Alfred Gordon reported "A Case of Infantile Hemiplegia with Unusual Symptoms." He reported also "A Subdural Abscess Followed by Internal Hydrocephalus," and he presented the specimen. Dr. J. H. W. Rhein reported a case of progressive muscular atrophy following a fall upon the arm, the symptoms appearing first in the injured member. Dr. Chas. W. Burr reported "A Case of Brachial Palsy," developing with such abruptness as to suggest the possibility of hemorrhage into the spinal cord. It was, however, decided to be due to peripheral neuritis, and post-mortem examination confirmed the accuracy of this opinion. Dr. Burr exhibited "A Brain from an Epileptic." The organ was diminutive, but presented no other gross lesion. Dr. Burr exhibited also "A Brain from an Aphasic who had Largely Recovered." In the left hemisphere was an area of softening involving the basal ganglia and the internal capsule, but the cortex and especially Broca's convolution were unaffected. Dr. D. J. McCarthy exhibited "A Brain from a Case of Adenolipomatosis Showing an Accidental Complication of Cerebral Arteriosclerosis." The specimen illustrated the manner in which thrombosis may occur in the cerebral vessels in connection with vascular hypertension. The displacement of the vessel resulting from the high tension changes the angles at which branches arise, and this alteration in the course of the blood-stream may readily be attended with the formation of a thrombus. In the specimen exhibited the tenth nerve on one side was considerably displaced by the looping of a branch of the basilar artery. Dr. Horace Carncross demonstrated a patient presenting "Cramps Resulting from the Involuntary Use of Voluntary Muscles." The patient was an athletic young man who had developed the habit of contracting the vastus muscles and who presented clonic contractions in these muscles and suffered from cramps in the calves of the legs, with varicose veins in the right thigh and leg. It was thought that all of the phenomena were closely related. Dr. D. E. Robinson exhibited a patient presenting "Choreiform Movements of the Abdominal Muscles." The patient was an elderly man who had been struck by a crowbar many years before, and in whom there developed involuntary jerking of the muscles of the abdomen in the umbilical region, intensified by excitement and ceasing during sleep. Dr. Hideyo Noguchi gave by invitation "A Demonstration of a New and Simple System of the Complement Fixation-Test and of the Butyric-Acid Test for Syphilis and Parasyphilitic Affections." He explained the rationale and the method of applying the Wassermann test for syphilis, pointing out the difficulties of technique and the liability to error. He had been able to simplify the test so that it became possible for anyone, even though he did not possess any special skill or training, to apply it. Dr. Noguchi also described a test which he had devised for the detection of parasyphilitic affections, such as general paresis and tabes dorsalis. In performing this test he said he added to cerebrospinal fluid obtained by lumbar puncture a 10 per cent. solution of butyric acid in physiological sodium chloride solution and then neutralized with sodium hydrate solution. A flocculent deposit represented a positive reaction. Dr. Noguchi said that this test was not specific as was that for syphilis. Dr. Joseph Aronson then presented an interesting report of "Two Cases of Folie à Deux," occurring in mother and daughter. These two women had gone from place to place because they thought they were being pursued by certain persons with evil designs. Both mother and daughter exhibited similar delusions. The younger woman was a high-grade imbecile. Under treatment the daughter improved greatly, but very little appreciable change was brought about in the condition of the mother.

Pathological Society of Philadelphia.

At a stated meeting held March 25, Dr. Courtland Y. White presented a specimen of perforate interventricular septum and incomplete closure of the foramen of Botal. The heart came from a child three years old dead of croupous pneumonia and at no time presenting evidence of being a blue baby. Both ventricles were hypertrophied, the left being the larger and its walls the thicker. Between them, just below the auriculoventricular septum was an opening of communication about 2 cm. in diameter. In the interauricular septum there had been failure of the fold of endocardium to unite, although their margins overlapped. The pulmonary artery was considerably enlarged. Dr. White exhibited also a specimen of inflammation of the heart from a child eight years old. The pericardium was thickened and adherent in parts, with deposits of plastic exudate also in places, and there were vegetations with beginning ulceration, on both mitral and aortic leaflets. Dr. H. S. Wieder exhibited a specimen of "Congenital Misplacement of the Kidney." The organ came from a dissecting-room subject and was situated on the left side at the brim of the pelvis. The renal artery came off at the bifurcation of the aorta and the veins entered the ascending cava. The pelvis and ureter were short, and there was every reason to believe that the kidney had been in its unusual place since birth. The opposite kidney had undergone compensatory hypertrophy, but it was in other respects normal. Dr. John Speese read a paper entitled "Pure Adenoma of the Breast." He reported the case of a woman twenty-one years old in whom a small tumor of the breast previously present underwent considerable and rapid increase in size with the beginning of lactation and for this reason was removed. On histological examination it was found to be an adenoma with a minimum amount of fibrous trabeculæ. The growth is given little consideration in the text-books and few cases have been fully recorded. Fibromata and fibrolipomata are more common. Dr. F. M. L'Engle presented a communication entitled "The Flagellation of Leucocytes in the Presence of Chemical Excitants and in Other Conditions; A Preliminary Report." He reported observations confirmatory of those already made by others showing that under the conditions mentioned leucocytes in the circulating blood undergo flagellation, and he suggested that this phenomenon might have something to do with the reproduction of leucocytes. Dr. J. W. Hunter presented a communication entitled "The Structure of Inoculable Mouse-tumors with Special Reference to their Histological Variations."

Contribution to the Knowledge of Traumatic Neuroses: Diplegia of the Face of Hysterical Origin Due to Wound by a Dagger.—Augusto Di Luzenberger records a case of facial diplegia resulting from wounding of the face and neck with a dagger in the hands of the patient's father. She was cured of the wounds, which healed well, but there remained anesthesia and facial diplegia. The patient was not emotional, and did not show the ordinary character of an hysteric. When the examination was made it was found that there was blindness of the left eye, absence of smell on that side, and lessened hearing. The right eye showed concentric narrowing of the visual field. The ocular movements of the eyes were good when made together, but those of the left could not be made when the right was closed. The electrical examination of the facial muscles showed a normal reaction. Galvanofaradic treatment caused a cure of the troubles. True hysterical paralyses of the facial nerve are rare. It may be simulated by spasm of the angle of the mouth. This form is of psychic origin. In the brain are centers corresponding to groups of muscles which are in correlation with one another. When the condition is normal the impulses connecting these areas pass rapidly and without pain. But when these centers are disturbed there is pain and inability to correlate the movements which results in a psychic paralysis. This lack of correlation is frequently produced by trauma. — *Annali di Elettricita Medica e Terapia Fisica*

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Ypo tes Akropoleos eis ten Altin. (from the Acropolis to Altis—Olympia). By Spyridon Paganelis. The *Atlantis* Press, New York, 1908.

Diseases of the Nose, Throat, and Ear. By Francis R. Packard, M.D. 8vo; cloth; 369 pages; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

Diseases of the Digestive Canal. By Dr. Paul Cohnheim. 8vo; cloth; 373 pages; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

Orthopedic Surgery. By Henry Ling Taylor, M.D. 8vo; cloth; 503 pages; illustrated. D. Appleton & Co., New York.

Transactions of the American Ophthalmological Society, 44th Annual Meeting. Vol. XI, Part III. New London, Conn. 8vo; 756 pages; paper; illustrated. Published by The Society, Hartford, Conn., 1908.

Marriage and Disease. By Prof. H. Senator and Dr. S. Kaminer. 8vo, 452 pages, cloth; $2.50. Paul B. Hoeber, New York.

American Practice of Surgery. By Joseph D. Bryant, M.D., LL.D., and Albert H. Buck, M.D. Vol. V. 4to, 965 pages, cloth; illustrated. William Wood & Co., New York.

Hygiea Festband, Nos. 1 and 2. By Prof. Dr. Carl Sundberg. 8vo, paper; illustrated. Isaac Marcus's Boktr-Aktiebilog, Stockholm.

Osler's Modern Medicine. Vol. V. By William Osler, M. D., assisted by Thomas McCrae, M. D. 8vo; 903 pages, cloth; illustrated. Lea & Febiger, Philadelphia, Pa.

Clinical Examination and Treatment of Sick Children. By John Thomson, M. D. 8vo; $3.75; 629 pages, cloth; illustrated. W. T. Keener & Co., Chicago, Ill.

Practical Bacteriology, Block Work and Animal Parasitology. By F. R. Stitt, A. B., Ph. G., M. D. 12mo, 294 pages, cloth; illustrated; $1.50. P. Blakiston's Son & Co., Philadelphia, Pa.

Gasper's Genito-Urinary Diseases. By Charles W. Bogney, B. L., M. D. 8vo; 645 pages, cloth; illustrated. P. Blakiston's Son & Co., Philadelphia, Pa.

Saunders Pocket Medical Formulary. By Wm. M. Powell, M. D. 12mo; 308 pages, leather; illustrated; $1.75. W. B. Saunders Co., Philadelphia, Pa.

Constipation and Intestinal Obstruction. By Samuel Goodwin Gant, M. D., LL. D. 8vo; 559 pages, cloth; illustrated; $6. W. B. Saunders Co., Philadelphia, Pa.

The Changing Values of English Speech. By Ralcy Husted Bell. 12mo; 302 pages, cloth; $1.25. Hinds, Noble & Eldredge, New York.

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Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending April 10, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	683	196
Diphtheria	309	49
Measles	953	32
Scarlet Fever	353	23
Smallpox	—	—
Varicella	119	—
Typhoid Fever	15	—
Whooping Cough	42	6
Cerebrospinal Meningitis	8	8
Malarial Fever	—	—
Totals	2482	314

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending April 9, 1909:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, Oakland	Jan. 7–31	2	..
San Francisco	Mar. 13–20	1	..
District of Columbia, Washington	Mar. 20–27	1	..
Illinois, Danville	Mar. 21–28	7	..
Springfield	Mar. 19–26	3	..
Indiana, La Fayette	Mar. 22–29	2	..
South Bend	Mar. 20–27	1	..
Kansas, Kansas City	Mar. 20–27	4	..
Kentucky, Covington	Mar. 20–27	5	..
Lexington	Mar. 20–27	3	..
Paducah	Mar. 20–27	1	..
Michigan, Detroit	Mar. 20–27	1	..
Saginaw	Mar. 13–27	3	..
Missouri, Kansas City	Mar. 20–27	2	..
St. Louis	Mar. 20–27	2	..
Montana, Butte	Mar. 16–23	3	..
Nebraska, South Omaha	Mar. 20–27	1	..
New Jersey, New Brunswick	Mar. 20–27	2	..
Ohio, Cleveland	Mar. 19–26	1	..
Tennessee, Fayette County	Dec. 1–Mar. 2	200	..
Memphis	Feb. 20–Mar. 27	53	..
Nashville	Mar. 20–27	1	..
Texas, Houston	Mar. 20–27	4	..
Galveston	Mar. 19–26	1	..
San Antonio	Mar. 20–27	2	..
Washington, Bellingham	Jan. 20–Mar. 20	3	..
Spokane	Mar. 13–20	1	..
Wisconsin, La Crosse	Mar. 20–27	3	..
Racine	Mar. 20–27	5	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Feb. 6–20	7	1
SMALLPOX—FOREIGN.			
Arabia, Aden	Feb. 14–22	..	1
Brazil, Rio de Janeiro	Feb. 14–28	33	22
Canada, Halifax	Mar. 13–20	6	..
France, Paris	Jan. 23–30	6	..
Great Britain, Bristol	Mar. 6–13	2	..
India, Bombay	Feb. 23–Mar. 2	..	16
Calcutta	Feb. 13–20	..	146
Madras	Feb. 20–26	..	4
Rangoon	Feb. 13–20	..	3
Italy, general	Mar. 7–14	5	..
Naples	Mar. 6–13	26	6
Japan, Kobe	Feb. 27–Mar. 6	1	1
Martinique, Fort de France	Feb. 27–Mar. 6	2	..
Mexico, Mexico City	Feb. 6–27	..	54
Monterey	Mar. 14–21	..	3
Veracruz	Mar. 6–20	4	..
Netherlands, Rotterdam	Mar. 6–13	1	..
S. E. Africa, Lourenco Marquez	Jan. 1–31	..	1
Spain, Barcelona	Feb. 14–Mar. 7	..	12
Valencia	Feb. 27–Mar. 12	9	..
Vigo	Mar. 6–13	..	1
Straits Settlements, Singapore	Jan. 23–Feb. 13	..	4
Turkey, Bassorah	Feb. 27–Mar. 6	..	Present
Constantinople	Feb. 28–Mar. 14	..	6
YELLOW FEVER.			
Barbados	Mar. 6–27	10	3
Brazil, Manaos	Feb. 20–27	..	1
Para	Feb. 27–Mar. 6	..	3
CHOLERA—INSULAR.			
Philippine Islands, Provinces	Feb. 6–20	271	178
India, Calcutta	Feb. 13–20	..	28
Madras	Feb. 20–26	..	1
Rangoon	Feb. 13–20	..	8
Russia, Jarosley	Mar. 13	7	..
Rubinsk	Mar. 13	7	..
St. Petersburg	Mar. 12–19	41	7
Brazil, Rio de Janeiro	Feb. 13–28	4	1
Chile, Antofagasta	Feb. 28	15	..
Arica	Mar. 9	..	Present
Iquique	Mar. 7–14	32	in Lazaretto
Egypt, general	Mar. 11–18	5	5
German East Africa, Dar es Salaam	Oct. 10–Jan. 7	7	3
India, general	Feb. 6–13	3,803	3,162
Bombay	Feb. 24–Mar. 2	..	153
Calcutta	Feb. 13–20	..	28
Rangoon	Feb. 13–20	..	16
Japan, Kobe	Feb. 20–Mar. 6	2	1
Peru, general	Feb. 28–Mar. 13	65	33

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Original Articles.

SOME REMARKS ON THE PRACTICE OF MEDICINE AS A CAREER.

BY A. JACOBI, M.D., LL.D.,

NEW YORK.

MUCH has been said about our duties to other men, the community, the State, and mankind. Correctly so: I approve of every encouragement of beneficence and altruism. The physician was made for the people, like the public officer who exists for his office and its duties. But now the editor of the MEDICAL RECORD wants to enlighten us, both young and old, particularly the former, on the methods of shaping a doctor's career, financial and other. The former might be described by some doctor who got wealthy on the proceeds of his practice. Of that class I have known very few whose lives and successes it is worth while to imitate; these few were peculiarly gifted, well informed, industrious, honorable, and favorably circumstanced. There are others who have obtained the financial results of the pretender and charlatan, who should, if it were possible, be read out of the profession. They follow the methods of the advertiser and shark. Altogether, however, wealthy doctors are scarce, that is, such as have succeeded in accumulating money out of their honest savings, not to speak of those who were rich before they realized the necessity of following their taste which guided them into the profession of medicine instead of landing them in Wall Street, or in a business. How large or small the number of those is who, after having saved a little, lose it in Wall Street, I have no means of knowing. Those, however, of my young friends who have a tendency to submit to temptations may be informed that gambling is unprofitable, and "Wall Street" is a Danaid barrel.

What is a doctor's career? There are five thousand of us in New York, twenty-five times as many in our country. I know many of us are poor, many make a moderate living for themselves and their families, some accumulate a competency, very few are wealthy. Almost all of us are hard-working, and at least as intelligent as average people. The probability is that if we spent as much intelligent work and zeal in other directions we should score a greater pecuniary result. That is why we have reason to be proud of our calling which gives us more opportunity for useful or noble work than for gathering treasures. That earnest and thoughtful pride I have read on thousands of faces during my lifetime.

A doctor's career is not only that which is connected with the practice of his profession on the sick or ailing. His very position in his village or town, the respect he controls, the fame he conquers in his neighborhood, his county, State, or in the world, is a career dear to its possessor. It is not always true what I read in an old book, that the ancients tried to make medicine a science and failed, and the modern people tried to make it a trade and succeeded. Nor is it uniformly true that men and women look for the object of life in enjoyment. What does it mean, after all, to enjoy life? The egotism of many has often been self-sacrifice; to that class doctors are apt to belong. It is the "career" of thousands.

Most of us are engaged in practice. How did we succeed in gaining and holding the confidence of our patients? We are not equal in learning, skill, or character, in looks, or habits; and still you and I, and all, make a living. The best explanation is the fact that the public, our patients, are as different as we are. In our ranks we have the most astounding, and the queerest varieties of physical, moral, and intellectual features. Still, we all "get somewhere." A man with a minimum of knowledge which he uses more or less conscientiously, or the reverse, may be as successful in practice as you are. Still, that is no reason why you should envy his ignorance or his lack of conscience. Our ranks are filled with the young and the old. Some are good-looking, or ugly, or tall, or short. I know one whose rachitic legs would do honor to a neglected Irish lad, and who is very successful; and a short, kyphotic colleague who charms men and, what is still more important, women. Some are dancers, sports, golfers, horsemen, know bridge, are the première theater visitors. Some talk philosophy, music, gossip with or without quotations, or describe operations in ladies' circles. Others frequent funerals and churches, and have the specialty of being called out. Some are serious, or boisterous, or jovial; bearded, clean-shaven, perfumed with cologne—not frequently—or tobacco, which is frequent. Some have finger nails manicured, some with mourning rings. They all have their adherents. Some talk in plain language, some are refined. Said the knowing one to the lady: "And how is the psyche of the baby?" "O, thank you, Professor, fine; quite regular every morning." Most have correct habits. I have known those, however, who owed large family practices to their spirituous capacities; "you could judge how bright they would be if only sober."

Fifty years ago I was declared to be "no German Doctor"—Kein Deutscher Arzt"—because I did not join the second breakfast, the "Frühschoppen"; and my critics enjoyed confidence and lucrative practices.

Some succeed because they are optimistic; others because they are pessimistic in diagnosis and prognosis. There are those who become popular because they have their waiting room crowded and their telephone in an uproar, not to speak of those who fill their place with shining and noisy tools and call themselves specialists. Some are loud and imperious; some whisper with obsequious servility.

Some obtain practice because they have become married; there are those who rely on their bachelorship. I know one at least who told me smilingly that his large practice among rich people and mothers of families was due to his "being in the market."

As there are many roads that lead to Rome, so there are many modes, or methods, or characteristics, or peculiarities that gain favor in the eyes of the public. For me and you, the question is which of these I have outlined, and the number of which every one of my readers could increase, is the one we should select in our endeavor to be successful in our "career."

The partly sad, partly delightful ignorance of the public in regard to the estimation of the doctor's characteristics, knowledge, powers, or responsibilities renders his position quite difficult, mostly so because the dear public "knows it all," anyhow. In things beyond its ken it trusts its clergyman; in matters concerning property or legal rights it never questions the superiority of a lawyer; in things medical, however, your neighbor considers himself your equal, or better. That is why the doctor's "career," his success, and his standing are so frequently dependent on the ignorance and lack of judgment of his or somebody else's patients, or, as they flatter themselves, "patrons." That is why, on the other hand, very credulous people overrate your powers, and the powers of medical science and art, and suffer from the belief that a single prescription may relieve a lifelong sufferer of his ailments; but also why impossible things are expected of you. That is why you may be looked upon as a miracle worker and deified, or upbraided like a pickpocket, or scorned like a bad character. It is only fifty years ago that a woman made a tenement block lively by proclaiming me the murderer of her child. I was quite innocent; and a fortnight ago I received a letter in which a man told me that the information he received of my absence from the city was an untruth, and that if the question was one of money I was to inform him of my charges so that he could consider whether it was worth his while to let me "inspect and diagnose his child."

So it appears that the peace of my mind and the shape of my career should after all depend on things quite different from the appraisement of those who cannot or do not care to judge. These things are strict attendance to our work, conscientious fulfillment of our duties, improvement of our knowledge, and our methods, and consistency of our behavior. It is these that should shape our career.

What distinguishes a modern doctor from his predecessors more than anything else is diagnosis. The public has long begun to ask for it. Fifty years ago it was not demanded as it is to-day. The patient went to a doctor as he would to a Delphic oracle, took his dose, and was satisfied. Fortunately, that has changed, though it may be uncomfortable to have now and then to tell a patient that he has to wait a day or two before he can know accurately. Instantaneous diagnoses, those "by instinct" or "tact," are rare, should be rare, and are mostly the credulous beliefs of inferior pupils of superior masters. Such diagnoses belong to charlatans, not to conscientious doctors who think before they talk. Indeed, even ignorant people expect us to give them the time required for examination. The period of thirty patients an hour has passed, unless it be continued in our ill-regulated and unnecessarily overcrowded dispensaries, whose methods will not be improved until the race for annual numbers shall be stopped. I find that our patients understand the necessity of careful examination and do not object to undressing, to auscultation and percussion, and chemical tests. Our practice, our "career" improves with the reputation we establish for care and industry. It is particularly the first examination that I advise my younger friends to spend time on. Listen to—while directing—the tales of woe; inquire into heredity, habits, and temperament; make a urine examination and that of every viscus. You save time in future examinations by being very accurate and painstaking in the first. If you cannot give the necessary time, then let him return. But do not be slovenly, and do not give the impression of slovenliness or inattention. Give your diagnosis, though you be not asked for it, as far as permissible. I mean by that, do not impair his health and comfort and destroy his hope by using the words tabes, cancer, or consumption. There are other terms with which he will connect less fear or despair. He comes to us for being improved or healed; by cheering when you cannot cure, you enhance innervation, improve digestion, facilitate sleep, and prolong life.

Make your own diagnosis. In regard to the employment of laboratories, the practitioner is too generous or too indolent. The simplest examinations he has become habituated to refer to them. Urine examinations, which everybody may conduct personally in his own office, he leaves to one of the "laboratories" whose number has increased immoderately. Many of them are run on mere mercenary "principles." One of them was directed to examine a specimen of human milk, and when asked for the percentage of casein, mistaking it for cow's milk, coolly reported over the telephone, "4 per cent." A few days ago a colleague presented me with two "laboratory" reports of urine sent by two different men. The case was a very urgent and dangerous one—pulmonary edema, dropsy—the reports spoke of a few pus cells, no symptoms of nephritis were mentioned; it contained, however, much pus, many granular casts, and pus casts. The doctor was imposed upon and excluded pyelonephritis from his diagnosis. The correct examination took a few minutes only. Instead of making his own tests, with no loss of time, he allowed himself to be misguided, and endangered the life of his patient. Simple examination of the blood should be made in every practitioner's office. The modern practice of delegating your duty has various results: Loss of time, uncertainty of diagnosis, the habit of accepting the diagnosis at the hands of men who are no physicians but sometimes meretricious tradesmen; it imposes unnecessary expense upon the patient, and undermines the respect and confidence of the public whom the doctor himself teaches to rely on the assumed superiority of an outsider. After all, however, the practitioner complains of the lack of that very confidence on the part of the public, and of his own loss of practice and standing.

The laboratory specialist is not the only one to whom we general practitioners give way too readily and sacrifice our own interests and those of our patients. The specialist has many advantages in modern practice. If he had not, his own class would not be so numerous. Common experience should convince us that for many specialists it is not the eager search for profoundness that is the cause of their early, sometimes premature, specialization. It is true they should be excused for many shortcomings for two reasons: Firstly, because they may be

made of practical usefulness to your patients in case of necessity and may fill a real want; and, secondly, because they limit themselves to a sort of hermit life away from the richer existence of the progressive general practitioner, with his wider horizon and greater interests—which among the specialists only those enjoy who are prepared by unusual talents and exertions, by universal education, by continued study, and by previous general practice. I see no happiness or dignity in the condition of those who do not appear to know that in spite of a diploma they are no doctors. Still, some of them will act the parts of such. The general practitioner knows and complains that they invade "general practice," but abstains from performing duties which, while claimed by the specialist, are his own duties and responsibilities. Not everything is adenoids that is claimed for operation. A chronic nasal catarrh or pharyngitis responds to mild irrigations and to a 1 or 2 per cent. silver nitrate application, at your hands as well as under specialistic care. An external ear catarrh can be treated with cleanliness, boric acid, resorcin, or bismuth subgallate. An occasional puncture of the drum membrane does not require unusual skill. A urethral stricture not amenable to your own bougies and to your own cocaine is rare. An "appendicitis" need not always push the doctor aside and clamor for a specialist. A chronic parametritis responds to your iodide and warm applications and rest as well as under the treatment of your neighbor. Your bandage will relieve an enteroptosis like that of the stomach specialist. A child's eczema or a zoster requires no erudition or skill not accessible to you but to the dermatologist only. If that be so, or rather, as that is so, my good brother practitioner, why do you not employ them? If you refuse, do not complain of hard times and popular disrespect, and of the impression gaining ground that genuine doctors are scarce or useless except for serving as the agents of a specialist, either self-advertising or legitimate.

I could go on telling what in my opinion the general practitioner should be able and willing to do for his patients. My city friends forget what our country brethren do when called upon to perform tracheotomy, or herniotomy, or paracentesis. They tell us that they know the use of soap and carbolic acid, and corrosive sublimate, and boiling water, and clean finger nails as well as city folks. The modern country doctor is as modern as the modern city doctor; sometimes more so. His career is what it always was, just as broad, only more effective, with less apparatus and less paraphernalia.

Success and career for the young doctor (not only for him) depend a great deal on his prognosis, which is guided by his diagnosis and his humanity. A bad prognosis given to the patient himself makes him worse and may be the cause of your discharge; and hopelessness on the part of the family may create disorder in the sickroom. Moreover, things are not always so incurable as they were formerly; besides, the diagnosis may be faulty or incomplete. Some instances of the kind I have tried to detail in the March number of the *New York State Journal*. Experience in regard to dealing with the sick and his attendant will grow with time. Those will make the least mistakes who know most and have a warm heart. Optimism dictated by it, and bridled by knowledge, will prove preferable to the pessimism of the man who is easily frightened. I do not speak of those who are pessimistic on purpose with the idea of impressing the patient with the pretended gravity of his case and the extraordinary power of the attendant over life and death. There are doctors and doctors; some are physicians, some medical tradesmen.

When I was requested to write a few remarks on medicine as a career, I thought of the general practitioners as my audience. They form the vast majority of those who are counted in our catalogues and registers and those on whom at the present time the health of the people does, or ought to, depend. Of the careers in medicine I excluded those who do our research work, and the great specialists and famous teachers of all classes who make those of us who practice at the sick-beds of the nation more erudite, richer in methods, more efficient—in fact, better doctors. In that they have succeeded to a great extent. With modern methods the opportunities of the doctor improve, and the young doctor matures at an earlier age than formerly. I believe that when Zimmerman claimed the thirtieth year as the period in which a man should be a perfect doctor if he ever were to be one, he was mistaken at his time—one hundred and thirty years ago. But the young men of our times, taught more and better than their predecessors, even in our America with its defective clinical (bedside) instruction—should be competent physicians before turning gray or bald. With improved facilities of diagnosis, and the results of pharmacologic experimentation and better methods of observations, aided by instruments of precision, therapy has become more efficient. Physical remedies, such as cold and heat, compressed and rarified air, electricity, water, massage, and climate, are being more utilized than formerly. To say that they have "come to the front" is a pet expression which means a great deal to one, less to the other. They too have their fashions and are subject to changes. But what we have learned in connection with that subject is, among other things, that much can be done with very little. Those who never opened a window before they were compelled to do so, change their "climate" at home quite suddenly. Those who could not afford to go to "Carlsbad" or to "Marienbad" may learn that "Saratoga," provided they do not overeat in a five-dollar "American plan" hotel, or sulphate of sodium at home with regulated diet, prove first-class "spas." Massage need not be the mysterious remedy which it is made out to be by the "professionals," who succeed in giving one of your patients a powerful relapse of an old peritonitis, and keep the other as legitimate spoils. The hot air specialist may be substituted by a simple domestic apparatus, unless you prefer that your patient whom you sent for a merely local application of heat is impressively massaged and douched, and sweated, and bathed by the man who "understands his business," and never returns your patient, who is solemnly told he has been poisoned with drugs.

And drugs? When we are told gravely that no drug "should be given unless necessary" we agree, but may be permitted to ask "necessary" to whom—the patient, the druggist, or the doctor? If to the patient, give drugs by all means as long as there is an indication for them. If you are told you must not give a "placebo," you will have a right to ask what that means. We are told that suggestion is permissible and proper in instances. A "placebo" may mean a great deal for a patient when a mild remedy is wanted—either domestic or one that is prepared by the druggist. You are aware that we have learned to treat an individual man with his

ailment, and longings, and prejudices—not the technical name of the ailment. Leave the decision as to medicines, or no medicines, or placebos to the practitioner who knows man, and his sick individual man; and women, too. There are many diseases which are not cured by medicine but which give way to the doctor. He may be fortified or not, as the case may be, by a mild drug for which there is an indication of some kind; or by rest in or out of bed, and change of diet, or climate. At the present rate, however, at which we practitioners abstain from doing our own work, our whole work, and leave the principal parts of treatment to menial substitutes, our "career" is the digging of our own graves and that of the general practitioner.

THE ARMY MEDICAL SERVICE.

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The Medical Corps of the United States Army consists of one surgeon-general with the rank of brigadier general, fourteen colonels, twenty-four lieutenant-colonels, one hundred and five majors, and three hundred captains or first lieutenants with the rank, pay, and allowances of officers of corresponding grades in the cavalry arm of the service.

All vacancies in the Medical Corps are filled by appointment by the President to the grade of first lieutenant, after the applicant has passed a successful examination before an army medical examining board and has been recommended by the Surgeon-General. Permission to appear before the board is obtained by letter to the Adjutant General of the Army, Washington, D. C., which must be in the handwriting of the applicant, giving the date and place of his birth and the place and state of which he is a permanent resident, and enclosing certificates, based on personal acquaintance, from at least two reputable persons as to his citizenship, character, and habits. To supplement these credentials, a careful investigation of the character, habits, antecedents, morals, and standing in his community of the candidate is made, prior to and at the time of his preliminary examination, by correspondence and personal inquiry by the army medical officers serving on his examining board. No political influence in securing permission to appear as a candidate is either necessary or desired, as appointments are made solely on the basis of merit. The candidate must be a citizen of the United States, between twenty-two and thirty years of age and a graduate of a reputable medical school legally authorized to confer the degree of doctor of medicine, in evidence of which his diploma must be submitted to the board at the time of his preliminary examination. Hospital training and practical experience in the practice of medicine, surgery, and obstetrics are essential, and an applicant will be expected to present evidence that he has had at least one year's hospital experience, or the equivalent of this in practice, after graduation.

The examination consists of two parts—a preliminary examination and a final or qualifying examination, as hereafter described, with a course of instruction at the Army Medical School in Washington intervening.

The preliminary examinations are conducted by boards of medical officers convened for the purpose at various military posts throughout the country, to enable candidates to take these examinations with the least loss of time and expense of travel. The invitations specify attendance by the candidate on a convenient board. Questions are prepared and sent out from the surgeon-general's office, to secure uniformity, and the various boards convene simultaneously throughout the country.

The scope of the preliminary examination includes the (*a*) physical conditions, (*b*) general education, and (*c*) professional knowledge.

A thorough physical examination is first in order. This is necessary to ensure that the candidate is fully qualified to undergo the fatigue and hardships incident to field service, and to which the medical officer is exposed equally with all other officers. Such examination is also necessary to protect the retired list from being overburdened by those having physical defects, which would render them liable to an early breakdown and to become a charge upon the Government. Those who fall below sixty-four inches in height are not accepted; that a candidate should possess a well developed physique and a dignified carriage and presence is of course desirable. Each candidate is required to certify that he labors under no mental or physical infirmity which can interfere with the efficient performance of any duty which may be required. Errors of refraction, if vision is not below 20/40 in either eye, are not causes for rejection, provided they are not accompanied by ocular disease and are entirely corrected by suitable glasses.

With respect to the subject of general education, written examinations are held in mathematics (arithmetic, algebra, and plane geometry), geography, history (especially of the United States), general literature, Latin grammar, and the reading of easy Latin prose. English grammar, orthography, and composition are determined from the applicant's answers to his examination questions. This examination may be omitted, however, in the case of applicants holding diplomas or certificates from reputable literary or scientific colleges, normal or high schools, or of graduates of such medical schools as require an entrance examination satisfactory to the faculty of the Army Medical School.

The professional examination is covered by written examination in anatomy, physiology and histology, chemistry and physics, materia medica and therapeutics, surgery, practice of medicine, obstetrics, and gynecology.

All examination papers are forwarded by the local boards to Washington, where they are marked and candidates are graded. Applicants who attain a general average of not less than eighty per cent. in the preliminary examinations are appointed to the Medical Reserve Corps with the rank of first lieutenant and are ordered to the Army Medical School in Washington for instruction as candidates for admission to the permanent Medical Corps of the army. An applicant thus selected is required to make an agreement to accept a commission in the Medical Corps, if found qualified, and that he will serve at least five years thereafter, unless sooner discharged. Besides gratuitous instruction, candidates attending the Army Medical School receive travel allowances from their homes to Washington, the pay of their grade as first lieutenants, $2,000 per annum, and a money allowance for quarters amounting to $36 per month.

An applicant failing in one preliminary examination may be allowed another after the expiration of one year, but not a third. Withdrawal from an examination during its progress, except because of sickness, is regarded as a failure.

The course of instruction at the Army Medical School commences on October first and continues for eight months. It consists of lectures and practical work in subjects which receive only a relatively small amount of attention in the ordinary medical school, yet which are of vital importance in the work of the army medical officer. Among these may be mentioned general and military hygiene, military and tropical medicine, military and operative surgery, pathology and bacteriology, sanitary chemistry, *x*-ray work, ophthalmology and optometry, besides other subjects, important to the young medical officer in governing his various relations and functions toward other branches of the military service. During this course of instruction the candidates are held under military discipline, and their character, habits, and general deportment closely observed. If for any reason a candidate should be deemed undesirable or unsuited to the service he may at any time be honorably discharged by the President, on the recommendation of the surgeon-general. The final examination comprises the subjects taught in the school, and is preceded by a thorough physical examination.

Candidates who, in their final examination, receive a general average of eighty per cent. and upward will be given certificates of graduation at the school; and those whose aptitude, as determined by the faculty, is deemed satisfactory, and who in addition to their final examination, pass a successful clinical examination, will be selected for commission in the Medical Corps. Candidates claiming a knowledge of ancient or modern languages, higher mathematics, or scientific branches other than medical, may be given a special examination therein. The relative standing of the candidates thus finally selected for commissions is determined from the total points obtained in the preliminary, final, clinical, and special examinations, with a grading for aptitude for the military service. Candidates who fail at any time to receive commissions because of lack of vacancies at the time of graduating may receive them in the order of their standing as vacancies occur before the graduation of the next class, serving in the meantime under their commissions in the Medical Reserve Corps. This question of sufficient vacancies, however, is of no importance at the present time, as recent Congressional legislation makes it certain that all successful candidates will receive commissions for several years to come. With the recent increase in the Medical Corps, there are at present 85 vacancies.

This careful professional examination and appointment solely on the basis of merit, entirely irrespective of political considerations, lies at the foundation of the efficiency of the Army Medical Corps. That it has always existed in an effective form is shown by an act creating an army of the Second Provincial Congress of Massachusetts, dated May 8, 1775, when medical officers of regiments could be appointed only "provided they appear to be duly qualified on examination." That the examination thus required was not of a perfunctory nature may be gathered from the following extract of a journal of the time: "On the day appointed, the medical candidates, sixteen in number, were summoned before the board for examination. This business occupied about four hours: the subjects were anatomy, physiology, surgery, and medicine. * * * Six of our number were privately rejected as found disqualified. The examination was in a considerable degree close and severe, which occasioned not a little agitation in our ranks." Under the system of rigorous elimination of the unfit which has been unswervingly adhered to by the Army Medical Corps for one hundred and thirty-three years, it may fairly claim to be a corps d'elite—a claim borne out by the accomplishments of Benj. Rush, its first surgeon-general; of Beaumont, whose classical experiments established the physiology of digestion; of Reed and Carroll, whose work in yellow fever has done more for mankind than anything since the days of Jenner; and of a host of others, living and dead, whose names stand at the forefront of medical thought and progress in their day and generation. The work at the Army Medical School, while exacting, need not be feared by candidates of good ability and diligence.

After securing a commission in the Army Medical Corps, promotion in rank, which means also increase in pay and allowances, comes steadily and with reasonable rapidity. This is true, however, only if the medical officer continues to demonstrate those qualities of efficiency and fitness which secured his original appointment. After three years' service a lieutenant, on passing a satisfactory physical and mental examination, is promoted to the grade of captain. If he is found physically disqualified, from causes in line of duty and incident to the service, he is retired, as if promoted, on three-fourths of a captain's pay; if found otherwise deficient, his examination papers are submitted to a board of revision and, if the latter agrees with the unfavorable finding of the board of examination, the officer is granted a year's pay, is honorably discharged by the President, and becomes permanently separated from the army. Promotion to the grades of major, lieutenant-colonel and colonel is by seniority, but there is an examination for the grade of major and another for that of lieutenant colonel. In the case of that for major, the procedure is the same as that given above for promotion to the grade of captain. The mental examination for the grade of lieutenant-colonel differs from that of major in that the officer, if unsuccessful, is not dropped from the army list, but is re-examined after a year, and if then found to be mentally disqualified he is summarily placed on the retired list without promotion. These examinations, with their penalties for failure, serve as constant incentives to the maintenance of professional excellence and largely replace the stimulus of constant professional competition which obtains in civil life, but which is absent from the army through its system of promotion by seniority. Advancement to the grade of colonel takes place without further examination. The surgeon-general is selected by the President from among the officers of the corps, usually those of higher rank and greater experience.

Having outlined the qualifications required of successful candidates, a consideration of what recompensed the Government will make in return for these qualifications is in order. These may be grouped as follows:

1. *Tenure of Office.*—This is for life, subject to the maintenance of good conduct and proper professional efficiency. The chief source of anxiety to workers in salaried positions is thus removed.

2. *Sickness, Disability, and Old Age.*—Absence from duty on account of sickness involves no loss of pay. Medical officers are entitled to retirement at any time for disability incurred in line of duty;

on attaining the age of 64 years they are placed on the retired list by operation of law. Retired officers receive three-fourths of the pay of their grade, both salary and increase, at the time of their retirement.

This provision for sickness and disability and care in old age relieves the medical officer of much of the worry which falls to physicians in civil life, who must constantly keep in mind the necessity for saving part of their income to provide for the interruption of practice from sickness and an enfeebled old age, when work is no longer possible. The army medical officer is spared these financial uncertainties which are the destroyers of much of the sweetness of life. While he foregoes the chances of accumulating great wealth, he is assured of a sufficient income for comfortable support when old and broken.

Reduced to figures, the retired pay of a medical officer retired as colonel, for example, is $3,750 per annum, which would be equal to a 5 per cent. investment of $75,000, or a greater sum than the average physician in civil life would be able to amass in a long life of professional activity.

3. *Pay.*—To each rank is attached a fixed annual salary, payable in monthly installments, and this is increased by 10 per cent. for each period of five years' service until a maximum of 40 per cent. increase is attained. For certain stations outside the United States there is an additional increase of 10 per cent. while so serving. A medical officer entering as first lieutenant receives $2,000 per annum, or $166.66 monthly. At the end of three years he is promoted to the grade of captain and receives $2,400 a year. In two years more he completes his first five years' service and receives an increase of 10 per cent., making his pay $2,640 a year, or $220 per month. After ten years' service the pay would be $2,880 annually, or $240 per month. The pay attached to the rank of major is $3,000 per annum, which becomes $3,600 after ten years' service, $3,900 after fifteen years' service, and a final maximum of $4,000 after twenty years' service. The monthly pay of a lieutenant-colonel is $375, of a colonel $416.66, and of the surgeon-general $500. This pay is an assured income. It is not subject to discount for uncollectible bad debts, nor does it become speculative, as in civil life, with fluctuation in the amount and character of professional work done or with the occurrence of periods of financial stringency. The problem merely is to cut the coat according to the cloth. With his mind free from financial worry, the army medical officer is in a position to undertake his professional work, and to enjoy his pleasures, to best advantage.

4. *Allowances.*—Besides the pay proper, officers of the army are entitled to valuable allowances depending more or less upon rank. These allowances cover necessary items for which physicians in civil life pay roundly, and which cause the most serious drain upon their incomes. Officers are furnished quarters free. These are usually sightly, convenient, and modern. Where they are not furnished, the officer is paid a cash allowance on a basis of $12 per month for each official "room." A lieutenant has an allowance of three "rooms" and may thus receive $36 per month as an extra allowance; a major five rooms, or $60; a colonel seven, or $84 per month. A gratuitous allowance of heat and light, sufficient for all reasonable needs, is also furnished, or may be commuted in cash when public quarters are not available. This is worth anywhere from $10 to $50 per month according to the rank of the officer and the climate in which he is stationed. Quarters are now supplied with a considerable number of bulky articles of furniture, kitchenware, etc., which thereby saves their purchase by officers. All medical officers are furnished with gratuitous forage, stabling, and transportation for two horses. Medical officers below the grade of major are supplied with two horses and horse equipments at Government expense, but if they elect to purchase their own mount a special money allowance of $100 per year for one horse, or $150 for two, is made. When traveling on duty a medical officer receives mileage at the rate of 7 cents per mile, which will usually cover all expenses of the journey. On change of station the Government provides for the gratuitous packing, crating, and transportation of all books, papers, and professional instruments; and transports free a reasonable amount of household goods, in the case of a major, for example, 7,200 pounds. Groceries may be purchased from the commissary at wholesale cost prices. Medical books, publications, instruments, and appliances are most liberally furnished by the Government for the use of medical officers, who are thus relieved from one of the heavy expenses of civil medical practice.

5. *Death Benefit and Pension.*—In case of the death of a medical officer on the active list his widow or other heirs receive a death benefit of six months' pay, and are also eligible for pension under the general pension laws. In the case of the death of a major, the death benefit would be $2,000, and the pension $300 per annum, or the interest of $6,000 at 5 per cent.

6. *Leaves of Absence.*—A medical officer may be granted leave of absence at the rate of one month per year, which, if not used, may accumulate to a total of four months. While on such leave, the regular pay of the medical officer does not stop, as does the income of the physician in civil life while on a vacation. Beyond the maximum of four months, an officer may still be granted leave, but receives only half pay during absence in excess of four months. Absence by reason of sickness does not count as regular leave.

7. *Social Life.*—The social side of army life forms a most pleasant feature of military service. The army officers of the line and staff are largely graduates of West Point, are men of education, refinement, and ability and, as a whole, are gentlemen in the best sense of the word. The medical officer stands on the same official and social plane with them and naturally forms many close associations and companionships. In the civilian society of the communities in or near which the medical officer may serve, he will find that his commission as an officer gives ready social recognition, where the same man, as a civilian, would first be subjected to a long period of probation. Physicians in civil life are more than kind to their confreres in the army and go out of their way to show them every professional assistance and favor. Most officers are married and, except in time of war, are practically able to have their families with them everywhere.

8. *Travel.*—A fixed home is out of the question in the army, where all are subject to orders and must move about as the need of the service requires. Strong local affiliations therefore cannot be maintained, and military service necessarily means abrupt changes in life, associations, and surroundings. Wherever he goes, however, the medical officer will find some of his old army friends and will make many new ones. In a few years' service, the

medical officer sees much of the world in general, acquires a relatively intimate knowledge of his own country and its dependencies, and has a large acquaintance among people of affairs. All this is a valuable education and broadening influence, and quite different from the narrowing tendencies by which many physicians in civil life must inevitably be beset. To many, the frequent change of station and infinite variety of scene, associates, and surroundings is a great charm of military life.

9. *Professional Opportunity.*—This will appeal strongly to the earnest student, for medical officers are officially encouraged in every way to keep abreast of medical progress. Every post hospital has a good professional library, to which additions are constantly being made. In addition, about twenty-five different representative medical journals are purchased and so issued or circulated as to reach every medical officer. The library of the surgeon-general's office is the largest medical library in the world and contained on June 30, 1908, no less than 291,346 books, journals, theses, and pamphlets. All these are available for loan to medical officers on request. The Army Medical Museum, under the same roof with the library, contained on the above date 34,447 specimens relating to medical science. With the existing policy of concentrating troops near large cities, army medical officers have excellent opportunity to keep fully in touch with the professional practice of civilian physicians and surgeons. In addition, medical officers approaching their examination for the grade of major are specially assigned to duty as attending surgeons at military headquarters in large cities, so that for at least a year they have opportunity to familiarize themselves with the methods of the leading medical men, and to benefit from clinics, lectures, and society meetings.

No better opportunity of winning a name in medical science is afforded anywhere than in the Army Medical Corps. This does not include medicine in all its branches, for with a class of carefully selected young men affording the vast majority of patients, and the discharge for disability of cases unfitted for further service, the field of practice in such matters as obstetrics and gynecology, the chronic diseases, and the diseases of children and old age is naturally restricted, and in the usual course of events the medical officer will scarcely find sufficient practical experience to develop into a specialist along these lines. On the other hand, the opportunities for the study of preventive medicine, bacteriology, pathology, the various branches of chemistry, and certain classes of diseases, especially those peculiar to the tropics, can scarcely be equaled under the best facilities of civil life. The practice of medicine and surgery greatly varies in both quantity and character with station, climate, and the factor of peace or war. There is a good deal of operating for appendicitis and the radical cure of hernia, both of which appear to be favored by military conditions. During the twelve months ending June 30, 1908, there were 3,009 surgical operations performed on officers and enlisted men. Of this number 2,915 were reported as successful, 32 as unsuccessful, 41 as failures, and 21 were followed by death. In the last class of cases the result depended on grave injuries frequently complicated with infection of the original traumatism.

The field of experimental research is particularly attractive, and one in which professional reputation is achieved much more readily than in general practice. Besides the opportunity, the medical officer has the time and money to engage in such work. His military duties can be so systematized that he can accomplish the maximum of routine work in the minimum of time and thus have many hours which he can call his own. The use made of such spare time, in the army as in civil life, depends upon the individual. His special line of work may be interrupted from time to time through official necessity; but if persisted in, nothing is more certain than that excellent results will be obtained. As the medical officer is scarcely influenced by financial matters, he is not under the scientific disadvantage under which many civilian physicians labor—that of constantly being diverted from a chosen task by the necessity of bread winning. Any special apparatus, laboratory equipment, books, or other facilities are gladly furnished by the higher medico-military authorities to those who give promise of reflecting credit on their profession and corps. With such facilities and official encouragement, there is no professional problem to the solution of which the ambitious medical officer of the present and future may not reasonably aspire.

THE NAVAL MEDICAL SERVICE.

By SURGEON WILLIAM H. BELL,

U. S. NAVY.

It may be fairly conjectured that from the time conflict was first waged at sea there has been some sort of provision for the succor of both sick and wounded, particularly the latter, on ships of war. And these provisions have, by the very nature of events, developed toward better things—albeit not *pari passu* with the needs and possibilities of the profession as did the art of making war.

Medical men have had an active part on board vessels of war since the creation of our government and the establishment of a naval force. The beginning was humble and the development slow and not uninterrupted; but, through the various disheartening vicissitudes, representatives of the profession who had chosen the sea as the theater of their careers exhibited a self-sacrificing loyalty to humanitarian appeals and a dogged determination to win their legitimate position. A foreseen destiny was the only encouragement.

Though the early history of the medical service of the United States Navy is somewhat obscure and the records meager and scattered, it appears that the representatives of the medical profession who served the country at sea during the revolutionary period rendered splendid service, and that they reaped a rich surgical experience is amply testified by the reports of the naval engagements. During these times, it appears that medical men were engaged for a cruise and discharged upon its completion, and it was not until just prior to the War of 1812 that the medical corps had its practical inception in the establishment of a permanent list of medical officers. Finally, in 1842, it became a component branch in the organization of the Navy Department, at which time the Bureau system was inaugurated and the corps was dignified by the appointment of one of its number as chief. Since the first appointment, up to and including the present incumbent, Presley M. Rixey, seventeen members of the corps have succeeded to the office, and during this time, in spite of many obstacles of one sort or another, the naval medical service has developed

under the guidance of a high ideal and the inspiration that an important field of work was open to it. Congress has been liberal in providing for its needs at different times, and the various surgeons-general have exhibited marked energy and ability in furthering its organization; but it is in the last six or seven years that the most noteworthy improvements and advances have been accomplished, and, to-day, the high standing and fine organization of the corps is due to the untiring efforts of the present surgeon-general and the interest and enthusiasm with which he has inspired those under him, so that the status of the medical officer of the Navy and his relation to other branches of the service is established on a high plane and he fills a position socially, professionally, and officially commensurate with the dignity of the medical profession.

At the present time the medical corps of the Navy consists of a surgeon-general, chief of the Bureau of Medicine and Surgery, with the rank of rear admiral (corresponding to major-general of the Army); fifteen medical directors, with the rank of captain (corresponding to colonel); fifteen medical inspectors, with the rank of commander (corresponding to lieutenant-colonel); eighty-seven surgeons, with the rank of lieutenant-commander (corresponding to major); ninety-six passed assistant surgeons, with the rank of lieutenant (corresponding to captain in the Army); eighty-nine assistant surgeons, with the rank of lieutenant, junior grade (corresponding to first lieutenant of the Army), and six acting assistant surgeons, who have the same relative rank as the regular assistant surgeons. In the grade of assistant surgeon there are approximately fifty vacancies, and in the grade of acting assistant, nineteen. This practically assures every successful candidate an immediate appointment upon passing the examination.

Graduates in medicine enter the Medical Corps of the Navy as acting assistant surgeons, and an applicant for examination and appointment as acting assistant surgeon must be a citizen of the United States, between twenty-one and twenty-eight years of age, and must apply to the Secretary of the Navy for permission to appear for examination. Forms for this purpose may be obtained upon application to the Bureau of Medicine and Surgery. If the preliminary requirements are satisfactory as regards age, citizenship, etc., the applicant may be given a permit to appear before the board situated at the place at which the applicant desires to be examined. Examining boards for the examination of candidates for appointment have been organized at the U. S. Naval Hospital, Chelsea, Mass.; the U. S. Naval Hospital, New York, N. Y.; the U. S. Naval Hospital, Philadelphia, Pa.; the U. S. Naval Medical School, Washington, D. C., and the U. S. Naval Hospital, Mare Island, Cal. Upon the receipt of a permit the candidate should communicate with the president of the board at the place designated, who will fix a date for his examination.

When a candidate presents himself for examination on the date so fixed, he must bring with him testimonials as to character and professional fitness, diplomas, and a certificate that he is a citizen of the United States. While it is not essential, it is desirable that he should have had hospital experience, or at least a year's practice in his profession.

The examination usually occupies about nine days, and is conducted in the following order: physical, professional, collateral. The physical examination is thorough, and the candidate is required to certify, on oath, that he is free from all mental, physical, and constitutional defects. Acuteness of vision, 12/20 for each eye, unaided by glasses, but capable of correction, by aid of lenses to 20/20 is obligatory. Color perception must be normal and the teeth good. If the candidate is found to be physically disqualified his examination is concluded; if found to be physically qualified his professional examination begins. This embraces two written questions in anatomy, one in physiology, two in surgery, two in medicine, one in pathology, one in obstetrics, one in medical jurisprudence, two in materia medica and physiological action of drugs, one in chemistry, one in clinical microscopy, one in hygiene, one in quarantine, bandaging, tourniquets, four operations on cadaver; clinical cases (a written report being made in one case giving history, diagnosis, prognosis, treatment, one prescription, at least, being written out in full, in Latin), uranalysis (chemical and microscopical examination of one specimen of urine), practical microscopy and recognition of five mounted specimens (histological, pathological, and bacteriological), and recognition of surgical instruments.

The written examination is followed by an oral examination in each branch, and the percentage is made up from the combined results.

The collateral examination is on those subjects usually taught at high schools, and may be omitted in the case of applicants holding diplomas or certificates from reputable literary or scientific colleges, normal or high schools, or of graduates of medical schools which require an entrance examination satisfactory to the naval medical examining board.

After the entrance examination, if successful, the candidate is appointed an acting assistant surgeon and is ordered to duty at a naval hospital until the first day of October following his entrance to the corps, when he is ordered to the Naval Medical School at Washington for a period of six months. At the expiration of this tour of duty, the whole class is examined for the position of assistant surgeon; the standing of each in the class during the school term is taken into consideration and fixes his standing in relation to the officers of the corps for all times, so far as rank and pay is concerned. The only chance of the status of an officer being changed is by special act of Congress, or court martial.

Three years from the date of his commission as assistant surgeon an officer is entitled to promotion if found qualified physically, mentally, and morally. After this, promotion takes place as vacancies occur in the higher grades, and preliminary to every promotion there is a professional and physical examination to determine the fitness of the particular officer, the basic requirements of which are that the officer shall keep abreast with his profession in every essential line of its progress and with the changing conditions in service development.

On entering the naval service medical officers are credited with five years' service (in recognition of the fact that they have been at their own expense in preparing themselves for Government service) for the purpose of establishing their date of precedence as regards rank and for calculating their increase of pay for length of service as follows: For every five years' service the pay of officers is increased 10 per cent. though not to exceed 40 per cent.), calculated on the annual base pay of their grade, as shown in the following table; but the pay of medical director is limited to $5,000; that of

medical inspector to $4,500, and that of surgeon to $4,000.

The pay of the various grades of the medical corps can be best explained by the following table:

Rank and Length of Service	Pay per Annum on Shore	Pay per Annum at Sea	Allowances per Annum for Quarters*
Acting Assistant Surgeons	$1,400	$1,700	
Assistant Surgeons	2,200	2,420	$432
Passed Assistant Surgeons	2,640	2,940	576
After 5 years in the service	2,880	3,168	576
" 10 " " " "	3,120	3,432	576
Surgeons	3,600	3,960	720
After 10 years in the service	3,900	4,290	720
" 15 " " " "	4,000	4,400	720
Medical Inspectors, after 15 years in the service	4,500	4,950	864
Medical Directors, after 15 years in the service	5,000	5,500	1,008
Surgeon General	6,000	6,600	1,152

When an officer goes to sea or leaves the continental limits of the United States under assignment to stations or for the performance of other duties beyond the seas, his pay is increased 10 per cent., and this increase is calculated upon the pay, including increases for length of service, which said officer may be receiving at the time of entering upon such duty or to which he may succeed by virtue of promotion or length of service during the performance of such duty, as shown in the above table. This increase for sea duty or service beyond the continental limits of the United States does not fall under the statutory restrictions above mentioned, which control the increase of pay for length of service in the grades above passed assistant surgeon, and the operation of this benefit is shown in the second column of the above table.

The attractive feature of naval service, as regards remuneration, is that pay is forthcoming with absolute certainty and regularity, while in civil practice the season, the number of patients, the character of the case and its duration, together with a varying discount in collection, determine the income, and this must always be a vacillating amount and a matter of more or less anxiety. Of course, in the service, if favorably stationed, there is opportunity to supplement the income from the Government by outside practice, and many naval surgeons add materially to their income in this way. Furthermore, a commission in the Navy is a life position, during good behavior, and pay continues whether on duty or sick, or on the thirty days' leave to which officers are entitled each year when their services can be spared.

All commissioned officers of the Navy, including the medical corps, are retired from active service at the age of sixty-two years, and when so retired, or when retired on account of disability incurred in line of duty before that age, receive an annual pay for life amounting to three-fourths of the highest pay of their grade at time of retirement. Recent legislation has made provision whereby an officer may be, on his own application and in the discretion of the President of the United States, retired after thirty years' service, with three-fourths of the pay of his grade at the time of retirement. In addition, provision was made whereby the widow, or any other person designated by an officer or enlisted man, will receive six months' pay, minus a nominal deduction for funeral expenses, upon death while on the active list from disease or injury received in the line of duty. This is, in itself, practically a substantial life insurance. When traveling under orders in the United States, an officer is entitled to eight cents per mile, and, when beyond the continental limits, liberal actual expenses, including tips, transportation of baggage, etc., consistent with the position of the officer, are allowed.

So much for the income. The expenses and cost of living of a naval officer, like those of a man in civil life, are about what his tastes and inclinations dictate. When ashore, he is provided with quarters or an allowance in lieu of them and may live with his family or mess with an officers' mess, in which the cost of living is always nominal. The same condition pertains to ship duty. The only mandatory expense is that of uniform, and here again an officer may be as extravagant or conservative as he desires. Upon entrance to the corps, an acting assistant surgeon is required to provide very little in the way of uniforms, and one hundred and twenty dollars will provide an outfit sufficiently complete for his needs until he is commissioned an assistant surgeon in the regular corps, when additional uniforms will be necessary at an outlay of approximately four hundred dollars.

Upon entering the Naval Medical School the young officer is put immediately into the atmosphere and environment of the service, and he goes on board ship, in this respect certainly, a more finished product. Aside from the professional features which will be more fully described later, he is instructed in the discipline and customs of the service ashore and afloat, matters of uniform, the use of side arms—in short, everything that is necessary to a proper familiarity with both the professional and military sides of a naval medical officer's career. After the completion of this course, as before pointed out, examinations for admission to the regular corps are held, and to those who pass commissions as assistant surgeons are issued and the officers then usually begin their first cruise.

The naval service, by virtue of its world-wide intercourse, is, as John Paul Jones contended, essentially aristocratic, in that it requires the instincts and discernment and conduct of a gentleman in its officer personnel. As the officers of the Navy have entrée to the very best wherever they go, and come in contact with the most cultivated and interesting people of every nation, it is necessary that personal qualifications should enter into the determination of general suitability for the service. Moreover, the wide range in the character of their clientèle and responsibilities call for a high professional ability and a ready adaptability. They are charged with the care of the enlisted personnel and officers of the highest rank and their families, and they are called upon constantly for medical advice and treatment by people native to the country in which they are situated.

The charge of the financial interests connected with the running of the Medical Department of the Navy makes it necessary that they be men of strict integrity and capable of handling the intricate and complex organization which has marked its gradual development during an existence of over one hundred years.

The increase of the Navy and Marine Corps to 55,000 men, and the care of the large civilian population, employees at yards and stations, together with the care of entire communities, such as are met

*Both within and (on shore duty) beyond the continental limits of the United States, but only when quarters are not furnished by the Government. In addition, there are also liberal allowances for fuel and light when on shore at home and beyond the continental limits of the United States, the amount varying according to rank, season, and the latitude of the station at which the officer is serving.

within the Islands of Guam and other distant stations, places an enormous population under the care of the Navy medical officers. They are assigned to stations where there is not only the necessity for the care of diseases peculiar to the Navy and peculiar to men, but also for a knowledge of all the specialties in medicine, including diseases of women and children. They must be familiar not only with the diseases prevalent in the United States, but also those which are peculiar to foreign countries, particularly the tropics; they must be familiar with all the laboratory methods in connection with the detection of diseases, and be able to employ them accurately; and they must be familiar with all the quarantine regulations of their own and of foreign countries and the sociological, as well as the medical, aspects of all nations.

The foregoing may serve to indicate that the Navy offers a broad field of professional activity of a practical sort, and there are fine opportunities for original work and initiative in many meritorious and promising directions. There are plenty of problems, which are matters of distinctly medico-naval concern in the first instance, though of general scientific interest as well, to call in play the keenest observations and the nicest ability in investigation.

It is, of course, desirable that the highest type of young medical men will continue to be attracted to the Navy as a theater for their professional careers. It is a scientific service, and there is every reason why its position as such should continue to improve. There is abundant work for the energies of every one, including those of special bent, and as far as may be consistent with the demands of the service for general knowledge and general ability, medical officers are allowed and even encouraged to develop themselves highly in some one branch of medical science, just as original research is approved and facilitated. There are already many officers who have taken up and are pursuing special studies, as, for example, ophthalmology, bacteriology and pathology, tropical medicine, hygiene and sanitation, chemistry, and genitourinary diseases.

Now, as to the provisions which have been made and are being improved to equip officers for every detail of their responsibilities under modern professional and service conditions. Among these, the first and most important is the Naval Medical School, which was established in 1902 and has been since rapidly developed in every feature of equipment and instruction, until now it may be truthfully said to have taken its place among the best postgraduate schools, not only of this country, but of the world.

While theory is given the place it demands, the cardinal idea of the work of the school is to fit officers for their military duties and develop them under careful personal tutelage to their highest point of attainment for the most capable performance of their practical professional work. Medical colleges, even those which prescribe a four-year curriculum, are laboring under the disadvantages of too short a course. In this regard the Naval Medical School serves an especially important purpose. It gives that finishing touch to their training which brings their attainments within conscious control for practical application, not only in the care of those who fall stricken with disease or injury, but in the management of threatened epidemics and all medical and sanitary emergencies. The course at the Naval Medical School broadens their knowledge and practicable capabilities to include those special subjects which naval surgeons have need to know and those peculiar responsibilities which devolve upon them and constitute a most unremitting demand for professional alertness.

Tropical diseases have come to occupy a large place in naval medical experience. The nation's interests are so firmly fixed, and the naval surgeon's sphere of practice is so frequently placed in tropical latitudes that now, more than ever, he is called upon to diagnose and treat their contributions to human suffering, and the development and scope of this branch of medicine has reached such proportions that too much stress can scarcely be laid upon the special need that the naval surgeon be prepared in this important field of work.

The Bureau has for many years furnished medical libraries and periodicals to medical officers wherever stationed, and during the past year the whole system of supply and distribution was revised and made more comprehensive. In addition to the usual journals from the public press, which are thus being widely circulated throughout the service, one or two copies each of certain special foreign or home serial medical publications are subscribed for for the Naval Medical School and the Bureau, in order that the corps of instructors may be placed in possession of the latest information from all sources for the purpose of teaching, in the one case, and that the Bureau may be in the position to carry out one of the important purposes of the United States Naval Medical Bulletin in the other. These special journals are rarely, if ever, seen by the medical officers scattered throughout the service, and it would be impossible, on account of the expense involved, to place them within their reach. As a matter of fact, it would be unprofitable to do so; for, in this progressive age, it is entirely beyond the capabilities of any one man to read all the important medical literature. Yet, it is absolutely necessary to keep in touch with every advance, and the Bureau, therefore, undertakes to review the great bulk of original work which is currently reported and to prepare abstracts for publication in the quarterly Bulletin.

With these provisions which the Department has made to enable medical officers to keep abreast of the advances in the profession, the service has become more and more attractive, and to-day it is a rare occurrence when a medical officer resigns to again enter civil practice.

It is not intended to give the false impression that the naval service is unalloyed bliss. No walk of life can, in good faith, offer that. There is some unpleasant duty, of course. The unsettled life; the sea service alternating more or less regularly with shore duty, which entails periods of separation from one's family; and the likelihood of a certain time of service at foreign stations, all mean varying degrees of hardship, according to the disposition of the particular officer; but there is always the consoling thought that it cannot, and will not, last long, and, besides, however undesirable a duty may be, there is an unfailing something to one's advantage to be gotten out of it.

In any event it seems wise and appropriate at this time, when the medical schools of the country are sending young life into the medical profession, to invite consideration of these facts which ought to be, and no doubt will be, of practical assistance in the solution of that ever-perplexing problem which comes to every doctor on the threshold of his career—the question as to what the next step

is to be, what the world offers for the exercise of professional attainments, and where opportunities for reasonably lucrative practice are to be found. In this strenuous age, marked by overcrowded professions, it is unintelligent to take a narrow outlook upon life, to fixedly contemplate one channel of activity as the only desirable and available one, to ignore the breadth of possibilities in the government service.

THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

By M. J. ROSENAU, M.D.

DIRECTOR OF THE HYGIENIC LABORATORY, PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

It is the ambition of thoughtful men to be occupied with the work they love, to have an opportunity of spending their leisure hours with the pastimes they prefer, and to have the privilege of enjoying the repose of peace and quiet in the evenings of their days. Those whose philosophy of life tends in these directions and who are satisfied with a modest competence, free from the worries and cares of commercialism, cannot do better than select a position in one of the medical departments of the Government service.

The question is sometimes asked us why we remain the servants of the Government when we might be independent in private practice. The answer is plain: The private practitioner is very many more times bound to the beck and call of his clientèle with less freedom and chance of relaxation than the "Government servant." The trite saying that "few die and none resign" has become an axiom in the Government service and well illustrates the contentment and calm which usually prevails in official circles. It means that many men of different temperaments from all sections of the country are satisfied with the life and work of a medical officer of our Government. While such a position offers some advantages over the cares and strife of the active practitioner, it is not without its responsibilities and disadvantages.

Having been requested to give a short exposition of the opportunities for making a living in the Public Health and Marine-Hospital Service that are open to the recent graduate in medicine, I will briefly state the requirements and kind of examination for admission to the service, the nature of the routine work required of its officers, their pay, and their opportunities for preferment; also, what offers in the way of travel, of pleasant companionship, and the winning of a name in science.

First, let me tell what the Public Health and Marine-Hospital Service is:

This service receives the first part of its long name from the fact that it has many public health duties to discharge, particularly the conduct of maritime quarantine, the management and suppression of epidemics, the medical inspection of immigrants, the maintenance of a hygienic laboratory in Washington, the Federal control of interstate traffic in serums and vaccines, the investigation of sanitary problems, and many other matters affecting the national health. It was formerly called the "Marine-Hospital Service," from the fact that it has charge of the marine hospitals which are located at our principal ports for the treatment of sick and disabled seamen of the merchant marine.

The Public Health and Marine-Hospital Service is a bureau under the Treasury Department in charge at present of Surgeon-General Walter Wyman, with a staff of assistant surgeons-general who are entrusted with the management of its various division details. Marine hospitals existed in the early days of our country under charters granted by King George III, but the service properly dates from July 16, 1798, when Congress passed an act for sick and disabled seamen, creating a fund for this purpose designated as the "Marine-Hospital Fund." The benfits of these hospitals were extended to sailors in the United States Navy until 1811, when Congress authorized separate naval hospitals.

In 1871 the service was reorganized and the position of supervising surgeon-general created, after which the Marine-Hospital Service rapidly outgrew its name; for, in addition to conducting marine hospitals, Congress from time to time imposed upon it additional duties and responsibilities, and its activities were so extended and its functions so multiplied that its work soon resembled that of a national board of health.

Therefore, in 1902, Congress gave the service its present name, the "Public Health and Marine-Hospital Service of the United States," at the same time further adding to its duties and responsibilities.

Advantages of the Service.—A service such as this, consisting of 131 commissioned medical officers, is like a large official family. The prolonged and intimate relationship between the officers of the service engenders the strongest ties of friendship, while the pleasant companionship and many social advantages which a life in the service offers add much to the pleasure of life. The discipline in the Public Health and Marine-Hospital Service is quasi-military in character, but while weekly inspections are had at each station, there are no tedious drills, and no time is wasted with routine exercises of a non-professional character.

Officers while on duty are required to wear the uniform prescribed by the President.

The particular advantage offered by this corps to graduates in medicine is that it is strictly a medical service. More than 50,000 sick and disabled seamen of the merchant marine are treated annually. Of this number over 12,000 are cared for in the twenty-two hospitals of the service. The service reports show that over 1,500 important surgical operations requiring the use of an anesthetic are performed annually. Not only is good opportunity offered by this large clinic to study all branches of the art and science of medicine and surgery, but the class of cases treated offers special opportunity for the study of rare and exotic diseases. Deep-water mariners bring strange and unusual parasites from all corners of the globe. Tropical diseases unknown in our climate may be found in all the seacoast hospitals of the service, affording abundant material for original scientific research. The new hospital at Ellis Island, where thousands of immigrants arrive each year, is in charge of officers of the Public Health and Marine-Hospital Service. The service in this hospital is probably the most unique of any in the world. Here are collected strange diseases of strange people from strange lands.

In addition to the medical and surgical opportunities offered by the service, an officer has abundant occasion to exercise his administrative and executive abilities. Each station, whether hospital or quarantine station, is in command of a medical officer, which is a privilege few appreciate excepting

those who have been hampered in their professional work by being subordinated to laymen.

Opportunities.—The various divisions of the service are in charge of older officers detailed (in Washington) as assistant surgeons-general, who have executive responsibilities of a high and difficult character, being responsible for the proper and economical conduct of the divisions entrusted to them. The service, as indicated by the first part of its name, performs public health work of a most varied and important character. It has waged many contests against yellow fever, and is constantly at warfare at the various quarantine stations along the gulf and South Atlantic coasts to prevent this dread scourge entering our country. This kind of work has given officers of the service the opportunity of winning enviable reputations as sanitarians.

The Public Health and Marine Hospital Service also conducts a sanatorium for consumptives at Fort Stanton, in the high and dry climate of New Mexico.

In compliance with the Interstate Quarantine Regulations it has taken an active part in preventing the spread of plague and cholera, in addition to yellow fever, whenever these diseases have become a menace.

Opportunities are afforded to the corps to promote the sanitary sciences, either at the Hygienic Laboratory in Washington or by original investigation at the various quarantine stations and hospitals of the service, some of which are equipped with facilities for laboratory work.

In order to prepare officers for the peculiar duties which confront them in the service, the younger officers of the corps are detailed to the Hygienic Laboratory at Washington in order to take a systematic post-graduate course in pathology, bacteriology, and various branches of the sanitary sciences that are not usually included in the medical curriculum.

From time to time officers of the service who show special aptitude for such work are detailed as special commissioners to study the cause and mode of transmission of diseases which menace the public health. In recent years there has been a leprosy commission, several yellow fever commissions (one at Havana, two at Vera Cruz, and one in New Orleans), while officers of the service have been on numerous occasions detailed to study plague, cholera, malaria, smallpox, "spotted fever," milk sickness, and outbreaks of other strange and unusual diseases which appear from time to time.

Requirements and Entrance Examinations.—To enter the service a candidate must be an American citizen; if of foreign birth, he must furnish proof of citizenship. The age of the applicant must not be less than twenty-two nor more than thirty years. He must be a graduate in medicine of some reputable college, and must pass a satisfactory physical, academic, and professional examination before a board of three commissioned medical officers. The board of officers detailed for the purpose of examining applicants for appointment is convened from time to time as vacancies or the exigencies of the service require. The board usually meets in Washington in the spring of the year.

Examinations are both written and oral and are always preceded by a very thorough physical examination. This is followed by an oral quiz on academic subjects, particularly to ascertain the proficiency of the candidate in general literature, the languages, history, geography, and the natural sciences, such as chemistry, biology, and physics. The written examination of applicants for appointment begins with a short autobiography, in which the candidate states his age and place of birth, schools or college at which he received his general and medical education, the general branches studied, including his knowledge of general literature and the ancient and modern languages, the opportunities he has had of engaging in the practice of medicine, surgery, or obstetrics, or of receiving special instruction, and whether he has been a resident physician or interne in a civil or military hospital, and the number of cadavers or parts of cadavers he has dissected while at college or elsewhere. The remainder of the written examination consists of questions in each of the following medical subjects: (1) Anatomy, (2) physiology, (3) chemistry, (4) materia medica, (5) practice of medicine, (6) practice of surgery, (7) obstetrics and diseases of women, (8) hygiene, (9) pathology and bacteriology, and (10) reports on special cases at the hospital.

Whenever it is possible applicants for appointment are required to perform operations on a cadaver, to show their skill in bandaging, and to demonstrate their proficiency in the technique of clinical laboratory work. An average grade of 80 per cent. is required. An applicant for appointment failing at one examination may be allowed a second examination after one year, provided he has not passed the limit of age above mentioned; but he is not allowed a third examination.

Pay and Emoluments.—After entering the service the candidate is commissioned by the President, by and with the advice and consent of the Senate, as an assistant surgeon with compensation of $1,600 per annum. After four years of satisfactory service he is examined for promotion to the grade of passed assistant surgeon with compensation of $2,000 per annum. Passed assistant surgeons must wait for a vacancy in the list of surgeons, to which grade they are admitted only after examination. Surgeons receive $2,500 per year. Six of the older officers of the service are detailed to the Bureau at Washington with the rank of assistant surgeon-general and pay of $2,900 per year. The surgeon-general receives $5,000 a year.

In addition to the pay above stated, officers of the service above the rank of assistant surgeon receive 10 per cent. increase of their annual salary after each five years of service. This increase is called a "fogy," or longevity pay, and officers are entitled to four such fogies after twenty years of continuous service. Commissioned officers of the service are also entitled to quarters, fuel, and lighting. Comfortably furnished quarters are provided at almost all of the hospital and quarantine stations; where no quarters are provided officers receive commutation at the following monthly rates: Surgeons, $50 at home and $90 abroad; passed assistant surgeons, $40 at home and $85 abroad; assistant surgeons, $30 at home and $80 abroad. Foreign commutation applies to any station situated beyond the geographical limits of the country as they existed January 1, 1908. This increased sum allowed for foreign commutation is in lieu of the increased compensation granted officers in the other arms of the Government service while in the Philippines and on other foreign details. Officers of the service and their families are also entitled to medical supplies. Thirty days leave of absence are allowed each year; leave of absence which is not taken accumulates until four months may be had with full pay.

Private practice is not regarded as inconsistent with the requirements of the regulations governing the service so long as such practice does not interfere with the proper performance of official duties. Officers stationed in remote places where skilled medical assistance is difficult to obtain are not infrequently consulted by citizens residing in the neighborhood. No fees are allowed for any professional, sanitary, or executive duties required by the regulations. Every inducement is offered to the officers of the service to publish the results of their investigations, whether of a clinical or a laboratory character, in the various bulletins and reports of the service or in medical journals, according to the circumstance of the case.

Publications of the Service.—The Service publishes a weekly journal entitled "Public Health Reports," containing information upon vital statistics and epidemiology, the progress of epidemics, and interesting data concerning quarantine, sanitation, and items of scientific interest.

The annual report of the Surgeon-General is a yearbook giving an account of the activities of the entire Service.

Special reports of the work done by officers of the Service are issued from time to time. Some of these are: A notable paper on pellagra in the United States by Lavinder; a comprehensive history of the recent pandemic of plague by Eager; authoritative papers on trachoma by Clark and Schereschewsky; a model plan of organization for the suppression of smallpox in communities not provided with an organized board of health by Wertenbaker; a résumé of the prophylaxis of tropical diseases by White; précis on the management of outbreaks of smallpox, diphtheria, and scarlet fever by Geddings; the prophylactic value of vaccination by Mathewson; a brief but complete history of federal and state action against tuberculosis in the United States by Kerr; an important contribution to the fourth (Filatow-Duke's) disease by Schereschewsky; three papers upon leprosy, embodying careful research work, by Brinckerhoff; original contributions to our knowledge of plague by McCoy and Wherry; the good results of treatment at the tuberculosis sanatorium at Fort Stanton, N. M., by Carrington; a review of the literature and further observations upon milk sickness by McCoy; particularly practical paper upon the etiology, symptoms and diagnosis of yellow fever by Goldberger; a timely article upon the prevention and destruction of mosquitos by Goldberger; a contribution to our knowledge of dengue fever by Goldberger and McCoy; useful articles on the trapping of rats and the management of a yellow fever campaign by Rucker; various reports showing the good work of the Philippine board of health by Heiser; observations on the life cycle of the yellow fever mosquito and the results of practical researches upon culicides by Francis; an account of the discovery of a new spirochete in yellow fever kidneys (*Spirochæte interrogans*) by Stimson; an exhaustive study of outbreaks of disease due to milk by Trask; the control of institutional outbreaks of diphtheria by Salmon; the results of the anemia commission of Porto Rico by Ashford (U. S. Army) and King; experimental studies of tuberculosis in market milk by Anderson; valuable essays upon uncinariasis by Stiles; and a number of other papers covering subjects of a public health nature.

Upwards of fifty bulletins have appeared embodying the results of researches at the Hygienic Laboratory. The Hygienic Laboratory of the Public Health and Marine-Hospital Service is located in Washington and comprises four divisions, viz., pathology and bacteriology, zoology, pharmacology, and chemistry. Bulletins of the laboratory have appeared upon the subjects of milk and its relation to the public health, investigations into typhoid fever in the District of Columbia and elsewhere, anaphylaxis, hookworm disease, antiseptics and germicides, spotted fever, the standardization of tetanus and diphtheria antitoxins; pharmacological investigations on digitalis, adrenalin, thyroid and other organo-therapeutic products upon ferments of the blood in health and disease; and other pathological, bacteriological, zoological, chemical, and pharmacological subjects.

A complete list of the publications of the Service may be had by applying to the Surgeon-General.

Seeing the World—One of the most pleasant experiences which comes to a medical officer is when he receives his first detail to represent the Government at a medical meeting. The Public Health and Marine-Hospital Service is always represented at important medical and sanitary gatherings, whether at home or abroad. These duties offer exceptional opportunities for keeping in the van of medical thought and of presenting in written papers the results of original observations and research.

Those who like to travel obtain a full meed of such enjoyment during the whole course of their official life. All officers of the service are subject to change of station. The regulations do not permit an officer to remain longer than four years at one place without being redetailed by the Secretary of the Treasury. The exigencies of the service constantly call for the services of experts familiar with epidemic diseases and sanitary problems, which involve much traveling back and forth. The hospitals and quarantine stations, as well as all contract and inspection stations, are regularly inspected in accordance with a definite plan. The service is also required by law to inspect, once each year, all establishments manufacturing viruses, serums, toxins, and analogous products. Boards of officers are convened in various parts of the country from time to time to examine candidates for promotion, to inspect sites for new camps or hospitals, to investigate the conduct of the service, and to perform miscellaneous duties and solve the many new problems that are constantly arising.

Actual traveling expenses and hotel bills, not to exceed $5 per day, are allowed medical officers while traveling under orders. This travel is frequently under the most pleasant circumstances and gives one an opportunity to see the world under advantages that can scarcely be appreciated by one not in the Government service.

The service now conducts both hospital and quarantine stations in Porto Rico, Hawaii, and the Philippine Islands, giving some of its officers the opportunity to take long sea voyages. At many foreign ports commissioned medical officers of the Service are detailed for duty in the office of the United States consul in order to sign bills of health and supervise the sanitation of vessels leaving for our shores. At present there are 3 officers in Japan stationed at Yokohama and Kobe; 3 in China at Shanghai, Amoy and Hongkong; 2 at Guayaquil, Ecuador; 6 in Canada, at Montreal, Winnipeg, St. John, Halifax, Victoria, and Lethbridge; 4 in Alaska, at Juneau, Nome, Valdez, and Ketchikan; 1 at Calcutta, India; 1 at Rio de Janeiro, Brazil; 4

in Naples, Italy; 5 in Cuba, at Havana, Santiago, Guantanamo, and Matanzas; 2 in Mexico, at Salina Cruz and Coatzacoalcos; and 8 in the fruit ports of Central America.

The medical officers of the Public Health and Marine-Hospital Service are given both time and opportunity for solving the great problems connected with the cause and prevention of disease. They enjoy exceptional opportunities for applying the sanitary sciences in the practical and useful work of keeping out exotic plagues, preventing the spread of epidemics, and scouring our fair land of its preventable scourges.

THE INSURANCE EXAMINER.

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NEW YORK,

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The preparation of students for life insurance examining was not regarded as worthy of attention by our medical colleges until a few years ago, when a short and, in some instances, elementary course was included in the curriculum of a few of those institutions. The subject should be looked upon as a branch of medicine, and it is strange that its importance has not been more fully recognized, since the duties of the examiner are quite different from those which one is trained to perform in the capacity of family medical adviser. The position is also a very responsible one, even though it does not bring actual sickness or impending death into immediate consideration, for the life insurance companies depend largely upon the faithful and intelligent services of their examiners in protecting the interests of millions of beneficiaries—the wives and children of the policy-holders. The time has come when it should be made clear to those seeking the position that there is something more worthy of their reflection than the mere question of increased income, and that the possession of a high degree of mental equipment and moral tone is imperative if they intend to discharge conscientiously the serious obligations which they assume in the capacity of medical examiner. The object of this brief article is to give a general idea of the advantages and disadvantages which the position carries with it, and also the duties and qualifications expected.

Number of Examiners Required.—The field for the medical examiner extends everywhere, from the country cross-roads to the largest cities, as every village is supposed to have at least one examiner and large places more in proportion to their size. Each of the large companies has over 20,000 examiners in the United States alone, and the smaller concerns are represented by almost as large a number, as their agents solicit everywhere, though the total amount of business secured by them is not so great. Examiners often work for several companies, and in small places this is unavoidable, as there are not enough physicians available to give each company its own special representative. This practice is not confined to villages or small towns, as physicians are frequently met in larger places serving half a dozen different companies. It is, therefore, impossible to give even an approximate number of medical examiners in the United States, but it cannot be other than very large. There are companies that transact business in foreign countries where they usually select native physicians on account of their knowledge of the language and the people. It occasionally becomes necessary, however, to send some one abroad after he has received a special training at the home office; this is found advisable more especially in those countries where the principles of life insurance are not well understood either by the medical fraternity or by the public at large.

Applications.—If the company has a medical referee for the district in which the applicant lives, a request for appointment should be made to this official, whose duty it is to keep himself informed as to the standing and acquirements of physicians in his territory, or, at least, to have some means at his command for accurately ascertaining those particulars. If there is no referee, and the local manager of any company will gladly enlighten an applicant as to whether there is or not, correspondence should be directed to the home office.

The great majority of applications received by the companies are mere requests for appointments, and are not accompanied by endorsements of reliable and well-known persons or by satisfactory credentials. Such communications are filed, but when occasion arises for the selection of examiners in those localities the choice naturally falls upon others who have been found competent through information obtained by methods which the companies have at their command.

It is a general rule to refuse applications for appointments unless vacancies have occurred through suspension on account of incapacity or inefficiency, removal of examiners to other fields, or death. Any other policy would cheapen the position and give the present incumbents some degree of uneasiness as to the future demand for their services. There are times, however, when it becomes absolutely necessary to enlarge the existing staff on account of an increase of business or the discovery of some locality in which there is no examiner.

Medical men have been tempted to take out insurance, the agent having promised to secure their appointment as examiner as a reward, and having also led them to believe they would earn more than enough in the way of fees to pay the premiums. It must be admitted that a few companies have stamped this questionable procedure with their approval by making needless appointments in such instances, and that they were equally ready to repeat the performance as often as the agents could induce the neighboring physicians to play into their hands. *Verbum sat sapienti.*

Fees and Salaries.—Nearly $4,000,000 is distributed annually among the life-insurance examiners of this country. The individual's share of this vast sum varies, of course, according to the locality and size of the place that he has selected as a field for his practice. In villages it may not exceed $100, or even $50, a year. If, however, an energetic agent arrives in the neighborhood he may write insurance enough in a short time to bring in more than this to the local examiner as compensation for his services. In towns and small cities the examiner may expect to realize from several hundred to one thousand dollars. Here, again, the efforts of the agents must be taken into account, for it is only in the large cities that we are sure to find active and able solicitors at all times. In the large cities the earnings of examiners vary widely according to the company they represent, their rank, and the size and importance of the district to which they are assigned, and range from about $600 to about $2,500 a year. There are those who receive more by giv-

ing their time exclusively to this work, but it is questionable whether this is advisable or not, as they must depend upon several companies, none of which assure them permanent positions.

The largest companies have adopted the custom of paying their examiners by salary in most of the great cities, especially in New York City. In New York a Home Office examiner is started, as a rule, with a salary of $1,200, for which he is expected to devote at least two hours in the Home Office and to make several outside examinations, so that the amount of time given up by him is from four to six hours a day. During dull periods he is able to finish his work in less time, but he is always supposed to complete the work of the day, even in the occasional busy seasons, when it may take much longer. Examiners are always needed in the outlying districts of these large cities and, when on salary, receive about $600 a year. For this they make all the examinations within certain boundaries, but are not expected to go outside of their territory or to appear at the Home Office. The examiners at the Home Office, working directly under the supervision of the Medical Board, do not have as great a responsibility as those stationed in distant large cities where applications are also made daily for large amounts of insurance. It therefore becomes imperative to select men with long and wide experience at these points with remunerations in keeping with the high order of skill and care expected, the salaries in a few instances running as high as $3,000.

The fee system is retained by the small companies, as even in large cities the number of applications received by them for insurance does not warrant the payment of salaries; so there is an understanding by which the examiners receive the usual fee of $5 for each case and, in a few instances, report at the Home Office daily for a short time. As the corps of examiners consist of only a few men, an examinership in one of these companies is found to be satisfactorily remunerative.

It is possible to treat this subject of fees and salaries only in a general way, and these remarks must not be considered as referring to any one company. Each concern has its own rules and customs, which often differ radically from those of its competitors.

Advantages.—Some will probably conclude that the remuneration is not large enough to make it worth while, especially in small places. We can only say that during the intervals between examinations, one will have the consoling thought that he is really losing nothing, as no capital or expense has been demanded from him other than is actually indispensable to a general practitioner. Then again, the sum of $100 in a village where the cost of living is comparatively slight, is equivalent to several times that amount in towns or cities. There is also some benefit to be derived from the prestige and reputation that comes to a physician in whom a great corporation has shown its confidence and faith; this is especially true in small communities where everyone is more or less conversant with his neighbor's affairs.

Still another advantage which work of this kind gives is the examination of a healthy body occasionally; we all are aware of the importance of this practice for the purpose of keeping the faculties keen and well-balanced, but very few follow it up unless it comes in line with their regular work. The examiner also receives some mental training, too often needed, through requests from the Home Office to complete or revise unsatisfactory physical examinations and unfinished reports.

Whatever the income amounts to, it is sure to be paid promptly each month, whether the examiner recommends or rejects the risks, and there are none of the irritating delays in collecting that are unfortunately experienced in private practice. Salaries are paid monthly as a rule.

It has been our experience to find that a doctor is seldom too busy to accept an examinership, for he can make many examinations without consuming the whole or even a large part of his time. His private practice, which is naturally of most importance to him, will not be interfered with; it merely requires some method in the arrangement of his hours to do both kinds of work to the satisfaction of all concerned. It frequently happens that through making a more careful and painstaking examination than the applicant has been accustomed to, a closer intimacy is begun and a new patient added to the list.

Disadvantages.—There are no disadvantages to a conscientious and efficient examiner worthy of consideration, for the worst that can happen to him is the incurrence of the displeasure of the applicant or the agent when it becomes his unpleasant duty to advise rejection of the risk. No one is more vulnerable to the attacks of an enemy than the physician, especially in small communities, so it becomes a matter of self-preservation with him to avoid all controversies and unkind criticisms as far as he is able. A disgruntled agent or, worse, an angry applicant who thinks he has been treated unjustly, will on some rare occasion succeed in more or less injuring the reputation of an honorable and well-meaning doctor. The liability of this undesirable complication must be borne in mind when an application for an examinership is contemplated, for it has undeniably led to bitter animosities lasting for years, and even for life. Tactful management and good judgment will do much to prevent such strained relations. Then, again, the companies realizing the possibility of such a poor reward for services rendered in their favor, provide forms for confidential letters in which the examiner may freely give an expression of his opinion, though his regular medical report contains no unfavorable comment; these letters are sent directly to the Home Office and are looked upon as confidential. With this resource at his command, we feel free to state that when an unpleasantness arises, it begins with poor management on the part of the examiner.

Requirements.—Men who possess skill, education, and training are naturally selected whenever possible. The physician who has been graduated from a first-rate school of medicine, has seen several years of practice, has been an interne in some regular hospital, and is in good standing, will receive the preference. The country practitioner is not always able to meet all these requirements, and the selection must be made from the best obtainable. We wish to say, however, that with the exceptions that occur to every rule, the insurance companies have no more conscientious, painstaking, or faithful workers than the country examiners. In the larger places there is no difficulty in obtaining men who have all the qualifications desired.

During the past few years the large companies have adopted the admirable custom of training a necessarily limited number of men who have had a hospital experience. They remain at the Home Office for a period of from one to three months,

working under the supervision of the regular medical staff, and receive while there about $100 a month as compensation for their services. When the period of probation has ended they are given important posts at distant points. Only those are chosen for these positions who can furnish the very best credentials.

Generally speaking, those who possess the ability and temperament necessary to the making of a good family practitioner, will prove satisfactory as examiners. There are certain qualities that are so invariably found in the *ideal* examiner, however, that it will be well to specify them with the hope that they will be studied by the prospective applicant. In addition to a good professional education and standing, he must be a man of strict integrity and sobriety. The possession of a common-sense shrewdness in judging men's characters and lives, and the ability to estimate the value of past and present conditions from a practical standpoint, place him on a higher plane of usefulness than one who is a pure theorist. He is expected to be obliging in disposition and willing to make further investigation or examination on request from the Home Office, even though the fee does not compensate him for the extra services given in this individual case; in such instances he ought to find consolation in knowing that he usually receives very liberal payment for his work. He must feel that he has sound discretion and firmness in maintaining his position without giving offence or irritation.

Courtesy and power to maintain a calm state of mind on all occasions are most desirable qualities in an examiner, for there will be times, happily not often, when he will be subjected to annoyances and criticisms without just cause that will make it seem beyond his endurance to hold himself in; if, however, he loses control of his temper on such occasions, no matter how great the provocation, he also loses ground and sympathy; but if he maintains a courteous bearing and unruffled dignity, he has the best of the situation and keeps himself above the level of his opponents. While on this subject, we would once more call attention to the value of that great asset, tact; for we know of no position in which this quality conduces more to a good mutual undertsanding and peace of mind to all concerned than in the one under discussion. Examiners, most efficient in every other way, have brought down the wrath of the parties immediately interested and incurred the displeasure of their superior officers, all of which could have been easily avoided by the exercise of just a little bit of tact. The examiner should always bear in mind that he is serving others, the company and the agent, whose interests are much greater than his own, and for this reason should keep his own feelings in the background and ignore occasional slights and injustice. It should be his endeavor always, on parting from the applicant and the agent, to leave them good friends to himself and the company, even when it has been his unpleasant duty to give an opinion adverse to their interests.

Each applicant should feel confident that he will be able to fulfil these duties and requirements, as well as be ambitious to become an ideal examiner. His greatest reward will be his own consciousness of work well done, and the appreciation of those who are competent to estimate the worth of his achievement, compared with which fees and salaries sink into insignificance.

THE RAILWAY SURGICAL SERVICE.

By CLINTON B. HERRICK, M.D.,

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ATTENDING SURGEON TROY HOSPITAL; SURGEON TO THE NEW YORK CENTRAL, THE RUTLAND, THE DELAWARE & HUDSON, AND THE BOSTON & MAINE RAILWAYS.

THERE is no public service more enormous in its proportion than the railway. The ramifications of the "iron highway" knows no border nor recognizes any limitation. Piercing every quarter of the globe, its trunk lines reach out sinewy fingers over prairie and sea, up and down mountain and canyon, its branches multiplying in ever-increasing ratio as the centers of industry and population are approached, and then a bewildering mass of glittering steel rails in the cities and terminals of both passenger and freight services. Add to this the street and suburban trolley lines that are rapidly increasing and stretching out so extensively, and, altogether the proposition reaches to a colossal degree.

Now, consider the fact that these railways have to be managed and operated by men, and plenty of them, and an army is at once established that is unequaled in numbers by any army in the world, reaching up into the millions. If we now add the number of passengers that are carried each year, and whose lives and limbs are in the custody of the operatives of the railway, while traveling upon them, no one can wonder at the necessity of a surgical service to assist in keeping this army well and free from injury, and to give aid and relief to them when they are sick or injured.

The Army and Navy have always provided a medical staff both in peace and war to govern the questions of health or incapacity of their corps, yet their sick and wounded are few in number compared with that met with in railway work, nor are the necessities for a medical corps in any wise more positive than for the railway army.

For some years the trunk lines of railway have recognized the factor as one of personal and general benefit, and staffs of surgeons have been organized along their lines. This example is being rapidly followed, and a surgical department established by all the large systems, that is becoming each year more important, both to the railway company and to the surgeon, and will shortly take its place among the recognized public medical services of prominence and authority. Not perhaps because the injuries received upon and by the railways are particularly characteristic has this subject become so prominent, but they are particularly severe, and also because, in the majority of the cases, cripples are made, nervous wrecks established, and a long battle between the professions of law and medicine frequently incited to decide the questions of truth or fallacy of conditions proclaimed.

The Requirements of a Railway Surgeon.—The railway surgeon needs be first of all a surgeon. His training should be theoretically classical, and his personal experience quite considerable and general. Bone injuries predominate, and in this he should be well skilled as to judgment and manipulation. He should be quick in action and conception, and steady in determination. In scenes of wreck he will be obliged to bring into play all the tact and skill he has in store to cope with the havoc and disaster. No one can imagine for an instant the great responsibility suddenly thrust upon a surgeon in a railway wreck, with the agonizing cries of the injured

the gloom or darkness of the surroundings, and the hysterical interfering crowds about the scene. To conduct the situation with consideration, propriety and skill to a satisfactory finish marks the man as a strategist of no mean degree.

The Staff.—A complete surgical service has a chief surgeon at its head who has entire charge of the department, assisted by division surgeons who have direction over certain sections, and in turn the local surgeons, who are appointed in each city or town of importance along the line, each of whom has a territory to cover, reaching in either direction to the next. Excepting the large railway systems in the West and South, none of the surgeons so appointed give their entire time to the service, but have private practice as well, and hold themselves always in readiness for a call by an official or employee of the road. While each surgeon has charge over his own district, no sharp lines are drawn, and he is expected to respond to any call near or far in case his aid is required. Reports are sent to the chief by the local surgeon of each accident as they occur, and monthly reports submitted with a summary of work done. This entails some clerical work on the part of each member of the staff, and if the corps is a large one the chief and his assistants have considerable to do in classifying and filing these. Frequently the law and claim departments are the recipients of these reports, either separately or in conjunction. On other lines of railways the surgical staff is under the immediate control and direction of the law or claim department, and no chief surgeon is appointed. Otherwise, the rules and regulations are much the same. In the larger systems, fully equipped hospitals have been established in their terminal cities and at points along the line, owned and operated by these companies, for the reception and care of its sick and injured. In other cases contracts are made with city hospitals to receive those sent by the company. As a rule, the railway surgeon takes charge of such cases, whether he is a member of the staff or not, as they are by the terms of the contract considered as private patients. In a few instances relief cars have been fitted up and equipped as rolling hospitals to carry the surgeons to the scene of accident and give every opportunity to care for the injured in the best possible manner, and this represents the highest type of an organized surgical department. On some systems the company hospitals receive both sick and injured employees, as well as injured passengers, and in some cases the families of the employee are as well entitled to the service. In these instances each employee, by reason of such, is a member of the Railway Relief Association and entitled to such privilege.

The duty of a railway surgeon is to be ready at all times and in all seasons with his complete surgical emergency outfit. At the least expected time he may be summoned, and then all else, either business or pleasure, must be immediately foregone that he may hasten to the relief of the injured. It may be he has to trudge or drive many miles to the scene of need, or, if his station is at a terminal city, a locomotive is frequently brought into service to hurry him to the case. He is given every consideration by the employees of the road to assist him and to follow out his instructions. He takes charge of the case and renders all the aid and relief he can to the individual, then arranges for his transportation to such a point as his judgment directs. It is his duty to accede as far as consistent to the desires of the individual or his family or friends, if they be near, but in this matter he is also to act on his own advice if the case appeals to him in any other manner. To the hospital is the rule of direction in all cases of severe injuries unless contraindications are preeminent; otherwise, to his home or other desired point. Besides giving attention to the individual and his injuries at the scene, he also takes notes of the surroundings in order to acquaint himself as far as possible with the matter of the cause of the accident and injuries, and other features, and includes these findings in the primary report. During the after care of the case reports are submitted as to the progress, and upon discharge a final summary. In this relation of railway surgeon and that of individual attending surgeon, both of which are at the same time being occupied, a peculiar situation exists, and the surgeon is expected to be deliberate but honest in his findings and reports. In times of "peace," the surgeon's duties take another phase. He is required to keep on hand his "kit" so that in the hurry of departure nothing will be forgotten. As to the contents of such, it is usually left to each one to select his own according to individual ideas, while some companies have a prescribed list of articles intended for first-aid service. He sees to it that packages of materials are kept in containers at the terminal stations, in roundhouses and yards, and in some cars, instructing the employees in their use and application. He posts cards of direction as to what the employees should do in case of accident. He assists in formulating rules for the proper care and fumigation of cars, and for the transportation of the sick and injured. He is required to examine applicants for positions on the railway, as well as those desiring promotion, as to their physical fitness for the duties of such position, and in this he is to pass only those fully up to the standard of perfect health and condition. Lastly, and by no means the least important, is the feature of examination of persons who are alleged to have received injuries upon the railway, in order that he may appear in court in support of his findings as to the actual conditions of disability or deformity. For all these reports and forms, printed blanks are furnished as a guide to the matters required, one of which is sent to the proper officer of the company, and copies filed by the surgeon making them for his own purpose.

Opportunity for Study and Experience.—One securing an appointment as a railway surgeon and making a study of its various phases will undoubtedly recognize many of the features that do not appeal to the surgeon unaccustomed to treating this class of injuries. In this wise he will find, as his work extends with the large variety of injuries to be met with, that he is given a school of the greatest value. He will meet many emergency cases and incidents that require quick perception and rapid action, this experience serving as a great teacher and proving a benefit to him in all the other phases of medical and surgical work that he meets from day to day. I believe that there is no class of surgeons so quick to act and to act so decidedly and well as those experienced in railway work.

The compensation of a railway surgeon varies. The systems that have a chief surgeon pay an annual salary to this official, and he is obliged to devote his entire time to the duties devolving upon him. Such assistants whose time is largely occupied in the service are also usually paid a salary.

Local surgeons subscribe to a "fee bill" and are paid accordingly for services rendered. The salary of chief surgeons may be of several thousand dollars per year, according to the extent of the service. Other railways pay their local surgeons a salary ranging from one hundred to three hundred dollars per year. Some pay for services rendered, without any stipulated "fee bill," such a sum for each case as is considered reasonable. In addition to the direct remuneration, the surgeons are given an annual pass over the division or entire line, and usually trip passes are granted to the dependent members of the surgeon's family. As extra fees the surgeon is paid for each examination in a medico-legal case: for examining prospective employees for service, and for appearance in court to give testimony.

How to Obtain an Appointment.—Appointments to the service are made by the chief surgeon, if such be at the head, or by the law and claim department, in either case it being approved by the executive officer of the company. Such appointees are selected with the view of obtaining the best general surgeon in the locality, and, where possible, one with a hospital connection. No examination is required, application being made direct to the appointing officer, with letters and documents from both professional men and laymen as to fitness and standing. The appointment is nominally for one year, but ordinarily lasts indefinitely.

The Advantages to the Surgeon.—Any office in the public service is reputable and worthy of seeking. If one is doing surgery, and especially if devoted to its practice, the appointment of railway surgeon not only stamps him a surgeon, but carries additional repute and distinction indicating that his skill and reputation are recognized by the corporation as of value, and worthy of their confidence in placing him in charge of their interests and in caring for those injured upon their railways. This prestige carries weight in every direction, brings one into contact with men of influence and position in the world, and is in every way worthy of acceptance. If such an appointee is not connected to an hospital staff, a strong influence is created which will probably secure him such association, as the relations between the hospital and the company are thus made more mutual and agreeable, and the connection regarded favorably by the hospital management.

The honorarium is not attractive, but, for the actual amount of work done during the year, it pays on an average a very fair stipend. The pass is a feature that appeals to many as a particular distinction, and the bit of pasteboard is a covetous possession, beyond the actual saving of traveling expenses during the year.

Disadvantages.—To one doing a general medical practice, any appointment to a surgical service of this importance draws from the public the inference that he is doing this work quite exclusively, and in time may work to his disadvantage in undoing his reputation as a purely medical man, and will be apt to cause him to lose many medical cases. For this reason such a practitioner should not accept the appointment, unless it be in the country towns where he is without much competition and the people accept the matter as one of propriety.

As to the chief surgency or appointments in which one's entire time is required to fill the position, there may be some disadvantages in being thus an employee without having the personal freedom that is a solace to the practitioner. Then, having no opportunity to do outside work, there is no chance to increase his income beyond the salary, which is rarely more than that attained by the successful practitioner after but a few years of regular work.

To the local surgeon there can be no particular disadvantage in holding such a position, unless it is that of the petty jealousy of some confrère for his having been selected for the service. This becomes more prominent when the company surgeon is directed to take charge of a patient who has been seen at first by some one else, by whom this transfer of the case is looked upon as in every way unethical, and who rarely stops from scoring the action as a robbery. The occurrence of these incidents is one of the most disagreeable matters of the service; and it has no justice whatever, as in these cases the railway pays the man giving first aid his fee for the same, and he should not expect to keep and treat the case.

Conclusion.—In comparison with other public medical services, or with the Army or Navy, that of railway surgery is not nearly so desirable. While the remuneration may be even greater, the tenure of office is more or less dependent upon the changes in railway management, or various other influences favoring a covetous competitor. Then, too, the dignity is not to be compared with that of a Government position, as at present the railway surgeon is looked upon largely as a necessary evil, and his relations, even with the company he represents, are not always pleasant.

His requests, and frequently his advices, are neither sought for nor heeded, and he is many times made to feel that his position is far from exalted. This is not universal, however, as may be noted from the high esteem in which many of our chief surgeons are held by their railway officials, and the confidence and close relationship existing between many local surgeons and their respective company. There is no doubt that the time is approaching of a still greater prominence of the service, its extension to every line of railway in the country, and the full confidence and respect granted it by the officials of the company, making the position of railway surgeon in every way worth the while of the most talented medical man to seek.

MEDICAL SERVICE IN THE MERCHANT MARINE.

By JAMES FRANCIS DONNELLY, M.D.,

NEW YORK

FORMERLY SURGEON IN THE TRANSATLANTIC SERVICE.

It has been well said that there is work enough for everybody on a ship, and the recent medical graduate or the landsman practitioner of riper years who turns to a sea life must quickly prove the truth of the statement. It is the purpose of this article to set down as clearly as possible the life of the medical man in the merchant and passenger steamship services, presenting its advantages and disadvantages. With pardonable pride in our national character, it may be stated that the American doctor has become known to the maritime world as being of the first rank. There are certain of the large steamship companies trading in all parts of the world whose home offices are abroad—addresses being given in detail further along in the article—who, with unfailing promptness, place American

doctors applying for positions as surgeons aboard their ships. In the passenger service to and from American ports, the native born and educated physician again has the advantage in the race for place over the foreign medical man for the reason that the various steamship companies, whether of foreign or native ownership, are now coming to recognize the fact that the greatest number by far of travelers back and forth from America to Europe who use their ships are Americans. A large source of revenue to passenger steamship companies is derived from shipping emigrants, and our government is becoming more and more exacting as to the qualifications in determining who shall and who shall not be permitted to take up residence on our shores. The American doctor again is by nature better fitted to appreciate the proper construction of the laws upon this subject and likewise to secure every advantage for the company which employs him to look after the medical interests of these would-be citizens and make the usual manifest notes regarding disease, which will aid the examining physician at Ellis Island.

Inducements.—The attractions drawing a young medical graduate, or the older practitioner, to the sea may be manifold. Besides an innate love for the ocean, personal health may be an attracting force. Sea life is probably more generally healthful than any other existence. More particularly in its sedative effects is it valuable to one who has undergone the lengthened strain of four or seven years—as when academic and professional courses are combined—in college. The older practitioner, after years of uphill effort, securing only moderate success, as well as the one who works an unrelaxing round, may, too, be attracted seaward. Educationally, a method of broadening one's scope—so essential to the physician—by travel and study of the many phases of human nature which are thus continuously presented to the ship surgeon, is offered.

Application.—Having decided to seek the position of doctor upon a vessel with the object either of working his way about the world or to secure the coveted berth of surgeon on a liner, the proper method of procedure for the candidate would be to secure an introduction to the general agent of the company upon whose ship he desires to serve. While personal influence has weight, a well-written letter stating the qualifications of the aspirant and the announcement that the doctor will call around himself within a few days to present his case in person, will prove of equal value. Persistence in the matter is a most important quality, and a weekly call upon the agent subsequently soon attracts that official's attention and gives notice that the doctor is still alive and awaiting his opportunity to serve the company in an official capacity. While awaiting the chance to secure a regular appointment the candidate should visit the various ships in port of the class in which he intends to sail, and become acquainted with ship doctors, who will be found a most approachable set of men. By this means he is not only learning his way about a vessel, as it were, but will often chance to meet a doctor desiring a substitute. These changes are quickly arranged, and the candidate, to take advantage of such opportunities, must be prepared to embark upon shortest notice. It is useless to write from a distance, as a personal interview is essential.

In the passenger service the American and Holland America lines employ American doctors almost exclusively upon their vessels. Other lines entering New York, particularly the German, are seriously considering the advisability of placing one or more American physicians upon their steamers. Freight steamers on call to a single port, or perhaps wending their way through many waters and visiting many countries before returning to the home port, which are known as "tramps," are sometimes more desirable as means of seeing the world. Probably the largest owners of steam vessels of this latter type are the "Elder Dempster S. S. Co.," sailing the Royal African Mail line of steamers, with general offices at No. 21 Water street, Liverpool, England, and the "Hamburg-American S. S. Co., Luisenhof, Hamburg, Germany, where applications may be sent.

Other vessels sailing from New York which sometimes or regularly carry American surgeons are the Hamburg-American, running to the West Indies, South and Central America; the Lamport & Holt, sailing to South American ports; Red D to Venezuela; Panama Line; Bermuda Line, and occasionally a foreign line, which may have a heavy passenger list, and which will then require an additional doctor of any nationality. Or, when a company like the Ward Line stops at an English port during a winter cruise, it must carry a surgeon, as the British Government demands that a surgeon should be on all passenger ships, otherwise they cannot clear the English port. This is an excellent rule, and the traveling public should demand a surgeon on other ships, at all times, for example, on those running between New York and Havana. It is nothing unusual to have 200 or 300 people on board during the busy season, and there are often quite a few cases requiring a surgeon's attendance.

Qualifications.—The personal qualifications of the individual who would be successful in his profession at sea are that, besides having a diploma from a reputable medical school of our country, he must be possessed of the manly quality of self-reliance, coupled with prudence in action. For he must remember that every doctor who enters a ship's company does so at a disadvantage. The popular idea afloat of the "ship doctor" is that being a failure ashore, he turns to the sea and would minister to jack-tar's ills. Government restriction in steamers of English registry running from England and between her colonies requires that the surgeon aboard must possess an English license if the combined number of crew and passengers is over one hundred persons. Dutch steamers have also government restrictions, but their enforcement is usually left to the steamship officials themselves.

Salary.—Payment for his services may be divided into two portions; first, the money received from the company as he stands listed upon the payroll, which includes his percentage from the sale of emigrant passage tickets. Second, the compensation derived from his patients, which may be truly termed the honorarium, as it may be in cash or a variety of articles. In the passenger service, the American and Holland-America lines pay the highest cash salary, which is fifty dollars a month; from thirty to fifty dollars being the limits in regular passenger service. In addition to this, the doctor may count upon receiving from twenty-five to two hundred dollars extra from various patients upon a good trip—financially considered—during the "season," which lasts from about the end of

May until July in the trips across from this side, and from the last of August up to October in the return passages. Besides money, the doctor is liable to receive anything which the recovered patient, returning home, believes might please the doctor. Or a monkey, a parrot, or a carved ship set sailing in a porter bottle by some old quartermaster, grateful but rheumatic, who does duty on the bridge, after having passed from a forty years' service before the mast of sailing vessels, may be received. In freight steamers the compensation is less. Of course, aboard this class of steamers passengers are few and far between, and extra money derived from outside sources is likewise scarce. Sometimes, however, the doctor may have a chance to secure extra fees by being called ashore to see a case in a port far removed from civilization; as in the case of wealthy native planters along the west coast of Africa, who pay for treatment in ivory, skins, or nugget gold, which may readily be converted into cash upon reaching home. Work upon the African trading steamers is hard but pleasant. The doctor is the captain's "chum" and is given greater opportunities to gain a knowledge of the language, life, and character of the natives than can be afforded in any other vessels. A few companies allow a wine credit of a certain amount per month for the use of the doctor when entertaining friends or passengers. The doctor's room and office is usually combined, but is of ample size in most instances. The living is the best obtainable in the large ships styled "ladies of the ocean," and in all there is a plentiful supply.

Disbursements.—The necessary expenditures at sea include the personal laundry account, although some companies allow the doctor's washing to be done at their shore laundry. The doctor is usually expected to pay for his table and bedroom steward service. As the one may be a grateful patient and the other be satisfied by a gift from time to time of the doctor's cast-off uniforms, the money expense need not be large. Extra wine and cigars are charged to the doctor's monthly account, which is kept at the company's general offices.

Outfit.—The doctor's personal outfit should include a dress uniform and a working uniform, with caps, with two or three sets of white duck uniforms for summer wear if the line of travel carries the steamer into torrid climates; a uniform overcoat; three sets of heavy underwear; six sets of light underwear; a dozen pair of socks, heavy and light; two dozen collars; a dozen shirts; a dozen handkerchiefs; cravats; three pairs of shoes; rubber overshoes; a pair of gum boots; storm coat (oilskin suit and sou'wester); toilet and shaving set; sewing bag (containing needles, scissors, buttons, thread). For professional work the doctor will require, besides a pocket surgical instrument case, the following instruments; hemostatic forceps (4); scissors (curved); dissecting forceps; splinter forceps; grooved director (eyed); probe; spoon curette; scalpel; curved (sharp-pointed) bistoury; hernia knife; soft rubber catheter (No. 10 French scale); needles (curved and straight); catgut and silk (sterile packages). He will need a good practical work on medicine to which he may turn in emergency and secure a rapid recollection of his knowledge of the diagnosis, pathology, treatment, and prognosis of the disease he has encountered; also a similarly adapted work upon surgery, for when he is most in need of the knowledge he requires he will have least time at his disposal to spend in reading up a chapter upon the subject. Books upon the specialties may be added to his working library for secondary reading, but the chief reliance will be found to be placed upon the emergency textbooks of the character which has been described.

Rank.—The official standing of the ship surgeon which is accorded by the company's standard is that of second in command to the captain, and of equal rank with the first officer. The standing which he obtains in verity is that which he makes for himself after coming on board. While the crew and officers generally will receive him with but illy concealed feelings of disfavor, he may ere long make them all his friends and devoted admirers, if when starting out, and ever afterward, he conducts himself with the grace and dignity which our calling demands in dealing with laymen. While in ordinary times the doctor aboard ship is expected to attend strictly to his own business, in times of crisis his judgment in many matters outside of his regular calling will be tested, and well will it be if he is able to stand the trials, as after a collision, or in time of fire.

Social Life.—As in society in general, social circles on steamships are made up of rather well-defined cliques. The captain is supreme in the little circle drawn from the passengers which he gathers about him. It has been said that the social atmosphere of a ship depends entirely upon the temperament of the captain, and this is true to the extent that his character affects those of his officers and crew directly and through them cannot but react to a degree upon the passengers.

The chief engineer and the first navigating officer form a set by themselves. The other officers make up still a third, while the doctor either "cliques by himself," or may gain an equal footing in all the rest. While the purser is the recognized police official of a steamship, it is to the doctor everyone goes in time of difficulty, whether arising among crew, passengers, or officers. Ship doctors may be called upon at times to decide with the captain the advisability, and to share in the responsibility, of placing a passenger, one of the crew, or an officer in confinement for misbehavior. Subsequent suits for damages are generally likely to follow such proceedings, and careful decision is required in these matters. The captain himself may, at times, be required to be subdued, as in a sudden attack of mania. The doctor in such cases must shoulder the entire responsibility for this restraining action. A carefully written statement corroborated by that of the crew, officers, and passengers would be required in such an event to protect the surgeon at the subsequent investigation by the company and the government.

Professional Relationship with the Crew.—The crew of a vessel are aboard of her for the object of working, and while the company provides medical attendance for those who are rendered incapable by accident or otherwise when pursuing the legitimate round of their duties, it expects the doctor not only to protect the interests of the crew against themselves, but to secure the best welfare and conduct of the ship by preventing individuals from taking advantage of this provision. The detection and prevention of malingering aboard ship is one of the surgeon's important duties. Alcoholic and venereal excesses are a common cause for disability among the men, and while the ordinary sailor has a childlike character in many respects, the doctor

must not show too great a weakness in condoning these offenses, which clearly destroy a man's power to work two or three days out from every trip. Such a man, for a time, may be able to make up his deficiencies to the company for his days of idleness, but soon he is being employed at a loss, and it becomes the doctor's duty in the matter to make this fact known to his superiors. A doctor allowing himself to become too sympathetic may easily cause disorganization of the entire crew upon his vessel.

Passengers.—In his dealings with the passengers the doctor naturally stands as the mediator between them and the company as represented by the ship's crew and officers. Avoiding discussions in all matters, fair judgment is required from him. While, after a few days out, the doctor may share the part with the captain of becoming a social lion, he must carefully avoid the appearance of becoming too popular. While he is the host for the nonce, he is still but the servant; his quickly-made friends will soon become forgetful of him, and if he would avoid discord he must prevent jealousy from arising in the breasts of his fellow-officers. A doctor who becomes a little abrupt during the extra bustle of changeable weather need not be surprised to find that the officials in the general office of the company have been notified by various tourists of his slights to the passengers. Ever mindful of the delicate position which he occupies, he will be required to exercise constantly all of his resources to cope with the arising situations. The surgeon may often serve his company and win their commendation by his power to prevent damage suits arising from accidents to passengers aboard his ship. With the exercise of a little tact a statement, which he may have in printed form, expressing satisfaction of the injured one or his friends with the treatment received will, after it has been signed, act as a deterrent when thoughts of securing legal redress arise in the minds of the patient or his family.

Steerage Passengers.—From time to time a magazine writer of more or less repute will travel "steerage" and upon his return set himself the task of recounting his experiences, finding little to praise and much to blame in the manner of handling the emigrants. As a matter of fact, emigrants to-day travel to our country in far greater safety and in much more comfortable quarters than did the country's forefathers. The comfort of the emigrants is further insured, on the Holland-America Line, by the fact that the captain, chief officers, and doctor all receive a percentage of the third-class passage receipts. The other lines might well imitate this policy for it is an incentive for better service.

Disputes must be adjusted and all disorder carefully repressed among the emigrants, for, in time of panic, their actions are the chief disturbing element aboard the ship. Sanitary measures must be instituted and carried out for the general good of the ship, and it is the doctor who is the chief organizer and executive officer in charge of these matters. His duties require that he make a careful examination of every emigrant passenger before he boards the ship for the purpose of detecting the unfit. The importance of this may be imagined, for if a single individual suffering from an incipient epidemic disease, such as scarlet fever, smallpox, measles, or yellow fever, were allowed to embark, the subsequent epidemic arising when at sea would cost the company many thousands of dollars' loss in quarantine expenses and fines, aside from the number of lives which might be sacrificed. Eye diseases are likewise of importance, as quarantine officers in the American ports are particularly charged to reject emigrants presenting chronic eye diseases, especially when of a trachomatous nature. As precautionary measures, candles and garlic are confiscated from the immigrants whenever found. A law of our government requires that all third-class passengers be vaccinated. This duty devolving upon the doctor, he finds it to his advantage to perform the work early in the voyage, else its performance becomes an almost utter impossibility, owing to seasickness, if the weather becomes at all rough. It is therefore not uncommon for a ship doctor upon one of the large transatlantic liners to vaccinate from seven hundred to one thousand five hundred steerage passengers during the first day out from the foreign port. The implement by which this is accomplished consists commonly of a handle fitted with an attachment similar to the lead-holding device in the ordinary indelible pencil. By this means sharp, pen-like stylets are held in position while being used upon the patient's arm. Several stewards are engaged in loading the handles. The point after being dipped in the virus, provided in a receptacle at the surgeon's side, and applied, is discarded. Infection from one person to another is thus avoided. Daily inspection of the scars is a part of the ordinance, but this is impossible owing to the press of other work. Stewards are therefore required to check off the necessary inspections at the final sea inspection of the surgeon, which takes place a day or so before sighting land. But little trouble is experienced in carrying out the government health regulations save with that class of returning emigrants who, having spent some time in America declaring for citizenship, are returning after a visit to the fatherland. These persons, who are known as "one paper men," often resist and stand upon their rights as citizens to claim exemption. Notice to them, however, that they will be denied a landing if they do not submit to the laws of the country of their adoption quickly brings acquiescence. In general, these people have to be treated with strictest discipline. Knowing no law but that of the military force of their country, emigrants are quick to take advantage of apparent weakness upon the part of the doctor in the pursuit of his duties among them.

All classes of passengers will seek information as to the daily health report of the ship during a voyage. The uniform reply to such questions, whether from a steerage or first-cless passenger of "All well aboard," will turn the questioner aside and quell the fears of the timid. Some steamship companies, when a death occurs from ordinary causes among the steerage passengers and which has been followed by burial at sea, tacitly expect the doctor to protect the corporation's interest by either making out a lax report or by omitting to mention the occurrence altogether in the papers to the quarantine officials. This saves time and money sometimes, but is perilous, for if the offense be detected, the company is not only heavily fined, but the doctor himself becomes henceforth a suspicious character to the officials.

Accounts.—The clerical work which the company and government regulations require from the doctor is such as relates naturally to his professional duties. His name must be attached to all official papers relating to the health of crew or passengers. His signature attached places him upon his honor as to the truth of the contents of such indentures.

Rejections of immigrant passengers at the port of embarkation with a statement of the cause must be officially noted by him. Sickness or death occurring among either crew or passengers must be also entered, accompanied by the doctor's descriptive statement.

Hospital Facilities.—The space accorded to the doctor in the treatment of the bedridden is limited to the patient's own berth in some steamers. Others have a special cabin or sick bay, far removed from the living quarters, where the sick may be isolated. Cabin passengers in time of epidemic are quarantined within their own staterooms. Steerage passengers, from whom most is to be feared, on such occasions are segregated so far as is possible in the necessarily limited space at command. Help from passing steamers may be secured in time of need according to the universal law of nations, whereby a transfer of patients may be effected or additional medical aid be obtained.

Supplies.—Modern steamers will be found equipped in most instances with an adequate supply of drugs, splints, dressings, and instruments suitable for emergency or routine use. Many companies give the doctor free scope in his ordering, and are willing to purchase the best in the market. Besides the usual salves, ointments, and plasters, many of the most important drugs of the pharmacopeia, put up in tablet or compact form, are provided. Instruments include a set of sounds, tourniquet, general operating, anesthetizing, obstetric forceps. The best medical journals published in our country are either subscribed for or sent gratuitously by the publishers to all of the ships upon the important lines.

Work.—An idea of the amount of work which may be crowded into the ship doctor's day of twenty-four hours may be obtained from the statement of a doctor aboard one of the crowded homecoming liners in the late summer of last year. This gentleman kept a partial account of one day's work during rough weather. He made a total of two hundred and eighteen visits to cabin passengers' staterooms in visiting patients, each one of which had to be seen to and treated with the same careful handling that the shore doctor employs. Office visits were not included in this computation. Besides the daily and nightly round of burns, scalds, and "cramp cases" occurring in the fire-room gangs, there are usually one or more individuals in the great company which a ship's crew musters who will require the doctor's continual attention. The populous steerage with its numerous progeny of children and mothers will demand a good share of the doctor's time, besides childbirth cases, averaging one or two in number every voyage during the season.

Seasickness, brought on most often by the overindulgence in eating and drinking of the last days before sailing, with its usual concomitant condition of constipated bowels, takes up an additional share of the surgeon's hours and calls for a goodly supply of patience, castor-oil, epsom salts, calomel, and compound cathartic pills in the treatment, the general specific ordered being "champagne for the first passengers, and beer for the steerage." Local treatment which, though homely, yet finds the greatest favor in the ship doctor's eyes is the application of the so-called "sea-belt," which consists of a beer bottle wrapped up in a towel and bound in position tightly over the region of the stomach.

Besides his rounds of day and night "calls" the doctor attends, with the captain and chief officers, the daily inspection of the ship when at sea. Landing of the immigrants must be overseered by the surgeon, and their transfer to the government landing station, and subsequent inspection and distribution are all a part of his regular duty.

Summary.—Advantages—By securing a position of surgeon aboard a steamship the young doctor will gain valuable experience in the study of human nature. He will be enabled to visit foreign countries and the different races of men. A week in each port, which is the usual stay of the great liners, will, however, prevent the surgeon from making extended trips from these ships. Probably six months or one year will suffice to enable the young medical graduate to gain a knowledge of sea-life as the doctor sees it. To the physician in search of health, if he be not too great an invalid, which would certainly handicap him for the activity of ship life, a valuable and inexpensive way is opened to enable one to secure a change of scene.

While the chance for social advancement may be easily overrated, the ship doctor is thrown in close contact and most pleasing intimacy with the most cultivated and highest types of our people, and the impressions which he makes will depend in great measure upon his demeanor and character.

Disadvantages.—The doctor aboard ship is considered an "idler," for while he may be oftentimes continuously engaged for hours or days he has periods of inactivity. The irregular life which is sometimes demanded is detrimental. There is a constant danger of contracting habits of intemperance in eating and drinking, with a tendency to avoid active exercise beyond that required by professional duties.

Unless upon his guard, the doctor will become weakened in moral stamina by the life at sea, and lose ambition to advance to the heights in his profession.

INSTITUTIONAL WORK FOR YOUNG PHYSICIANS.

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It is estimated that about 10 per cent. of the recent graduates in medicine fail for one reason or another to take up private practice. Just why this is the case does not concern us at the present time; but I will say that in all probability the chief reason for it is found in the fact that so many young men in order to complete their medical education are compelled to borrow money for the purpose, and it is natural for them to seek a salaried position as soon as they are out of college that they may pay back the loan. We must also remember that the financial cost of acquiring a medical education has increased to a very marked extent during the past ten to fifteen years. Not only has there been a goodly increase in the amount of the college fees that are demanded, but there has been a corresponding increase in the cost of living. (Baltimore, which has a number of medical colleges, furnishes a fair illustration in this respect. In 1889, students were able to procure very good board and lodging for $4 a week. At the present time, $5.50 and $6 is demanded for the same accommodations.)

I will not attempt to give any accurate estimate of the number of positions in this country filled by young physicians whose services are rendered for a fixed salary. To name the character of some of them will be sufficient. Practically all States maintain a large number of asylums or hospitals for the care of their insane and for other defectives. A reasonable estimate would place the number of such institutions in the United States at not less than one hundred and sixty to one hundred and seventy-five; and assuming that each institution employs an average of five physicians on its staff, we have at once a total of 800 to 900 so employed. In addition to the physicians in these institutions, there are also others employed in reformatories, penitentiaries, hospitals for tuberculosis, for the care of epileptics, the blind, the idiotic, the feeble-minded, and others.

Large municipalities that have a population in excess of two hundred and fifty to three hundred thousand employ good large corps of physicians on boards of health, as public vaccinators; in the inspection of public school children for contagious diseases; as quarantine officers and assistants, and as inspectors for the offensive trades. Taking the entire aggregate of all salaried physicians, including those enumerated above and such others as are offered by steamship companies, by mining corporations, by railroads, in public laboratories and the like, and exclusively of medical officers in the Army, Navy and Marine Hospital Service, it is safe to say there are 1,200 to 1,500 salaried positions for young physicians in the United States, in which vacancies are occurring quite frequently.

We will take up the larger division first—those employed in the care of the insane, and since my knowledge of these particular institutions in New York State is better than it is concerning any other state, and for the further reason that there is a marked similarity in the character of this work throughout the United States, I will give some details of the New York State positions, how they are obtained, the pay, etc. Here all medical officers are under the civil service, and while much of a debatable character may be said concerning the value of this service, the final argument would be in its favor. I make this statement after a service of 15 years as the executive head of a large institution in New York State, and with an average of 10 assistants employed under my immediate supervision. I recall but one or two instances when the operations of the civil service law made it difficult to procure the particular physician wanted to fill some particular position. I invariably found the State civil service commission entirely willing to listen to suggestions concerning improvements in the methods of holding examinations for medical positions, and especially was this true in instances where special fitness was demanded, as in pathological or strictly scientific work.

Most physicians who enter this service enter the lowest grade—that of medical interne; a position, I believe, that is the same throughout all institutions in the United States. As a rule, medical internes must not be more than 26 to 28 years of age, unmarried; must have had not less than one year's practical experience in general hospital work; must be graduates of a regularly incorporated medical school, and must present testimonials vouching for good character, conduct, and the like. Examinations for medical interne are non-competitive and are held at the institution where the appointment is to be made. As a matter of fact, the appointing officer selects the individuals he desires to appoint, and then the examination is held; so that in this case at least a nomination for examination is substantially equivalent to an appointment.

The salary of the position is uniformly $600 a year with maintenance, which includes furnished quarters, board, laundry, postage, stationery—in short, all things necessary for living, with the exception of those that are strictly personal—such as clothing.

It is generally understood that medical internes will seek an examination for promotion at the end of a year's service to the next higher grade, which is that of junior assistant physician. Here competitive examinations are required, and they are simultaneously held in various cities of the State, the purpose being to make the examinations as attractive to as many candidates as possible. The questions for examination are prepared by physicians employed for the purpose, and it is proper to say just here that these examinations within my experience are eminently fair and just. They are usually completed within a single day, although when special topics are covered a second day is sometimes required. Junior assistant physicians are paid $900 to $1,200 a year, increasing from minimum to maximum at the rate of $100 per annum. The term of service in this position varies, and is determined by vacancies in the grades higher up.

The next examination is for the position of assistant physician, the pay of which begins at $1,200 and increases at the rate of $100 per annum until $1,500 is reached. The next grade above this that is examined for is that of second assistant physician, the pay of which begins at $1,600 per annum and increases $100 a year until the maximum of $2,000 is reached, at which figure it stands so long as the incumbent continues to hold it.

Next comes the position of first assistant physician, which corresponds to that of assistant medical superintendent. This position is one of great importance. The first assistant is by law the ranking officer in charge of the institution during the absence of the medical superintendent. His examination for appointment, therefore, embraces questions in administration which are not given to officers lower in the scale. The pay of the first assistant physician begins at $2,000 per annum and increases at the rate of $100 until the maximum of $2,500 is reached.

In all the foregoing, as well as in the case of medical internes, full maintenance is provided. First assistant physicians are also allowed maintenance for their families, and second assistant physicians may board their families in the institution when room is available. The charge for such board by the State is merely nominal, meeting only the actual cost.

The chief position in such institutions is that of medical superintendent. Candidates for this must be not less than 30 years of age, must have had five years' actual experience in institutional work, and must pass a competitive civil service examination, the questions of which are largely administrative, while many of them pertain to matters of sanitation and hygiene. Knowledge of hospital construction and organization is also required. The pay of medical superintendents begins at $3,500 a year and maintenance for the officer and his family, and increases at the rate of $100 per annum until the maximum of $4,500 is reached.

There is no fixed term of service for any of the

positions mentioned above. Appointment to them is made by a board of managers or trustees who have supervisory charge of the institutions, such boards being appointed by the Governor of the State, by and with the consent of the Senate. It is due the service to say that these positions are non-political; boards of managers serve without pay. In my fifteen years of continuous service I was never personally asked to make an appointment that was in any sense political, and I never made one of that character.

The sole cause for appointment is merit, and all worthy candidates have an equal chance. When it is found that an appointee is not meeting the demands placed upon him, that his work is not satisfactory, the appointing power has the right under the law to dispense with his services without formality if it be done within the first ninety days. But if the appointee holds office for a longer period than that, he can then only be removed by charges being preferred against him, and proved after a regular hearing.

The spirit of the service is generally good. Much new life has been enthused into it throughout the entire country in the past few years. Any medical officer who shows special aptitude for certain lines of work is given all possible encouragement. The State displays as a rule a fair liberality in providing books, scientific apparatus and instruments to the extent the work requires.

All that I have said in the foregoing concerning the service in New York State applies in a large measure to all the other States, with probably two chief exceptions—I refer first to the lack of civil-service examinations in most States, and to the influence of politics in making appointments. It is generally conceded that political influence is still felt in some of the western institutions. At the same time a very active campaign is going on now in the more progressive of these States in an effort to place the work of caring for the sick absolutely above and beyond the reach of political influence of any kind whatever. Salaries also, as a rule, are not as large in the institutions West and South as they are in the older institutions of the East. This is partly offset by the less expensive cost of living in those localities as compared with the East.

Special Positions.—In addition to the positions named in the foregoing there are several others which are usually very attractive to men who have had a particular training, and who desire to devote their life to some special scientific problem. These positions are generally in laboratories for the prosecution of pathological studies. A good many institutions have resident pathologists with well-equipped laboratories at their command. Special examinations are required for nearly all these, and the rate of compensation ranges from $1,500 to $5,000 a year. In some States that have a large number of hospitals, to a certain extent conducted along the same general lines, the laboratory work is combined in a central plant which is presided over by a director who is paid the larger sum.

In the mining districts of Pennsylvania and other localities, corporations employ physicians at regular monthly salaries. These salaries rarely exceed $30 to $40 a month, but the work is usually in an active community and the physician has a very good opportunity to do private work in the surrounding country.

Private Sanatoria and Health Resorts.—Especially in the Eastern States, but throughout the country generally, there are many private sanatoria that care for persons suffering from chronic diseases of one kind or another, and there are other sanatoria usually smaller that care for a more restricted class of invalids made up mostly of mild cases of nervous and mental diseases. The former institutions are often quite large, have a population of several hundred patients, and a staff of resident physicians numbering as high as ten to twelve or more; some of them usually being qualified for especial lines of work, such a surgery, pathology, etc.

Appointments in these institutions are made by the physician in charge, and as a rule without examination. The salaries paid range from $900 to $2,500 a year and maintenance. In the smaller sanatoria, that are especially numerous in the East and that care for nervous and mental cases, the salaries are considerably larger, ranging from $1,500 to as much as $5,000 a year, in addition to maintenance. Appointments in these smaller institutions are usually made by the physician who owns them or who directs the medical work in them, and rest solely upon personal choice.

Some of these private institutions are quite active in the up-to-date treatment of disease. Many are near large cities where members of the staff can have library and other special advantages.

I have not included in the foregoing a very large number of assistants in subordinate teaching positions in the various medical colleges of the larger cities. Many young physicians on leaving college take up work of this kind and are paid from $100 to $300 a year for it. In some lines of work the pay is better.

It is not the financial side of such teaching that is attractive, but the possibility of being in line for promotion and the public recognition of certain ability.

There is one word of caution to be said to young physicians, and it is this: If you go into institutional work with a purpose to stay in it only a year or so, maybe two or three years, be sure you leave it at the end of that time or before you have formed such routine habits of work that when you do give it up you will find yourself very unhappy in the new field of labor.

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SALARIED POSITIONS OPEN TO MEDICAL MEN IN THE LARGER CITIES.

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The recent graduate in medicine has indeed a problem put before him. How to establish himself in legitimate practice? Though many a young man steps directly from his hospital service into a rapidly growing practice, and many another is so comfortably situated as to have little concern about the extent of his clientèle, the great majority are compelled to sit in disheartening idleness for months of the first few years, waiting for work. Not long ago a letter, published in one of the daily papers and purporting to be written by the friend of a physician, set forth the unenviable plight of one who without advantageous connections tries to gain a livelihood by entering into practice. After a bitter complaint, the writer went even so far as to inquire if the present precedents governing the practice of medicine were not utterly wrong. There

is indeed a very real difficulty in attracting a clientèle in any of the larger cities, but on the other hand it is coming to be recognized that active practice is only a part of the medical man's function, and nowhere is the opportunity for work requiring medical training but not restricted to the mere treating of disease greater than in the very centers where the establishment of the individual is most difficult.

No time could be more opportune for the consideration of this question than the present, since within a month or two another host of recent graduates will be looking for employment. While a majority of these no doubt think only of practising, a number will find more congenial employment in other ways, and even those who wish ultimately to practise medicine, will find convenient any work which renders them financial aid. It should be borne in mind by the seeker after positions which insure a fixed income, that, for the physician, most of the work outside of the practice of medicine can be only a temporary aid to a livelihood rather than an end in itself. With this in mind, we may consider some of the many ways in which a physician may supplement the income from his practice.

The Department of Health.—Of course the largest number of positions requiring medical knowledge is offered by the municipal health departments. Those offices of highest rank are of great importance in the community, and, while requiring considerable ability and special aptitude for administrative work, command a high degree of respect. They are usually filled by men who have had a large experience in public sanitation and are therefore attained only after work in lower positions. However, a great number of lesser opportunities are offered to men of no especial training.

A summary of these in the New York City Health Department will serve to indicate the character of the work in all such institutions. The first to be named are the commissioner of health (salary, $7,500) and the general medical officer ($5,000), who are officers of general administration and supervision. They are the chief advisers of the Board of Health. The general medical officer has supervision over the sanitary and contagious divisions of the department. A sanitary superintendent ($5,000) gives his attention to the execution of the technical details of the work in the same divisions, and he is directly responsible to the general medical officer. Five assistant sanitary superintendents ($3,500) have similar duties in the boroughs to which they are appointed. The two sanitary engineers ($2,400) who must possess much technical mechanical knowledge in addition to medical lore may be included in the list since the posts have been occupied by physicians. The two chief inspectors ($3,000 and $2,500) and the assistant chief inspector ($2,250) of contagious diseases, as the titles imply, investigate all reported cases of contagious disease through their aides, the diagnosticians and the medical inspectors. There are over twenty of the former and their salaries range from $1,200 to $1,800. After personal investigation they furnish the official diagnosis to the department in all cases of contagious disease, recommend if advisable the removal of patients to one or other of the contagious hospitals, and discharge them from the same after the termination of their illness. The four hundred or more medical inspectors have varied duties to which they are assigned by the inspectors of contagious diseases. These usually fall into one of three classes. (1) The vaccination of all persons in the district to which they are assigned; (2) the inspection of all pupils in the public schools for evidence of contagious disease, including affections of the eyes and skin; (3) routine inspection of cases of contagious and communicable disease reported from the district to which they are assigned. The inspector must visit the patient, see that the regulations of the department of health are obeyed during the patient's illness, and oversee the disinfection at the termination of the disease. In cases of diphtheria he will, if requested, administer antitoxin. During the summer the inspection is extended to the treatment of the children of the poor among whom the mortality from diarrhoeal diseases is so high. One of the medical inspectors is assigned to night work at the office of the department, several have duties in the hospitals and almost any other special work may be asked of them by the chief inspector. Medical sanitary inspectors ($750-$1,800), of whom there are between thirty and forty, investigate complaints from citizens regarding violations of the regulations of the department.

Superintendents of hospitals and hospital physicians ($1,200-$2,500) have duties similar to those of such officers in other like institutions. They are employed in the Willard Parker, Trachoma, Riverside, and Kingston Avenue hospitals. There are also two attending and twenty-one assistant attending physicians to these hospitals. They spend but little time in the work and receive only $300 or $600.

The vital statistics for the entire city are compiled by the registrar of records ($4,000) aided by his five assistants ($3,000). He also receives and grants death certificates, burial permits, etc.

Laboratory work in the department may be divided into clinical routine and research. The former done in the diagnosis laboratory is concerned with the results of Gruber-Widal tests, examinations of blood for malarial plasmodia and of sputum for tubercle bacilli. The latter consists in the manufacture of antitoxin and vaccine and such investigation as may seem desirable. The following are the titles and salaries of the positions in the laboratories: director of the research laboratory ($2,550), six assistants of the bacteriological laboratories ($1,800-$2,110), one assistant director of the vaccine laboratory ($1,800), one assistant director of the diagnosis laboratory ($1,800), twelve assistant bacteriologists ($1,200-$1,500), three bacterial diagnosticians ($1,000-$1,200), one medical instructor in the vaccine laboratory ($1,200), four pathologists ($1,200).

With the exception of the men employed in the diagnosis laboratory, these physicians must give all their time to the work, *i.e.* at least eight hours a day. The same is true of the sanitary superintendent, the chief and assistant chief inspectors of contagious diseases, the registrar and his assistants, hospital superintendents and resident physicians. The time required in the other positions varies greatly, but the average may be placed somewhere between three and eight hours a day. A new appointee can expect to fill only such positions as medical inspector, assistant bacteriologist, and hospital physician. Other posts are to be regarded as promotions from these.

While such work in the department of health may be of greatest financial assistance to the recent graduate, it rarely aids directly in the establishment

of practice, and if the latter is the ultimate aim of the individual he should relinquish his position in the department as soon as his circumstances permit.

The Department of Public Charities.—The following positions whose titles sufficiently indicate the required duties are open to medical men in the department of charities: one general superintendent of hospitals ($5,000), one medical superintendent ($1,800), one deputy medical superintendent ($1,200), two examiners in lunacy ($1,500), two examining physicians ($1,000 and $1,500), one visiting and two resident physicians. The examining physicians are occupied between four and seven hours a day. All the time of the other men with the exception of the visiting physician is required in the performance of their duties. The positions are filled by appointment from the civil service lists.

In the *Department of Correction* there are five salaried positions filled by physicians. Three visiting physicians to the city prisons ($1,200-$1,500) give only a part of their time to department work. They visit all employees who are absent from duty because of sickness. Two resident physicians who receive $1,200 and maintenance give all their time to hospital work and if away must furnish a substitute. All appointments are made from the lists of the civil service commission.

The Police Department.—Twenty-five surgeons are at present employed in this department and their positions are considered very desirable. The applicant must be a regularly licensed physician and surgeon of New York State, a citizen of the United States, and a resident of New York City. He is appointed by the police commissioner from the lists compiled after competitive civil service examination. Once appointed he can be dismissed only because of dereliction of duty. The salary is $3,500. The police surgeon is subject to call at any moment when not actually attending a member of the police force. In a word he practises medicine among the policemen. A good opportunity is afforded him to build up a lucrative business among his patients' families and friends, for he is allowed to treat both at his usual rates. The competition for these positions is very keen, and without powerful political influence it is doubtful if anyone can secure the appointment to one of the infrequent vacancies. The successful applicants are usually men of considerable experience in practice. Such work is of course distinctly worth while, since it is a direct aid to the establishment of a clientèle as well as generously paid employment.

The Fire Department.—In the fire department eleven physicians are employed. "They must be skillful physicians and surgeons" who have attained through examination a high rank on the lists of the civil service commission. They receive $3,300 per annum and rank as chiefs of battalion. Practically all of their time is required in the performance of their duties. One or more of the surgeons attends daily at fire headquarters for the examination of such members of the uniformed employees as may be directed to report to him for that purpose, and for the examination of candidates. They are charged with the examination of all members of the force who may report sick, and they attend all such who have contracted illness or have received injuries when on duty. They answer all alarms of fire over second alarms. These positions are not quite so desirable as are those in the police department, for the surgeon has less time to himself and is in a way simply an officer in the department.

In the *Department of Street Cleaning* three physicians are employed. They visit sick employees and report on their condition, but are not obliged to treat them. These are civil service positions and command a salary of $1,800. About half of the incumbent's time is taken up with this work.

Department of Education.—Two medical examiners are employed by the Department of Education to report on the physical condition of applicants for teachers' licenses. They receive $1,700 salary and are appointed on the nomination of the president of the Board of Education. A number of medical men are lecturers in the evening schools; but though medical training is a desirable qualification for this work it is not required by the appointing power. The same is true of the department of physical education.

The Health Department of the State of New York.—In New York City five physicians are in the employ of this department. The health officer of the port of New York ($12,500), who is appointed by the Governor of the State, spends all his time in the direction of the work of his assistants, of whom there are four, viz., two deputy health officers for the inspection of passengers and crews of incoming vessels to the port, salary $2,700 with a small yearly increase; one medical assistant detailed for hospital work at Swinburne Island Hospital, salary, $2,400; and one bacteriologist ($2,500). These four men are appointed by the health officer without civil service examination. All but the bacteriologist live at Quarantine, and give all of their time to the work.

Corporations and Business Houses.—Not all opportunities for salaried employment are offered by public institutions. Private capital employs a number of professional men in all the large cities. Thus the street railways of New York depend to large degree on their paid physicians both to treat individuals who are injured by the cars of the company and to examine such individuals in order to determine the character and extent of the injury sustained, so that in case of a suit for damages expert testimony may be presented by the corporation. The experts are necessarily men of considerable experience and reputation; but the physicians who are called upon in emergencies need not be. Appointments are obtained through personal influence, the pay is fair, and only a part of the physician's time is required.

Not to be forgotten are the opportunities offered by the managements of the large department stores, who have recently undertaken to furnish their hundreds of employees with medical attendance during business hours, in the person of a paid physician who is required to spend nearly the entire day at the store. The remuneration is comparatively small, not more than $1,200 yearly, and the work is of no great aid in building up a practice, so that such positions are not advantageous from the medical man's standpoint. Nor, it must be confessed, in such cases is the service likely to be so beneficial to the patient as the close attention of the family doctor, chiefly because the company's physician is overworked and underpaid.

A somewhat similar scheme has not long since been inaugurated by some of the large manufacturing concerns. These positions are more desirable, for much less time is required at the establishment

and the physician attends the employees at their homes, becoming acquainted with them and their families, and thus having an opportunity to extend his practice.

There are published in every great city several medical journals which depend almost entirely upon graduates in medicine for editorial work, reviews, abstracts, etc. Depending on the amount of time spent, the return from such work varies from a modest addition to one's income to a generous salary. The work, though, of course, not easily done by all, is pleasant to those who have an aptitude for it, and stimulates the worker to a close study and wide reading of the new medical knowledge.

Private laboratories offer positions to a few medical men, and the universities employ in their athletic departments one or two physicians. In both these cases medical knowledge *per se* is of rather minor importance, the chief requirement being special training. The universities also employ a visiting physician, who is paid a small salary besides what fees he can collect from the students whom he attends.

Not many medical men are born teachers. A comparatively few, even, have the opportunity to teach. But to those who have and who realize that there are a science and an art of teaching, the former to be diligently studied, the latter to be acquired only after much careful practice, the delight of teaching medicine will strongly appeal. In no other way can theoretical medicine be so well studied as by instructing others in its principles. Such men should accept the first opportunity that offers in the medical school, for not only will they themselves thereby gain much, but if they can really teach, they will supply a great and at present not entirely satisfied want.

It is hard to recommend to any physician that he try to obtain employment as a "lodge doctor." The members of the so-called benevolent or fraternal organizations expect to be treated whenever they are ill, offering as a recompense their yearly dues which rarely exceed two dollars per capita. Here again it is very doubtful if the patient receives such good care as he would at the hands of the family doctor. The liberty of practice of the physician is certainly seriously curtailed.

From the foregoing it is clear that in seeking employment other than that of actual practice the physician has two courses open to him. He may temporarily or permanently give up all thought of practising and devote himself as a paid employee must to the service of his employer, or he may choose some work which, though, as a rule, less well paid, admits of his applying a part of his time to his individual interests. Much work of the former character must be done, trained men are necessary to do it, and of these physicians are perhaps most easily available. On the other hand, to give up all one's time to the service of the municipality, a private corporation, or a "lodge" looks very much like surrendering the freedom which members of the medical profession have long enjoyed. It would seem wise for the individual graduate to choose in the beginning between the two fields of licensed practice and regularly paid employment. An alternative course which is to make the regular practice of medicine his chief work and to choose such extra occupations as will not only not interfere with but will directly aid in extending it is perhaps the wiser

LEGAL RIGHTS AND OBLIGATIONS OF THE MEDICAL PRACTITIONER.

By ARTHUR N. TAYLOR, LL.B.,

OF THE NEW YORK BAR.

THE physician, newly equipped with the medical knowledge and experience which in the light of the present is deemed adequate to enable him to enter upon the important work of caring for the health of his fellow-beings, and imbued with the importance of his trust, and the great diligence and care with which he must apply his skill and science, is apt to overlook the legal relations into which his work brings him with his patients and the State. This oversight is not so serious, however, as it might at first thought seem, for in the vast majority of cases the physician's professional and legal obligations run parallel, so that when he carefully and conscientiously gives his patients the best of his knowledge and skill, he is fulfilling the obligations imposed upon him by the law. It is desirable, however, that the physician should have at least a general knowledge of these legal obligations, and, in the course of his practice, it will be of much value to him to understand the rights which accrue to him through his professional intercourse with his patients. It is, therefore, the purpose of this article to encompass, so far as its limits will permit, the subject of the legal rights and obligations growing out of the relations existing between physician and patient.

The physician, because of the right granted to him by the State to practice medicine and surgery, is, in the absence of an express statute to that effect, under no obligation to exercise his professional skill upon whomsoever may apply for treatment, but may arbitrarily withhold his services, even though an adequate fee is tendered when the request for medical attendance is made. But the physician having accepted or agreed to attend a patient, it becomes his duty to continue the treatment and call as frequently and long as the nature of the case may require, and in determining when he may discontinue his visits he is required to use ordinary skill and care. This obligation may, however, be terminated by giving to the patient a reasonable notice that the services will not be continued, so as to enable the patient to procure the attendance of another physician. Should the physician discontinue his visits without first giving reasonable notice of his intention so to do, and at a time when by the exercise of reasonable care and skill he should know that further attendance was necessary, he would thereby become liable to the patient for all resulting damages.

The physician, or in fact any person acting as a physician, having undertaken to attend a patient professionally, the law immediately creates by implication a contract on his part that he is possessed of a "reasonable," "ordinary" or "proper" degree of skill and knowledge, that in the exercise of this skill and knowledge he will use reasonable and ordinary care and diligence, and in all cases of doubt he will use his best judgment.

These fundamental requisites are well recognized, but in their application nice questions frequently arise. There are certain well-recognized rules for determining what is proper skill and learning. Probably the first in order of these is that the physician's proficiency must be tested by the general principles of the school of medicine which he pro-

fesses to practice. The meaning and justice of this rule is too manifest to require elaboration or illustration. The benefit of this rule has, however, been denied to a clairvoyant by the Supreme Court of Wisconsin, which, in a well-considered opinion, held that clairvoyants do not constitute a school of medicine, that there can be no school of medicine unless there are recognized rules and principles of practice for the guidance of the members whereby different members of the same school would prescribe substantially the same remedy for the same condition; that clairvoyants had no such recognized rules and principles, but each practiced after his own method, the only feature of their method of practice recognized by them in common being the manner of ascertaining the patient's condition. On the other hand, the Supreme Court of New Hampshire, in a recent case, has recognized, in effect, that there is a "school" of Christian Science. An action was brought by the patient to recover for malpractice where a healer, in treating the patient for appendicitis had instructed her not to lie down but to keep about the room the same as usual and to eat anything she wanted. The court was of the opinion that there was nothing in this treatment to show that the healer had deviated from Christian Science methods and practice.

The second rule is that the physician's skill and knowledge must be judged in the light of the advanced state of medical science, so that it would not do for a surgeon of thirty-five years' standing to fail to operate in a suitable case of knee-joint disease because he was taught in college never to open the knee-joint, antiseptic surgery being then unknown; nor could a physician justify the administration of general anesthetics in case of an operation on the eye, the use of general anesthetics in the particular case being dangerous, by showing that authorities twenty-five years ago laid down the inflexible rule that an operation on the eye should never be undertaken without complete anesthesia. And third, the skill and knowledge required of the physician shall be those ordinarily possessed by physicians practising in similar localities; thus the limitations or opportunities of environment are taken into consideration, and so a different standard would be imposed in case of a country physician with little or no opportunity to practice surgery being suddenly called upon to perform a difficult and complicated surgical operation, from that by which the skill of a physician practising in a large city and frequently taking part in such operations would be judged. This rule, it will be observed, is that the standard required is the skill ordinarily possessed by physicians practising *in similar* localities, not in his particular locality, otherwise it might be urged that when all in a given locality are ignorant quacks one could not be held wanting in skill because he possessed as much skill and knowledge as any of the others.

The physician bringing the requisite knowledge and skill to the treatment of a case, the next obligation imposed by the law is that he will use reasonable and ordinary care and diligence in its application, and the question of what is reasonable care and diligence must always be answered in the light of the circumstances and conditions of the particular case. Thus it frequently happens that the physician is called to attend a patient when the most casual examination is sufficient to inform him beyond question of the patient's condition and to enable him to prescribe with a moral certainty as to results, while on the other hand it not infrequently happens that a patient's condition is such as to require the most searching and continued examination to discover the malady or combination of maladies from which he is suffering, and after the physician has satisfied himself as to the diagnosis, the method of treatment may require equal thought and care. It is manifest that care which would have been adequate in the former case, would in the latter case be negligence, for which the physician would be liable for injury directly resulting.

The physician is not, however, necessarily required to use care and skill proportionate to the severity of the injury or disease treated, as such requirement would fall little short of guaranteeing results.

The requirement that the physician use proper and ordinary care in the exercise of his protessional intercourse with his patients applies equally in determining when he may safely discontinue his visits, to which reference has been heretofore made. It is also the physician's duty to use proper care upon discharging his patients to instruct them or their nurses as to the treatment or conduct to be observed during convalescence. A failure to exercise such care, resulting in injury to the patient, may render the physician liable in damages to the extent of such injury. And so must the physician use due care, in going from patients affected with contagious or infectious diseases to other patients, not to communicate such diseases; and, again, the question of what is due care in one to be answered in the light of the attendant circumstances—the character of the disease which is subject to communication, the susceptibility or condition of the patient to whom the physician goes after attending upon such case of contagion or infection—these are things which must be taken into consideration in determining what degree of care and precaution is requisite; in short, what degree of care and precaution would be exercised by an ordinarily careful and competent physician under the same or similar circumstances; such care is that which the law requires.

The physician also impliedly contracts with his patients that in all cases of doubt he will use his best judgment. This requirement is one which inures to the benefit of both the physician and patient. The physician is confronted by a complicated and serious case, perhaps one in which the recognized remedies cannot be used because of conflicting tendencies, or because of the peculiar condition of the patient, or perhaps because of an idiosyncrasy. At such time, when the physician cannot act by precedent, but must do the thing, and perhaps without time for reflection, which his judgment tells him is best under the circumstances, it can but be of great comfort to him to know that if he uses his best judgment he is doing all that the law requires, and this knowledge will in turn leave the physician's mind as free as possible from worry and dread lest the results be deleterious, and so secure to the patient the very best services the physician is capable of rendering.

The physician must not, however, presume too much upon the "exercise of his best judgment," for its exercise is always based upon the possession of professional knowledge and skill without which there can be no "best judgment." In a case in which the diagnosis would leave no question in the mind of a capable and competent physician as to the patient's condition, and in which the method of treatment for that condition is well recognized and generally accepted by the profession, a depart-

ure from the established practice would be at the physician's peril.

The foregoing obligations of the physician are unaltered by the fact that his patient may be a charity patient, or that he may intend to make no charge; the only thing necessary to bring all these implied obligations into full force and effect is that the relation of physician and patient exists.

It will be seen that the physician does not impliedly contract that he will cure or even benefit his patients, but merely that he has reasonable and proper skill and knowledge, that he will exercise ordinary and proper care in the treatment of his patients, and that in all cases of doubt he will use his best judgment. These are the fundamental professional requisites prescribed by the law, and the physician who possesses and exercises them in all cases calling for their exercise will probably escape legal accountability for failure to obtain favorable results from the treatment of his patients.

Possessing and exercising all of these qualities, a physician may, however, through inadvertence or indiscretion, transgress the law, or may, without an actual infraction, come so near to the line as to be subjected to the annoyance and burden of defending a suit. Thus the question has frequently arisen whether the physician was authorized to perform a certain operation, the testimony of the patient being that he was to operate only if a specified condition were found and then the extent of such operation to be limited, while the defendant's testimony is that he consented to operate only with full discretion in the matter. In such cases it is a question of fact to be determined by the jury whether the physician has exceeded his authority and is liable. The question of whether a physician was authorized to operate upon a wife has several times been the subject of litigation, the husband testifying that the operation was contrary to his express instructions, but the evidence showing that the operation was understood and approved by the wife. In such cases it has been held that the instructions of the husband were immaterial, the wife having full authority to assent to and authorize an operation upon herself in the face of her husband's protests. And so a physician has been subjected to suit when he was called by one of his regular patients to examine a domestic for the purpose of ascertaining whether the domestic was pregnant, the domestic at first objecting to the examination, but finally submitting, though unwillingly.

The performance of an autopsy without consent from the party having authority to consent, has also been the subject of suits prosecuted successfully against physicians. The law is very strict in prohibiting such operations except when the decedent's condition was such as to render an autopsy necessary to determine the cause of death; and even in such cases the cautious practitioner will either procure consent to open the body, or, if practicable, turn the case over to the coroner. The parties from whom such a consent is properly obtainable are: First, the husband or wife of deceased; second, if no husband or wife survives, then the children; third, if there is no husband or wife and no child, then, first the father, second the mother; fourth, after them the brothers and sisters of the deceased; fifth, after them the next of kin according to the common law, to the remotest degree, according to the law of distribution of personal property.

A peculiar case of liability arose some years ago in which a physician took a young unmarried man to a house where he was called to attend a confinement case, the circumstances being such that it would have been difficult if not impossible for the physician to have reached the house of the patient without the help and company of the young man. There being but one room in the house, the young man remained in that room with the patient and was present when she was delivered, the patient and her husband believing, as they testified, that the young man was a medical student. For this act the court severely censured the physician and affirmed a substantial verdict rendered by the jury.

The civil liability is not the only penalty which may flow from acts of mere inadvertence and indiscretion; such acts are frequently the foundation upon which criminal prosecutions and sometimes convictions are based. The space allotted to this article will not, however, permit the consideration of this phase of the physician's liability.

The physician having been called to attend a patient, and having responded, it becomes pertinent to inquire what rights inure to him by virtue of such professional relations and how he may, in case of necessity, enforce them.

Upon responding to a call to attend a patient the physician thereby becomes entitled to the regular fees for making a call, even though the patient may have so far recovered from his illness as to render the visit unnecessary or even though another doctor may have been subsequently called and rendered the desired services, there being no question of negligence or delay precluding the right to such fee. He also becomes entitled to a like fee for each subsequent visit which, by reason of the character of the case, he deems it necessary to make.

The amount of fee to which a physician becomes entitled by reason of such attendance is a matter governed by custom and practice, the custom of the particular locality governing. If the customary price for a visit is one dollar, then a physician who, in response to a request for services, calls upon a patient with no understanding as the amount to be paid or received, becomes entitled to one dollar. If any physician should be dissatisfied with such rate he could, of course, by express understanding or agreement with his patients, fix a rate to suit his ideas.

The rate of fees for performing operations is also subject, to a certain extent, to the custom of the locality, though the character of this class of work is such that the price cannot be thus regulated to such a degree as the fees for ordinary medical attendance. An exception to the rule that local rates for fees, in the absence of express agreements fixing other rates or amounts, binds the physician, is found in cases in which physicians or surgeons from a distance are called because of their peculiar fitness to attend or operate upon a patient. In such case the fee chargeable is properly based upon the rate usually charged by such physician or surgeon.

In case of consultation, the patient without express agreement becomes liable to pay the consultant's fee; and this rule is so firmly established that an agreement between the patient and the attending physician that the attending physician will pay such fee will not release the patient from paying the consultant unless the consultant is informed of such arrangement.

The physician having earned a fee and having had his request for payment refused, it becomes necessary to determine whether to resort to suit to enforce the payment. To determine this question

it is necessary to consider the several steps of making proof and the several questions which may be raised.

First, is the physician a legally qualified practitioner? In all States where the question has been passed upon except the State of Missouri, it is held that one not a legally qualified practitioner may not sue; therefore a negative answer to this question, except as to one practising in Missouri, is equivalent to the determination that there is no cause of action, and such disability to recover applies not only as to professional services, but as well to claims for medicines furnished to the patient.

The foregoing question having been answered in the affirmative, it then becomes necessary to determine whether the claim is barred by the statute of limitations. As these statutes differ more or less in the several States, this question can be answered only by recurring to the statute of the particular State in which the cause of action accrued.

The next step is the matter of proof of the physician's license. This is a technical matter which may best be left entirely to the counsel.

The next step is the proof of employment; if the physician is employed by the party to whom the services are rendered or by a party who is under obligations to provide medical services for the patient, then proof of such employment is not necessary. Under such circumstances proof that the services were rendered and accepted will be sufficient; but if the employment is by some third person who is not primarily liable for the services rendered, this step in the case is very important and the character and sufficiency of the proof are matters to be submitted to counsel.

The next step in proving the claim is to show the services rendered; this is a step which is frequently if not usually fraught with difficulty.

Laws have been enacted in many States to the effect that a physician shall not be permitted to testify to information which he shall have acquired in attending a patient in a professional capacity and which shall have been necessary to enable him to act in that capacity. Among these States are: Arizona, Arkansas, California, Colorado, Idaho, Indiana, Iowa, Kansas, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Washington, West Virginia, Wisconsin, and Wyoming. This inhibition, it is held, is not waived by a plea of general denial on the part of the defendant, the effect of which is to render it necessary for the physician to prove all of the facts upon which he is to recover. This places the plaintiff in a trying situation, where he cannot testify with any degree of detail regarding the services rendered, and yet he must prove the rendering of the services or fail in his suit. Under such circumstances he will, to use the words of Mr. Justice Hait of the Court of Appeals of New York, be permitted to "testify to his employment, the number of visits made, to the examinations, prescriptions and operations, and if the defendant objects to his describing them, he may testify as to their value.

In giving testimony in proof of the services rendered it will be difficult, if not impossible, when considerable time has elapsed since the rendering of such services, for the physician to testify with sufficient certainty and accuracy as to the items of service, without having recourse to his books of account. At such times, if he made or saw the entries made in his books of account when the facts were fresh in his mind, and remembers that it then stated the facts correctly, he may refer to the books to refresh his memory. Subject to certain limitations, the books in most of the States are themselves admissible as evidence of the facts stated in them. This is, however, a matter which is subject to limitations and rules differing more or less in the several States; for instance, in New York the books of account of a physician will be admitted as evidence, there being no objection to them upon the ground that they disclose privileged communications, upon his showing them to have been his regular books of account, that he kept no clerk who was familiar with his business and competent to testify regarding the facts stated in the books, that some of the work or services charged was persome of the work or services charged was performed, and that he kept correct accounts. In many of the States it is necessary that the books shall be books of original entry. The question of admissibility of evidence in support of the physician's claim is a technical one upon which counsel must pass, therefore it is not thought advisable to go into the question in great detail. A few words may, however, well be devoted to the manner of keeping books of account. It may upon the trial be necessary to state more or less particularly the nature of each service rendered, therefore the book of original entry should be so kept that by referring to it years after the services charged were rendered, the physician may be able to testify particularly as to each item, and if permitted, describe the character of the services rendered. It must be remembered, however, that in most States information gained while attending the patient professionally is not permitted to be disclosed in court, therefore in such jurisdictions a book of accounts, which plainly and explicitly states the character of ailment for which the patient is treated, will manifestly be inadmissible. It has been suggested by the writer of this article* that this difficulty may be overcome if the physician will adopt a code of arbitrary signs and characters whereby he may be able to describe the ailments of his patients and the character of the services rendered to them in such a way that this portion of the information contained in the book will be wholly unintelligible to all others than himself, and therefore not subject to the objection that it discloses confidential communications. If the accounts be kept in this way, each item being charged separately under the date upon which the service was rendered with a specific sum charged after such item, then the book will be admissible to show dates and amounts, and may also be used on trial by the physician for the purpose of refreshing his memory, and enabling him to testify in detail so far as the law of the particular State will permit.

The foregoing anticipates that the party against whom the suit is brought is still living. Should he be dead and a suit against his estate become necessary, the situation becomes further complicated by the fact that the physician will not be permitted to testify as to any transaction with deceased relative to the subject matter of suit. In such a case, there will be nothing for him to do but submit his books and corroborate them by the testimony of some one else, and indeed, whether the books will be admitted in such a case is not clear, there being conflicting decisions upon the question. When the books are held admissible, and are not so kept as to show the nature and date of each service rendered

*"The Law in Its Relations to Physicians," p. 204. Edition of 1903, p. 211.

and amount payable therefor, or when such information is partly recorded in characters unintelligible to others than the physician, then they are subject to the objection that they are too indifinite to prove the account, and are of no value except when supported by strong corroborating evidence. If, on the other hand, the books contained all of these necessary facts in characters intelligible to the court, they would, in States recognizing professional communications as privileged, be wholly excluded upon objection by the opposing party. In cases of this sort the person most frequently capable of corroborating the physician's books and testimony is his wife; but is her evidence competent? At common law the wife was not permitted to testify for or against her husband in a suit to which he was a party. This rule is now altered by statute in most States but still remains the law in a few. In those States in which the wife is competent as a witness under ordinary circumstances, the courts are divided upon the question whether she will be permitted to testify when the other party to the suit is dead or insane, the courts of Maryland, Mississippi, Nebraska, New Hampshire, New York and South Dakota holding that she will; the courts of Illinois, Indiana, Iowa, Maine, Pennsylvania and West Virginia holding that she will not be permitted to testify.

Fortunately it is infrequent that suit must be resorted to for the collection of claims from the estates of decedents, but to collect a claim from such estate it is usually necessary to comply with the practice and forms of the particular jurisdiction in which the estate is being administered.

The limits of this article will permit of but a brief outline of the method of presenting a claim for payment and a hasty examination of the considerations to be entertained in determining whether to resort to suit.

Ordinarily the first step in the administration of an estate is the application for letters of administration, or, where there is a will, the application for probate and for letters testamentary. Upon the issuance of letters of administration or letters testamentary it is proper for the claimant to present his claim to the administrator or executor, as the case may be. Shortly after issuance of letters to the administrator or executor he may, and usually does, under direction of the court, advertise for the presentation of claims against the estate, fixing a date within which all claims shall be filed. In some jurisdictions all claims which are not filed within the time limit are forever barred, while in other jurisdictions such claims merely forfeit the right to share in the first distribution of assets, but may follow any remaining assets.

The manner of preparing the claim for presentation should next be considered. The required form is not the same in all States, yet if the physician will prepare his claim after the following directions it is believed that he will have complied with the strictest requirements of any State. The claim should be reduced to writing and should describe the general nature and amount and value of the services with as much particularity as possible. If a note or other instrument has been given, then a copy of it should be attached. Claims for services should be verified on oath, the oath containing substantially the following:—that claimant is a physician and surgeon, and has been duly licensed under the laws of the particular State to practice medicine and surgery; that the annexed account was for professional services rendered to decedent or to some one for whose medical attendance he may have been responsible, as the case may be; that the amount owing for such services is ——— dollars; that the claim is justly due and owing to ——— from the estate of said deceased; that no payments have been made thereon, and that there are no offsets against the same to the knowledge of this deponent.

The claim having been presented it will then be acted upon by the executor or administrator, who will allow it in whole or in part, as he is convinced of its validity and justness, or will reject it as a whole. If rejected, it is in most States, provided by statute that the claim will be barred in a short period of time, ranging from three months to one year, within which time claimant may commence suit on the claim.

Among the questions to be considered in determining upon the advisability of suing such a claim are: First, whether the claim is a valid claim against the estate. This is a question involving the consideration of the many defences which may be raised by a living defendant, and a few others which peculiarly appertain to claims against estates of decedents. For instance, the physician's bill for services rendered a deceased wife should be paid by the husband and cannot be enforced against the wife's estate unless it be shown that the husband has no property with which to pay the claim; or when services were rendered without intention of charging therefor, the physician expecting that he would receive a legacy sufficient to compensate him for all such services, the failure to receive such legacy will not enable him to maintain a claim against the estate. If, however, when such services are rendered there is a mutual understanding that the physician is to be compensated by legacy, then the failure to make such bequest will enable the claimant to maintain a claim for such services. Also in case of services rendered to members of one's family, there is a presumption that they were gratuitous, but this presumption may be overcome by proof that the services were rendered under an understanding that they were to be paid for, or under such circumstances as to show that when they were rendered the parties contemplated a pecuniary compensation therefor. This presumption becomes weaker as the relationship of the parties becomes more distant.

Second, whether the claim is susceptible of proof. The law relating to this question has been heretofore examined.

Third, the solvency of the estate. At common law claims presented against an estate and allowed were payable in the following order: (1) The necessary funeral expenses. (2) The necessary expenses of administration. (3) Debts of record due the crown. (4) Debts of record due the subjects, which include judgments, decrees, statutes and recognizances. (5) Debts by specialty founded upon a valuable consideration, that is those debts arising out of contract under seal. (6) Simple contract debts based upon valuable consideration. (7) Voluntary bonds or covenants. (8) Other voluntary debts. According to this scheme it will be observed that the physician's bill would belong to the sixth class unless he had secured a bond in liquidation of the account, in which case it would be advanced to the fifth class, or unless he had reduced it to judgment, when it would become a claim of the fourth class.

This order has, however, been altered in every

State, the most common order now existing being the following: (1) Funeral expenses. (2) Expenses of administration. (3) Expenses of last illness. (4) Judgments (abolished in a number of States). (5) Public debts (this in many States has a prior rank in the scheme). (6) Simple contract liabilities.

If an estate is solvent it will, of course, pay all of the claims of all of the classes, but in case it is insolvent, then it will pay the classes in their order to the full extent of the available assets, the class last reached receiving whatever there may be left and all of the creditors of that class getting a *pro rata* share of such amount. Therefore in determining the question of solvency, so far as the particular claim is concerned, it is necessary to determine, first, the class to which it belongs, and, second, whether there are assets enough to pay all of the claims of that and the preceding classes.

It will be observed that the scheme adopted by most of the States recognizes a class not recognized by the common law scheme, that is, the "Expenses of the last illness." The question of what constitutes the expenses of the last illness is often a very nice one and one which has given rise to many bitter contests. The general tendency of the courts is, however, to recognize all services rendered to the patient in attendance upon him for the disease of which he died as "expenses of the last illness," even though such attendance may have extended through a long period of time. In some cases, courts and juries have gone so far as to hold that services rendered through the year preceding death were "expenses of the last illness."

All of these questions being answered in the affirmative, the physician is then justified in determining to enforce his claim by suit, but as the consideration of some of these questions requires the exercise of judgment, fortified by an understanding of the technicalities of the law, the conclusion should be reached only after a conference by the physician with his counsel, in which all of the facts and circumstances are fully and frankly laid before the counsel.

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POST-GRADUATE STUDY IN EUROPE.

By GEORGE MANNHEIMER, M.D.,

NEW YORK.

Several serious problems confront the American physician who wants to take up post-graduate work. Shall he go abroad or remain at home? What are the advantages of post-graduate instruction abroad? what are the requisites? how can he inform himself on these points?

There is no question as to the advisability of taking up post-graduate work in the great medical centers of Europe, if the physician can afford the time and expense and is familiar with the language of the country in which he intends to study. Let me emphasize this last point. There is a current opinion that a knowledge of the language is not necessary in Germany and Austria, as medical courses are given in Berlin and Vienna in English. There are a few such English courses, but they are insufficient to give either a special or an all around general training. If the physician intends to take up dermatology, for example, it will not suffice to see the patients demonstrated by some assistant who speaks English. He will naturally want to attend the clinics and lectures of the professor or head of the department, which are always given in the native tongue. On rounds he hears only German spoken. And how can he handle patients without speaking and understanding their language? My advice to the physician who wants to take up post-graduate work in Germany or Austria is, learn German before you start, not a smattering, but get a fair knowledge, then supplement this by such instruction as can be obtained abroad. In all university towns where many English-speaking students are found there are language teachers who are familiar with the specific needs of American medical students. Avoid boarding-houses frequented by Americans.

There are many advantages in post-graduate instruction in Germany and Austria to the recent graduate who wants to further pursue his studies as well as to the older practitioner who wants to brush up, to the one who wants to specialize, as well as to the one who wants an all around training.

1. The recent graduate who has failed to secure a hospital appointment at home can obtain an interneship or rather externeship at a university clinic. He does here the ordinary work performed by the house staff in American hospitals and he comes in close contact with the patients, professor, and assistants. Americans are preferred for this work as they are faithful and reliable and devote their whole time to their duties. This preference has brought about in some quarters a mild jealousy of German students toward their American confrères. The graduate who desires such a position needs only an introduction to the professor and an expression of his willingness to do the work. Neither diploma nor examination is required.

2. Older practitioners sometimes obtain the rights and privileges of internes, making the rounds with the professor and examining cases. This requires a suitable introduction to the professor and is available for only a short time.

3. The clinics and hospital divisions are under one head, generally a medical man of known merit, who has absolute control over his department. This is of great advantage to the practical working of the institution.

4. The directors or chiefs are not only teachers but they are original investigators who devote their time to the clinic and stimulate research work in their staff. These men are always ready to aid a student who is working on a problem or will give him a problem if he is looking for one. The materials of museums, libraries, and laboratories are at his disposal.

5. Patients lend themselves better to demonstration, examination, and experiment.

6. Post-mortems are obligatory, every part of the body being examined.

7. Some specialties originated abroad and special methods of diagnosis, treatment, and technique were created and are in use. Americans naturally want to go to the source of such specialties.

8. The teaching facilities are excellent. Mention may be made of the use of the epidiascope, with which almost every large clinic is equipped. By means of this projection apparatus not only temperature and pulse curves, illustrations, tracings, photographs, tables, etc., are thrown upon the screen, but entire organs and parts of the body. Microscopic slides under high or lower powers and with various methods of staining are made to pass in review, and if the class be small, the students sitting in front

of the screen are supplied with long poles by means of which they point to parts which they wish explained.

I would make special mention of the general use of the *x*-ray for teaching and diagnostic purposes. This branch is much further advanced in Germany than in the United States. Remarkable results have been achieved in the diagnosis of internal diseases. There are many experts and original investigators in this field who impress upon the physician the great value of the *x*-ray in the recognition of the finer details of internal lesions which cannot otherwise be discovered.

9. Research work is general and the facilities for carrying it out are so plentiful that any one who wishes to take it up seriously is welcomed. Directors of laboratories appreciate work done in their institutions since it redounds to their credit as well as to the investigator.

There are several methods of arranging for post graduate instruction. There are courses given under the auspices of the University during the regular term and during vacation time, the latter designed mainly for physicians. There are also regular courses given by the members of the association of private docents. These courses are for a definite period, generally one month at a fixed fee. Besides these, special courses can be arranged by an individual or by a group of physicians, covering any desired period of time and any subject. Fee by agreement.

There are, moreover, many sources of instruction which are virtually free to physicians. These are the meetings of the local medical societies where something original and interesting is always presented and where the visitor has an opportunity to take the measure of eminent men with whom he could not otherwise come in contact. In all large German cities the municipality arranges medical courses for its physicians, charging them a nominal registration fee. These courses are held by the chiefs of the local hospitals and institutes who present there the best material available. Demonstrations are sometimes held in the form of colloquia in which the professor gives the history and status of a case and then calls for opinions and discussion.

No one is barred from regular university clinics and lectures.

Visiting physicians should not neglect to inspect the therapeutic departments attached to public medical institutions. There they can learn what can be accomplished by physical therapeutics, a branch of the healing art little known and sadly neglected by the average American practitioner. I refer here to hydro,- mechano,- kinesio,- photo- and electro-therapy. All these appliances are also found in private sanatoria, numbers of which are conducted successfully all over the Continent. Visiting physicians are always welcome. One should not fail to visit a tuberculosis sanatorium and day camp near the medical center at which he is staying. Psychotherapy, which American physicians leave to quacks and unprofessional healers, can be studied abroad under recognized specialists.

A few words about the modes of living and general conduct abroad. The "Baedecker" is by far the best guide book published. The visitor should conform to local conditions and customs and he should not constantly refer to the superiority of American ways and manners. Bragging and brusqueness are the main failings of Americans abroad and should be avoided. The Germans are enthusiastic in their work and communicative, qualities which should be appreciated.

Visitors either rent a furnished room with or without breakfast or stop at a boarding house, called "pension" in Europe. See that light, heat, and service are included in the price. Baths are extra. All large towns have excellent public bathing establishments. The cost of living varies with the town, the location, and the demands of the individual, a fair average being from $25 to $50 a month.

Most American physicians who go abroad for post graduate instruction go to Vienna and Berlin. Both cities have medical societies composed of Americans who hold weekly scientific meetings and maintain headquarters where newcomers can obtain information on all subjects connected with their stay and studies. Such information can be obtained by correspondence.

The American Medical Association of Vienna is so well organized that it almost monopolizes the best courses, and no time is lost in traveling about, as almost every scientific demand can be met within the confines of the general hospital. These two points and the attractiveness of life in Vienna make it still the most popular medical center of Europe for the American. This does not imply that one can learn more in Vienna than in Berlin; in fact, some subjects are better represented in the latter city. If a man has a good introduction to a professor in one of the smaller university towns, and intends to take up the professor's specialty, he should by all means go to him, because he is in close touch with the head, unhampered by scores of visitors. It is a mistake to suppose that the small universities have a small supply of material. They all draw from a large outlying district. A special advantage of these small towns is the low cost of living.

I wish to draw attention to the mass of medical material available for study in such cities as Hamburg, Frankfort, Cologne, and Nuremberg, not university towns, but with splendidly equipped hospitals and laboratories.

A knowledge of French is absolutely necessary if one intends to take up post graduate work in Paris. Without a fair knowledge of the language it is simply a waste of time and money to go to that country for instruction.

In Paris, there are no regular post graduate courses and the physician must either make private arrangements with a professor or else take chances with the undergraduates at the medical school. Paris is preeminent in three branches, dermatology, genito-urinary work, and original research. Two courses in bacteriology are given annually at the Pasteur Institute. A physician who wants to visit the hospitals and clinics can obtain a card from the Bureau of Public Assistance, admitting him to these institutions as often as he wishes. As there is no system of post graduate instruction the newcomer must do his own hustling to get in touch with the work he intends to undertake. There is a Continental Anglo-American Society in Paris and an American Art Students' Association whose members can give their countrymen more good advice about living in the French capital than can be found in volumes on the subject.

During the past decade, London has taken a prominent place for post graduate work, and has attracted many American physicians through its post graduate association, officially known as The

Associated Schools of Medicine of London for Post Graduate Teaching. By an arrangement between 15 of the largest general and special hospitals of the city, joint cards of admission are issued for the clinical instruction given in these hospitals. These cards are only issued to physicians and admit them to the wards and out-patients' rooms, attendance at operations and post mortem examinations, clinical lectures and post graduate courses. The fees are 7 guineas, or about $36 for three months, 10 guineas ($51) for six months and 5 guineas for each additional month. The advantages of this system of post graduate instruction are, an enormous amount of clinical material, the opportunity of seeing the work and hearing the opinions of a large number of eminent physicians in every branch of medicine, the privilege of taking many courses in divers branches.

If the physician intends to specialize, such general ticket is useless except for his specialty, and in that case he would do better to arrange for a special course or join a regular course at one special hospital. There are several post graduate hospitals and schools not connected with the Post Graduate's Association where such special courses can be taken. These are conducted like the post graduate schools in the United States. It would be invidious to make comparisons between them as each has certain points of superiority and the teaching capacity is a matter of personal opinion.

Owing to the distances between many of the hospitals in London, much time is lost in going from one to the other. If the visitor has but a short time at his disposal, he should take a room near the one in which he expects to do the most work and arrange for breakfast, not for full board. Many of the principal hospitals are in poor sections of the city, and the visitor may be obliged to choose between poor quarters with a saving of time and lessened expense, or good quarters with loss of time and more expense.

Several of the smaller cities give post graduate instruction in their hospitals and medical schools, but there is no advantage in any except in the School of Tropical Medicine in Liverpool.

A final word. Don't fail to make copious notes of what you see and hear, and enlarge upon them. Let the numerous new ideas and impressions stimulate you to new work.

Résumé.—A knowledge of French in France and German in Germany and Austria is indispensable. Courses are given in English in Berlin and Vienna, but are insufficient. In Berlin and Vienna the student selects his teacher, pays him and their relations are personal. In London, the student pays the school and there are no personal relations between student and instructor. In Paris the physician is either the guest of the professor or an ordinary visitor.

In Berlin and Vienna, docents give regular courses on one subject generally lasting one month. The instruction is individual or to a small group. In London, the courses are given to classes, a general ticket being good for three months or more, and covering all subjects taught in a number of hospitals and schools.

Americans have exceptional opportunities to obtain interneships in German and Austrian clinics.

Paris is best for dermatology, genitourinary work, and bacteriology.

Berlin is best for original research, pathology, diseases of the stomach, and metabolism.

Vienna is best for general clinical instruction and most specialties.

London is good for all-round work, but is not preeminent in any.

Liverpool leads in tropical medicine.

For special information, address:

Vienna: American Medical Association of Vienna. Café Klinik, Spital and Lazareth Gasse.

Berlin: Anglo-American Medical Association, Dr. Jas. H. Honan, president, 73 Lutzow Strasse.

Paris: Continental Anglo-American Medical Society, Dr. Leonard Robinson, secretary, 1 Rue Agnesseau; American Art Students' Association, 74 Rue Notre Dame des Champs, Paris.

London: Secretary Post Graduate Association, Metropolitan Schools of Medicine, West Wing, Examination Hall, Victoria Embankment, W. C.; Superintendent London Medical Graduates' College and Polyclinic, 22 Chenies Street, W. C.; Dean Post Graduate School, West London Hospital, Hammersmith Road, W.; Dean London School of Clinical Medicine, Seaman's Hospital, Greenwich, S. E.; Dean North East London Post Graduate College, 142 Harley Street, W.

Liverpool: Dean University of Liverpool, School of Tropical Medicine.

116 East Seventy-ninth Street.

STATE MEDICAL PRACTICE LAWS.

By R. J. E. SCOTT, M.A., B.C.L., M.D.,

NEW YORK.

GYNECOLOGIST TO THE DEMILT DISPENSARY, AND TO THE WEST SIDE GERMAN DISPENSARY.

The medical student, after four years of hard work, and passing his examination, receives his diploma and becomes a Doctor of Medicine. It is somewhat humiliating to him to find that this diploma and title give him absolutely no right to practise medicine. He has now to satisfy the requirements of the Board of Examiners of the State in which he desires to locate. These State boards are very necessary, and serve a threefold function: (1) To protect the public from quacks; (2) To conserve the interests of the practitioners already settled in the State; (3) To keep out incompetent practitioners.

The requirements of these State boards may be classified under four heads: (1) General and Preliminary, dealing with age, moral character, residence, and possibly citizenship in the United States; (2) Preliminary or Academic Education; (3) Medical Education; and (4) The Medical Examination that has to be passed.

The requirements under (1) generally give no trouble. (2) *General Education.* The demands under this heading differ very materially in the various States; some requiring either an academic degree, or at any rate a full four-years' course in a high school or substantial equivalent; while other States are content with legible handwriting and fair spelling; and still a few remain in which no preliminary education is asked for. (3) *Medical Education:* The requirements here are nearly as varied as those for the preliminary education. Most of the States now require a full four-years' course in a first-class medical school; some States still require only three years; one or two States seem content with even less; and it would be hard to say with how little real medical education a license can be obtained, if only due care is observed in the selection of the State in which to practise. (4) *The Examination:* Every State has its own idea of what

is right and proper here. In most of them a good, fair examination is put up; and a properly qualified student will have no difficulty in passing it. In a very few States the fairness of the examinations has been questioned; and certainly, at times, questions have been set which showed the incompetency (not to use a harsher term) of their author. The number of papers may vary anywhere from half a dozen to a score, but it is not to be inferred that the examination in the State with twenty papers is more difficult than that in the State with only six. Some State boards manage to compress all the main subjects of a medical education within the compass of from seven to ten papers; while others delight to spread themselves out, and set a separate paper on every specialty, as if they were making a bid for universal specialists.

If at any time the practitioner wishes to move from one State to another, he may again have to satisfy the medical examiners of the State he desires to enter. Though at first sight this seems an intolerable hardship, it will, on a careful investigation of the facts mentioned above and a perusal of the various requirements given below, appear no more than right. Naturally, the States whose requirements are the most slender, are eager to "exchange" or "reciprocate" with those that require more. Reciprocity implies equality, more or less; and this cannot be said to obtain between two States, one of which demands four years in a high school and four years in a first-class medical school, while the other asks for no education at all, either preliminary or medical, and where an applicant need never have entered a school of any sort or description. Reciprocity *may* come by and by, but the problem is a large and complex one, and this is not the occasion on which to discuss it.

In spite of the fact that these examinations are supposed to ascertain the applicant's fitness *to practise medicine and surgery*, it is curious to note that in some States there is no examination on Practice, Materia Medica, Therapeutics, and even Surgery. The reader must not be beguiled into believing that such omission makes the examination any easier; or he may learn to his cost that a State which does not require surgery sets a separate paper on histology, or embryology, and demands a much greater knowledge of bacteriology than the general practitioner either acquires or uses.

The object of this paper is to place before practitioners a *résumé* of what the different States require. The information given will be on the four topics stated above, with further mention of any reciprocity that may exist between the different States. All points bearing on the laws governing the constitution of the Board of Examiners, whether the members are appointed by the governor of the State or by the medical societies, prosecution for illegal practice, penalties, etc., will be omitted, as not of general interest.

As a general rule, the student who has taken an academic course for four years in a high school and then spent four years of medical study in a recognized medical college, will have no difficulty in gaining admission in any State. Those who have not this standard of qualification will see what States they had better avoid.

The information given is, as far as possible, up to date, but, in every case, would-be applicants should apply to the secretary for the latest requirements; this is particularly necessary with regard to reciprocity requirements, which are apt to vary from time to time. At the same time applicants should try to obtain samples of the questions that have been used on former occasions. These questions will show the scope of the examination better than anything else. For the past two and a half years the MEDICAL RECORD has published questions and answers of the leading States.

Passing examinations is a kind of gymnastics that belongs to youth, and to youth only; therefore these examinations should be taken at the earliest possible date. The day a man leaves college he has, probably, more of that kind of "knowledge" which delights examiners and is of little use to anyone else, than he is ever likely to be possessed of again.

A word about preparation for these examinations may be in order. The recent graduate has modern books, and in all probability he will experience no difficulty in reviewing the various subjects required of him. If he has neglected some subjects (say anatomy and chemistry) for a couple of years, he will certainly have to go over them carefully. So, too, if the State board that he has to face is one that peddles out all the specialties over quite a series of papers, he will need some reliable guide to steer him past that portion of the track.

The practitioner who has exchanged vast quantities of theoretical knowledge carefully acquired at college, for the more useful but (to examining boards) less satisfactory practical knowledge, will need all the help he can get; and to one or both of these classes, the following list of books will probably be of service. In compiling this list, we are mindful of the fact that many men have as good and perhaps even better books with which they are already familiar; such men would be unwise to exchange the tried and trusted for the new. But those who are rusty, or who have but little time, will find here books which the writer has proved, from a ten-years' experience in preparing men for these examinations, to be admirably adapted for the purpose. In every case the smallest book compatible with safety has been mentioned. It is well to remember that many books, very serviceable to the practitioner, are almost useless for examination purposes. For the benefit of students and practitioners preparing for these examinations, the present writer has compiled a series of volumes of questions and answers covering nearly all the subjects required; this is referred to as the State Board Examination Series, and the subjects contained therein are denoted in the following list by an asterisk:

*Anatomy.	Part V of Morris' Anatomy (Surgical and Topographical Anatomy) and either Nancrede's or Potter's Compend.
*Physiology.	Ashby's Notes, or Collins and Rockwell.
*Chemistry.	Witthaus' Essentials.
*Surgery.	Cunning's Aids, or Stewart's Manual.
*Obstetrics.	King.
*(*a*) Gynecology.	Penrose.
*Pathology.	Green, or Thayer.
*(*b*) Bacteriology.	Archinard.
*Hygiene.	Egbert
Medical Jurisprudence.	Dwight's Epitome, or Reese.
*(*c*) Toxicology.	Witthaus' Essentials.
*Practice	Hughes, or Stevens.
*(*d*) Eye.	May.
*(*d*) Ear.	Buck's First Principles.
*(*d*) Nose, Throat, and Ear.	J. J. Kyle's Compend or Manual.
Children.	McCaw's Aids.
*(*b*) Skin.	See Practice.
*Diagnosis.	Greene; and the Books on Surgery, Practice, and Children.

*Materia Medica and *Therapeutics.	Hare, or Potter.
*(e) Histology.	Radasch's Compend.
*(f) Nervous.	See Practice
*(f) Mental.	Hughes' Practice.
*(c) Physics.	Brockway.
General.	The State Board Examination Series, referred to above, and Gould and Pyle's Pocket Cyclopedia.

*State Board Examination Series.
(a) In volumes on Surgery and Obstetrics.
(b) In volumes on Surgery and Pathology.
(c) In volumes on Chemistry.
(d) In volumes on Surgery, Pathology and Practice.
(e) In volumes on Anatomy and Physiology.
(f) In volume on Pathology and Practice.

Résumé of the Requirements in the Different States.

Alabama.—All persons proposing to practise medicine in this State must undergo examination, irrespective of any diploma they may hold or of certificate obtained elsewhere. A diploma is not required as a prerequisite for examination. The examination is on the following subjects: Anatomy; Chemistry; Physiology; the Etiology, Pathology, and Symptomatology of Diseases; Surgery; Obstetrics and Obstetrical Operations; Gynecology; Physical Diagnosis; Hygiene and Medical Jurisprudence; Diseases of the Eye, Ear, Nose, and Throat.

The fee for examination is $10. An unsuccessful applicant will be entitled to a second examination within one year without the payment of an additional fee.

Examinations are held at Montgomery, in January and June.

There is no reciprocity.

Chairman of the State Board of Medical Examiners is Dr. W. H. Sanders, Montgomery, Ala.

Alaska.—By the *proposed law* all applicants must produce satisfactory testimonials of good moral character and a diploma from a legally chartered medical college, the requirements of which shall have been in no particular less than those of the Association of American Medical Colleges at the time such diploma was granted.

Applicant must further pass an examination of ten questions each in Anatomy, Physiology, Chemistry, Toxicology, Bacteriology, Pathology, Surgery, Obstetrics, Materia Medica, Therapeutics, and Theory and Practice of Medicine. In case he should fail in the first examination he may be reexamined after not less than six months.

Examinations are held at Juneau, on the first Tuesday of May and October.

Fee for registration and recording, $35.

Reciprocity may be allowed on requirements equal to those of Alaska. Fee $25.

Arizona.—Every applicant must be over twenty-one years of age, of good moral character, and a *bona-fide* resident of Arizona. No person shall receive a license to practise medicine within the territory unless he or she shall have: *First:* Obtained a diploma to practise medicine, regularly issued by a lawfully organized medical college, and, *Second:* Obtained a certificate entitling him or her to practise medicine, as prescribed in the Revised Statutes of Arizona, 1901, or shall have passed a satisfactory examination prescribed by the provisions of an act to regulate the practice of medicine in the Territory of Arizona, approved March 18, 1897; or, *Third:* Practised medicine within the Territory of Arizona continuously for five successive years preceding the date fixed for the taking effect of this act; or, *Fourth:* Upon examination by the Board of Medical Examiners of Arizona, shall show to the satisfaction of the board that he or she possesses sufficient knowledge and skill to practise medicine. All recent graduates will have to pass the examination.

Examinations consist of ten questions each in Anatomy, Physiology, Chemistry, Materia Medica, and Therapeutics, Obstetrics, Gynecology, Practice, Pathology, Surgery.

The applicant must obtain a total average of 75 per cent., provided that in no branch shall the percentage be less than 60, except in Practice, Obstetrics, Gynecology, and Surgery, in which branches the minimum is placed at 80 per cent. The fee for examination is $10 and for license $2.

Examinations are held at Phœnix, on the first Monday of January, April, July, and October.

Reciprocity, none.

Secretary of the Board of Medical Examiners, Dr. Ancil Martin, Phœnix, Ariz.

Arkansas.*—Applicants must be of the age of twenty-one years and must pass an examination in the following subjects: Anatomy, Physiology, Chemistry, Materia Medica, Surgery, Theory and Practice of Medicine, and Obstetrics. The questions are elementary and practical. If, in the opinion of the board, the applicant possesses the necessary qualifications, a certificate will be issued to him. The fee for examination and registration is $10.

Examinations are held four times a year, on the second Tuesday in January, April, July, and October; and at such places as a majority may agree upon.

Reciprocity, none.

Secretary of Board of Examiners, Dr. F. T. Murphy, Brinkley, Ark.

California.—Each applicant must furnish satisfactory testimonials of good moral character; and also two autographed (unmounted, cabinet size) photographs taken within sixty days of the date of application. Each application must be accompanied by a statement signed by the principal of the high school or college attended, showing the subjects studied and the time devoted to each subject (how many hours a week and for how many weeks).

The Medical Law and Rules of this Board require of an applicant who desires to practice medicine or surgery to file a diploma issued to him by a legally chartered Medical College, the requirements of which were at the time of graduation in no particular less than those prescribed by the Association of American Medical Colleges of that year.

In addition to the above, every applicant must be personally examined on the following subjects: Anatomy, Physiology, Bacteriology, Pathology, Chemistry and Toxicology, Hygiene, Obstetrics, Histology, Gynecology, General Diagnosis. There will not be less than ten (10) questions on each subject. The examination must be in whole or in part in writing, and in the English language. A general average of 75 per cent. and a minimum of 60 per cent. on each subject must be attained. A credit of five points is allowed for each ten years of legal practice.

The fee for examination is $25.

Reciprocity, none.

Examinations will be held on the first Tuesday of April and August in San Francisco, and on the first Tuesday of December in Los Angeles.

Secretary of the Board of Medical Examiners,

*Legislation is now pending, and may change these requirements.

Dr. C. L. Tisdale, 929 Butler Building, San Francisco, Cal.

Colorado.—Applicants must present evidence of good moral character, and a photograph. The following may be granted licenses *without examination:*

A. All applicants who graduated prior to July 1, 1893, must furnish satisfactory evidence of having been matriculated in, and graduated from, legally chartered and reputable medical colleges (at that time in good standing with the Colorado State Board of Medical Examiners), which required a preliminary examination for admission and a minimum of two winter courses of instruction.

B. All applicants who graduated between July 1, 1893, and July 1, 1895, must furnish satisfactory evidence of having ben matriculated in, and graduated from, legally chartered and reputable medical colleges (at that time in good standing with the Colorado State Board of Medical Examiners), which gave a minimum of twenty weeks of instruction in each twelve months of three separate years, and which required of their graduates of 1894 and 1895, as a matriculation regulation, a diploma of graduation from some approved university or literary, scientific, normal or high school, or a preliminary examination in all the several subjects embodied in the curriculum of graduation examination from a high school.

C. All applicants graduating between July 1, 1895, and January 1, 1900, must furnish satisfactory evidence of having been matriculated in, and graduated from, legally chartered and reputable medical colleges (at that time in good standing with the Colorado State Board of Medical Examiners), which required of their graduates of 1896, 1897, 1898, and 1899 as a matriculation regulation a diploma of graduation from some approved university, or literary, scientific, normal or high school, or a preliminary examination in all the several subjects embodied in the curriculum of an approved high school, and which gave to its students graduating in the years above named four full courses, in four separate years.

All such applicants under A, B, and C, must have received a license to practice medicine in at least one of the United States of America, in which State the standard of licensure is, in the opinion of the Colorado State Board of Medical Examiners, equal to that of the State of Colorado, and must have been continuously and actively engaged in the lawful practice of medicine since receiving said license.

D. All applicants graduating after January 1, 1900, must furnish satisfactory evidence of having been matriculated in, and graduated from, legally chartered and reputable medical colleges, which enforce the following requirements:

(1) As evidence of preliminary education, as a minimum requirement any of the following: (a) A diploma or certificate of graduation from an accredited four-year high school; (b) a certificate signed by a principal of a regularly organized approved high school, the faculty of a recognized literary or scientific college or university, State Superintendent of Public Instruction, County Superintendent of Schools, or some person or board duly appointed by the State Board of Medical Examiners to conduct such an examination; of having successfully passed an examination in all the several branches embraced in the curriculum of a four years' high school course.

(2) A full course of instruction of four terms in four separate years of nine months each.

All such applicants must have received a license by examination to practice medicine in at least one of the United States of America, in which State the standard of licensure is, in the opinion of the Colorado State Board of Medical Examiners, equal to that of the State of Colorado, and must have been continuously and actively engaged in the lawful practice of medicine since receiving said license, and must have been so engaged in the practice of medicine at least one yeaer.

The subjects of written, oral or clinical examinations shall be as follows: Anatomy, Physiology, Chemistry, Symptomatology, Toxicology, Pathology, Surgery and Obstetrics (exclusive of Materia Medica and Therapeutics). The credentials of applicants relating to their general reputation, their preliminary education and courses of study they have pursued; the degrees they have received; the number of years they have been engaged in the lawful practice of medicine; their experience in general hospitals, medical departments of the army, navy and public health and marine hospital service; licenses granted to them by other States and countries; and their experience as teachers of medicine, shall be given due consideration by the Board in conducting its examinations. Upon investigation of an applicant's credentials the Board shall, when convinced that an applicant is qualified to practise medicine, grant a license thereon without further exaxmination.

The fee for license is $25. Two-fifths of the fee will be returned if the license is not granted.

Regular quarterly Board meetings and examinations are held in Denver on the first Tuesday in January, April, July and October. Examinations cover a period of four (4) days. (First day, oral and clinical; second, third and fourth days, written examination.)

Secretary of State Board of Medical Examiners, Dr. S. D. Van Meter, 1723 Tremont Street, Denver, Col.

Connecticut.—All candidates must be graduates of some reputable medical college and must present their diplomas (or a certificate from the dean of the medical college) for inspection to the secretary of the board at the opening of the session. As evidence of preliminary education, a diploma from a high or preparatory school (or equivalent) must also be presented. All candidates must undergo the regular examination conducted in writing, and consisting of ten questions each in Anatomy; Surgery; Materia Medica, including Therapeutics; Practice, including Pathology and Diagnosis; Obstetrics, including Gynecology; Physiology; Medical Chemistry and Hygiene. In order to be admitted to practice the applicant must obtain a general average of 75 per cent. In no branch shall his percentage be less than 60, and in Practice, Obstetrics, and Surgery, the minimum requirement will be 65 per cent.

The examination fee is $15.

Examinations are held on the second Tuesday of March, July, and November, at the City Hall, New Haven, Conn.

Reciprocity, none.

Secretary of the Medical Examining Board, Dr. Chas. A. Tuttle, New Haven, Conn.

Delaware.—"Applicants must furnish satisfactory proof of good moral character, be more than twenty-one years of age, have obtained a diploma from some reputable literary or scientific college,

or a certificate from the faculty of Delaware College, signed by the president and attested by the secretary thereof, that he or she is qualified to enter the freshman class of the Latin scientific course of the said college; and have received a diploma conferring the degree of Doctor of Medicine, from some legally incorporated medical college, which, in the opinion of the Medical Council, was in good standing at the time of the issuing of the said diploma. Applicants who have received their degree in medicine after the passage of this act, must have pursued the study of medicine for at least four years, including four regular courses of lectures of not less than seven months each, in different years, prior to the granting of said degree, in some legally incorporated medical college or colleges, approved by the Medical Council.

The examinations are written, and comprise the following subjects: Anatomy, Physiology, Hygiene, Chemistry, Surgery, Obstetrics, Practice of Medicine, Pathology, Diagnosis, Therapeutics and Materia Medica. An average of 75 per cent. is required in order to pass the examination. The fee for the examination is $10. In case of failure, another examination can be taken after not less than six months and not more than two years without payment of additional fee.

Reciprocity is permissible with other States having requirements practically the same as those of Delaware. Fee, $50.

Examinations are held at Dover twice a year on the third Tuesday in June, and the second Tuesday in December.

Secretary of the Examining Board, Dr. J. H. Wilson, Dover, Del.

District of Columbia.—Only those who hold the degree of doctor of medicine are admitted to examination. Those who have received such degree before June 30, 1898, must have studied medicine not less than three years, and those who have received it after that date must have studied not less than four years, before graduation. The examination is both written and oral. It includes Anatomy, Physiology, Chemistry, Bacteriology, Pathology, Materia Medica and Therapeutics, Hygiene, Histology, Practice of Medicine, Surgery, Obstetrics and Gynecology, Diseases of the Eye and Ear, Medical Jurisprudence, and such other branches as may be from time to time determined by the Board of Medical Supervisors.

The fee for examination is $10.

Examinations are held quarterly on the second Tuesday in January, April, July and October.

Reciprocity. Licenses may be issued without examination upon the basis of licenses issued by other States and Territories under conditions equivalent to those of the District of Columbia, provided that said State or Territory grants similar privileges to licentiates of the District of Columbia.

Secretary of the Board of Medical Supervisors, Dr. George C. Ober, Washington, D. C.

Florida.—It shall be the duty of the board of examiners to examine thoroughly every applicant for certificate or qualification to practise medicine in any of its branches or departments, upon the production of his medical diploma from a recognized college upon the following-named subjects: Anatomy, Physiology, Surgery, Gynecology, Therapeutics, Obstetrics and Chemistry.

The examination fee is $15.

Examinations are held twice a year, generally in April or May, and October or November.

Reciprocity. None.

Secretary of the State Board of Medical Examiners, Dr. J. D. Fernandez, Jacksonville, Fla.

Georgia.—All applicants must be graduates of an incorporated medical college, requiring not less than three full courses of study of six months each. Applicants must pass a satisfactory examination on Anatomy, Physiology, Chemistry, Surgery, Obstetrics, Gynecology, Practice, Materia Medica and Therapeutics, Diagnosis. An average of 75 per cent. is required. The fee for the examinations is $10; but a candidate who has failed in his examination can take any subsequent examination without paying an additional fee.

Examinations are held twice a year, the first about the time of graduation from the medical colleges of the State, the other on the second Tuesday in October.

Reciprocity is allowed by law with States having an equal standard and requirement with the Georgia Board, provided these other States accord similar privileges to the licentiates of the Georgia State Board. Fee, $10.

Secretary of the State Board of Medical Examiners, Dr. E. R. Anthony, Griffin, Ga.

Idaho.—Applicants must be of good moral character, citizens of the United States, or have declared intention of becoming such, and must be graduates of a recognized reputable medical college in good standing and must present their diploma to the board for inspection. Every applicant must be examined. The examinations are wholly in writing, and embrace the following twelve branches or subjects, with ten questions on each subject, viz.: Anatomy, Physiology, Chemistry and Toxicology, Materia Medica and Therapeutics, Diagnosis, Theory and Practice, Hygiene, Obstetrics, Gynecology, Surgery, Pathology, and Histology. A general average of 75 per cent. is required by law to entitle applicant to receive a license. The fee for examination is $25; in case of failure one re-examination after six months and before one year is allowed without payment of additional fee.

Examinations are held on the first Tuesday in April and October.

Reciprocity, none.

Secretary State Board of Medical Examiners, Dr. W. F. Howard, Pocatello, Idaho.

Illinois.—Application for license to practise must be made in writing, accompanied by the examination fee and with proof that the applicant is of good moral character, and that he is a graduate of a medical college or institution recognized by the Board. He will be required to present to the secretary of the Board, at the examination, an unmounted photograph of himself, taken recently, which is filed with the application.

The applicant must also present documentary evidence of preliminary education—the minimum to be a diploma or certificate of graduation from a high school; a certificate signed by the principal of a regularly organized high school, or by the examiner of the faculty of a recognized literary or scientific college or university, or by the State superintendent of public instruction, or a superintendent of public schools, of having successfully passed an examination in all the several branches embraced in the curriculum of a four years' high school course.

Examinations are conducted in writing in the following subjects: Anatomy, including Histology and Embryology, 10 questions; Chemistry, 5 questions; Etiology and Hygiene, 5 questions; Physi-

ology, 7 questions; Neurology, 3 questions; Materia Medica and Therapeutics, 10 questions; Pathology and Bacteriology, 10 questions; Surgery, 10 questions; Physical Diagnosis, 5 questions; Ophthalmology and Otology, 3 questions; Pediatrics, 2 questions; Obstetrics, 10 questions; Gynecology, 6 questions; Laryngology and Rhinology, 2 questions; Medical Jurisprudence, 2 questions; Practice, 10 questions. An average of at least 75 per cent. is required for a passing grade.

The Board will accept as an equivalent of part of the examination required satisfactory evidence of five or more years of reputable practice, and will allow a credit of 1 per cent. on the required average of 75 per cent. for each year of such practice on the part of a candidate for certificate up to a maximum allowance of 30 per cent.

The fee for the examination is $10. If the applicant is successful a further fee of $5 is charged for certificate of license to practise.

Examinations are held in Chicago quarterly.

Reciprocity exists under certain conditions with Iowa, Kansas, Maine, Maryland, Michigan, Nebraska, New Jersey, North Dakota (after July 1, 1905 only), Ohio, South Carolina, Tennessee, Utah, Vermont, West Virginia, Wisconsin and Wyoming. The license must have been obtained after examination.

Secretary State Board of Health, Dr. J. A. Egan, Springfield, Ill.

Indiana.—Every applicant must be a *bona-fide* resident of the State six months before he can receive a license to practise.

An examination is required of all candidates. The subjects for examination are Anatomy, including Histology and Embryology; General Surgery, Materia Medica and Therapeutics, Medicine, Obstetrics, Pathology and Bacteriology, Chemistry, Etiology and Hygiene, Physiology, Neurology, Gynecology, Laryngology, Rhinology, Medical Jurisprudence, Physical Diagnosis, Ophthalmology and Otology, and Pediatrics.

The examination consists of 100 questions, making a total of possible points 1,000; 750 points are required to pass.

The examination fee is $25.

Examinations are held in Indianapolis on the fourth Tuesday in May and October.

Only graduates of reputable medical colleges are admitted to the examinations. Application for examination, accompanied by diploma, preliminary credentials required for entrance into medical college and fee, $25, should be on file in this office at least five days prior to the date for examination. Every applicant is required to send to the secretary of the Board, at least ten days before the date of examination, a recent, *unmounted* photograph of himself.

Reciprocity exists, under certain conditions, with the following States: District of Columbia, Georgia, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, Ohio, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin and Wyoming.

The Secretary of the Board of Medical Registration and Examination is Dr. W. T. Gott, Crawfordsville, Ind.

Iowa.—Every applicant must present a certificate of good moral character, and evidence of preliminary education as follows: (1) A diploma or certificate of graduation from a fully accredited four-year high school or college; or (2) evidence of having passed the matriculation examination of a recognized literary or scientific college; or (3) a certificate of successful examination equivalent to the matriculation examination by the faculty of any reputable university or college, or by the State Superintendent of Public Instruction; or (4) the applicant must pass an equivalent examination before one of the special examiners, approved by this Board or by the State Board of Medical Examiners.

All persons beginning the practice of medicine in the State of Iowa must submit to a written examination in the following subjects: Anatomy, Chemistry, Materia Medica, Obstetrics and Gynecology, Pathology and Histology, Physiology, Practice and Surgery. And in addition thereto shall present diplomas from medical colleges recognized as in good standing by the Iowa State Board of Medical Examiners; and all persons receiving their diplomas subsequent to January 1, 1899, shall present evidence of having attended four full courses of study of not less than twenty-six weeks each, no two of which shall have been given in any one year.

The Board requires a general average of 75 per cent.

The examination fee is $10; in case of failure, a re-examination may be taken without payment of additional fee.

Reciprocity exists under certain conditions with: Colorado, Georgia, Illinois, Indiana, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, North Carolina, Ohio, South Carolina, Texas, Utah, Virginia, West Virginia, Wisconsin and Wyoming. Fee, $50.

Secretary of the State Board of Medical Examiners, Dr. Louis A. Thomas, Des Moines, Iowa.

Kansas.—All persons intending to practise medicine and surgery shall apply to the Board at any regular meeting, or at any other time or place as may be designated by the Board, for a license. Application shall be made in writing, and shall be accompanied by the fee of $15, together with the age and residence of the applicant, proof that he or she is of good moral character, and satisfactory evidence that he or she has devoted not less than three periods of six months each, no two within the same twelve months, or, if after April 1, 1902, four periods of not less than six months each, no two in the same twelve months, to the study of medicine and surgery. All such candidates shall submit to an examination of a character to test their qualifications as practitioners of medicine or surgery, and which shall embrace all those topics and subjects a knowledge of which is generally required by reputable medical colleges of the United States for the degree of doctor of medicine; provided, that graduates of legally chartered medical institutions of the United States or foreign countries in good standing, as determined by the Board, may be, at the discretion of the Board, granted a license without examination.

Examinations are held at Topeka on the second Tuesday in February, June and October.

Reciprocity: The Board may in its discretion accept, in lieu of examination or diploma, the certificate of the Board of Registration and Examination of any other State or Territory of the United States or any foreign country whose standards of qualification for practice are equivalent to those of this State.

Secretary of the State Board of Medical Regis-

tration and Examination, Dr. R. A. Light, Chanute, Kan.

Kentucky.—An examination is required of all applicants. Only *bona fide* residents of this State and graduates of recognized colleges located within the United States will be admitted to the examination. The application must be accompanied by an unmounted photograph of the applicant, on the reverse side of which must be his or her full signature, duly attested, under the seal of some official of this State authorized to administer oaths.

The subjects for examination are Anatomy, including Histology and Embryology; Physiology, Pathology, Chemistry, Surgery, Obstetrics, Gynecology, Bacteriology, Hygiene, Opthalmology, Otology, Medical Jurisprudence, Mental and Nervous Diseases, Etiology and Physical Diagnosis. The law requires a general average of 70, and a grade of not less than 60 in any branch.

Examinations are held at least twice a year at places and dates decided on by the Board.

Fee for examination is $10.

Reciprocity: The Board reciprocates with the following States, under certain conditions: District of Columbia, Georgia, Indiana, Iowa, Kansas, Maine, Maryland, Michigan, Nebraska, New Jersey, New Mexico, North Dakota, Ohio, South Carolina, Tennessee, Vermont and Wisconsin.

Secretary of the State Board of Health, Dr. J. N. McCormack, Bowling Green, Ky.

Louisiana.—Applicants must be twenty-one years of age, of good moral character, and possess at least a fair primary education. Applicants must also present to the Board of Medical Examiners a diploma from a medical college in good standing, such standing to be determined by the Board. An examination must be passed in Anatomy, Physiology, Chemistry, Obstetrics, Gynecology, Pathology, Physical Diagnosis, Surgery, Therapeutics and Hygiene. Seventy-five per cent. must be obtained. The fee for the examination is $11. Examinations are held twice a year in New Orleans.

Temporary licenses are granted under certain conditions.

Reciprocity: The Louisiana State Board of Medical Examiners recognizes at present certificates of examination issued by the following State Boards: Colorado, Connecticut, Delaware, District of Columbia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, South Carolina, Texas, Utah, Vermont, Virginia and Wisconsin. Fee, $25.

Secretary of the State Board of Medical Examiners, Dr. F. A. Larue, 211 Camp street, New Orleans, La.

Maine.—Each applicant must give satisfactory proof of being twenty-one years of age, having good moral character and of being a graduate of some reputable medical school or college, having power to confer degrees in medicine, and in good standing, and maintaining a standard of preliminary education and of medical instruction approved by the Board. He shall also supply the secretary with a recent unmounted photograph of himself or herself, duly certified to before a notary public.

The standard of medical instruction which the Board will approve is three years of medical study and three courses of lectures for those who graduated previous to 1902, and four years' study and four courses of lectures after that date. Five years of reputable practice before 1901 will be accepted in lieu of one year's study. The Board, in its classification of diplomas, will recognize only those medical colleges that require as a condition of admission the equivalent, at least, of a high school education, in addition to the full four years' attendance in a medical college. This applies to those students matriculating in 1908 and after. Colleges or medical schools complying with these rules will be approved by the Board as far as preliminary education and medical instruction is concerned.

It is further necessary to pass an examination in: Anatomy, Physiology, Pathology and Histology, Practice of Medicine, Materia Medica, Surgery, Obstetrics and Gynecology, Chemistry and Toxicology, Disease of Eye, Ear, Nose and Throat, Hygiene and Medical Jurisprudence.

A general average of 75 per cent. shall be necessary to license, provided, however, that in no branch shall the percentage be less than 60 per cent.

The fee for examination is $10, and in case of failure a second examination may be taken within one year without further fee. The fee for certificate is $2, and is returned if the applicant fails.

The Board will hold meetings in March, July and November at such places and on such dates as they may select.

Reciprocity now exists with: Colorado, Delaware, District of Columbia, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Jersey, North Dakota, Ohio, Oklahoma, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming.

Secretary of the Board of Registration, Dr. William J. Maybury, Saco, Me.

Maryland.—Applicants must be twenty-one years of age, of good moral character, must submit evidence of a competent common school education, and must have received a diploma from a medical school in the United States requiring a four years' course, and recognized by the American Medical College Association or the Intercollegiate Committee of the American Institute of Homœopathy. Medical students, at the end of their second year of study, who have, as verified by the certificate of the dean of the college which they have attended, completed the studies of Anatomy, Physiology, Medical Chemistry, and Materia Medica in said college, may be examined in these subjects. All applicants must pass an examination in Anatomy, Physiology, Medical Chemistry, Surgery, Practice of Medicine, Materia Medica, Therapeutics, Obstetrics, and Pathology. Fee, for the examination, is $15. In case of failure the fee is not returnable, but the applicant is allowed a re-examination without further fee.

Examinations are held in Baltimore on the first Tuesday in June and the second Tuesday in December.

Reciprocity: The Board is authorized to recognize certificates issued by other States whose requirements are of as high a standard as those of Maryland, provided such other State will, in a similar manner, recognize the certificates issued by the Board of Maryland. Reciprocity exists at present with District of Columbia, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, Ohio, Oklahoma, South Carolina, Texas, Vermont, Virginia, West Virginia and Wisconsin, subject to requirements and fees imposed by the respective States.

Secretary of the Board of Medical Examiners, Dr. J. McP. Scott, Hagerstown, Md.

Massachusetts.—Applicants must furnish proof of being twenty-one years of age or over, and of good moral character; there are no legal requirements as to either general or medical education. A medical diploma is not necessary, and non-graduates in medicine are admitted to the examination. Examination is compulsory for all applicants. According to *the law*, "Examinations shall be wholly or in part in writing in the English language, and shall be of a scientific and practical character. They shall include the subjects of Anatomy, Surgery, Physiology, Pathology, Obstetrics, Gynecology, Practice of Medicine and Hygiene, and shall be sufficiently thorough to test the applicant's fitness to practise medicine." But, according to *the Board of Registration*, "the subjects on which the examinations are principally conducted are Anatomy and Histology, Physiology and Hygiene, Pathology and Bacteriology, Surgery, Obstetrics and Gynecology, Diagnosis and Therapeutics, and Pediatrics and Toxicology."

Intending candidates will be interested in the following extract from the last annual report: "In the examinations held this year (1908) the Board has made a beginning in conducting them along the lines of practical work in microscopy, in the laboratory and in demonstrations on the manikin. Our experience is that such work is practicable in several of the subjects examined on. A mixed examination, written, oral and practical, is, we believe, best calculated to insure an actual test of one's qualifications to enter upon the practice of medicine."

When general averages fall below 75 per cent., examinations are regarded unsatisfactory. A person refused registration by reason of failure to pass a satisfactory examination is entitled to two reëxaminations within one year, without filing a new application or paying an additional fee. The fee for the examination is $20.

Examinations begin on the second Tuesday of March, July, and November. Special examinations may also be held at the same time in May and September.

There is no reciprocity.

Secretary of Board of Registration, Dr. Edwin B. Harvey, State House, Boston, Mass.

Michigan.—Applicants must furnish proof of being over twenty-one years of age, and of good moral character. Each applicant must also have received, previous to the beginning of his course in medicine, a diploma from a recognized and reputable high school, academy, college, or university, having a classical course, or shall pass an examination equivalent at least to the minimum standard of preliminary education adopted by the board. Each applicant must also have received a medical diploma from a reputable and approved college of medicine within the United States, having at least four years' course of eight months each calendar year, as shall be approved and designated by the Board of Registration in Medicine.

Applicants must satisfactorily pass an examination on Anatomy, Physiology, Chemistry and Toxicology, Histology and Embryology, Bacteriology, Pathology, Surgery, Practice of Medicine, including Mental and Nervous Diseases, Diseases of Children, and Diseases of the Eye, Ear, Nose, and Throat, Obstetrics, Gynecology, Medical Jurisprudence, Hygiene and Public Health, Materia Medica and Therapeutics, and such additional subjects made necessary by advances in medical education as the board may designate. An average of at least 75 per cent. is required. The fee for examination is $25.

Examinations are held at Ann Arbor on the second Tuesday of June, and at Lansing on the second Tuesday of October.

Reciprocity exists under certain conditions with District of Columbia, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Dakota, Georgia, Ohio, South Carolina, Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming. Fee $50.

Secretary of the State Board of Registration, Dr. B. D. Harison, 205 Whitney Building, Detroit, Mich.

Minnesota.—Each applicant is required to make an affidavit setting forth his age, place of residence, preliminary education, time and place of each course of medical lectures, and date of graduation. The affidavit must be corroborated by the exhibition of his diploma or a certificate from the Dean of the Medical College showing that he has completed the prescribed number of courses and is a candidate for graduation. Graduates of medical colleges granting advanced standing for work done at other than medical colleges shall not be eligible to the examinations given by this Board.

Each applicant, if he graduated or completed his final course of lectures after January 1, 1899, must show proof that he has attended four full courses of lectures at a recognized medical college, no two courses being in the same year. Each applicant, if he graduated after July 1, 1887, and prior to January 1, 1899, or completed his final course of lectures during that period, must show proof that he has attended three full courses of lectures at a recognized medical college, no two courses being in the same year. Applicants who graduated at a recognized medical college prior to July 1, 1887, must show proof of having attended two courses of lectures at a medical college. An examination is required of each and every one on: Anatomy, Physiology, Chemistry, Histology, Materia Medica, Therapeutics, Preventive Medicine, Practice of Medicine, Surgery, Obstetrics, Diseases of Women and Children, Diseases of the Nervous System, Diseases of the Eye and Ear, Medical Jurisprudence, and such other branches as the board shall deem advisable. Ten questions are given on each paper. A general average of 75 per cent. must be attained. "Handwriting of candidates must be legible, and orthography must not be such as will disgrace the medical profession." Fee for the examination is $10. This fee is not returned in case of failure.

Examinations are held at St. Paul, on the first Tuesday of January, April, June, and October.

Reciprocity is allowed under certain conditions with: District of Columbia, Indiana, Iowa, Kansas, Maine, Maryland, Michigan, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, Ohio, South Carolina, Tennessee, Utah, Wisconsin, and Wyoming. Fee, $50.

Secretary of the State Board of Medical Examiners, Dr. W. S. Fullerton, St. Paul, Minn.

Mississippi.—"The application for license must state: (1) The applicant's name in full; (2) his place of residence and post-office address; (3) his nativity and age; (4) the time spent by him in

medical studies: (5) the name and post-office address of the preceptor under whom medical studies were pursued; (6) courses of medical lectures attended; (7) name of medical school attended; (8) if a graduate of a medical college, name thereof; (9) time spent in hospital; (10) time spent in the practice of medicine, if any; (11) school or system of practice chosen, and (12) references as to his personal character." Everyone must be examined. Examinations are in Anatomy, Chemistry, Obstetrics, Materia Medica, Physiology, Pathology, Surgery, and Hygiene. The fee for the examination is $10.25.

Examinations are held at Jackson, twice a year, on the second Tuesday in May and October.

Reciprocity, none.

Secretary of the State Board of Health, Dr. S. H. McLean, Jackson, Miss.

Missouri.—An examination is required of all who wish to practise medicine or surgery. All persons appearing for examination shall make application, in writing, to the secretary of the Board thirty days before the meeting. They shall furnish satisfactory evidence of their preliminary qualifications, namely: A certificate of graduation from an accredited High School, or State Normal School, College, University, Academy, or a certificate from the County School Commissioner, certifying that they have satisfactorily passed an examination equivalent to a grade from an accredited High School, State Normal School, University, or Academy. They shall also furnish satisfactory evidence of having received a diploma from some reputable Medical College of four years' requirements at the time of graduation: Provided, that the time of graduation has been since March 12, 1901, and two years' requirements, if the date of graduation is prior to March 12, 1901, and shall also furnish evidence of good moral character. The medical examination may be made in whole or in part, in writing, and shall be of elementary and practical character, but sufficiently strict to test the qualifications of the candidate as a practitioner, and shall embrace the subjects of Anatomy, Chemistry, Physiology, Therapeutics, Obstetrics, Gynecology, Surgery, Practice of Medicine, Bacteriology, Medical Jurisprudence and Hygiene, and such other branches as the State Board may direct. In order to pass, an average of 75 per cent. is required. The fee for examination is $15, which entitles the applicant, in case of failure, to reëxamination within one year without paying an additional fee.

Reciprocity is allowed with States having equal requirements, and which similarly recognize this State. Fee, $25.

Secretary of the State Board of Health is Dr. J. A. B. Adcock, Warrensburg, Mo.

Montana.—Every applicant who graduated after 1898, must present evidence of having attended four courses of lectures of at least six months each. Applicants must present a diploma from a legally organized medical school in good standing, and also pass a written examination in the following subjects: Anatomy, Physiology, Materia Medica, Therapeutics, Practice of Medicine, Surgery, Obstetrics, Diseases of Women and Children, Diseases of the Nervous System, Diseases of the Eye and Ear. A general average of 75 per cent. is required in order to pass the examination.

The fee for the examination is $25.

Examinations are held in Helena on the first Tuesday of April and October.

Reciprocity, none.

Secretary of the Board of Medical Examiners is Dr. W. C. Riddell, Helena, Mont.

Nebraska.—Applicants must be of good moral character, and must present a high school diploma or show proof of having taken a college course of at least two years.

Each applicant, if he graduated after August 1, 1898, must show proof that he has attended four full courses of lectures at a recognized medical college, no two courses being in the same year. In case of graduation after August 1, 1891, and prior to August 1, 1898, proof must be given that he has attended three full courses of lectures at a recognized medical college, no two courses being in the same year. And in case of graduation prior to August 1, 1891, proof must be given of having attended two full courses of lectures at a recognized medical college.

No medical school will be recognized by the Board unless said school is recognized by the Association of Medical Colleges of the School of Practice to which it belongs.

Every applicant has to submit to an examination in the following branches: Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice of Medicine, Surgery, Obstetrics and Diseases of Women, Pathology and such other branches as the Board shall deem advisable.

In order to pass, a general average of 75 per cent. must be obtained. Examinations are held at Lincoln, on the Wednesday after the first Tuesday of February, August, and November; also at end of May. Examination fee is $25; except that for graduates of medical colleges located in Nebraska the fee is only $10.

Reciprocity is permitted with States having requirements of the same standard as those of Nebraska. At present reciprocity exists with: Colorado, District of Columbia, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Missouri, Nevada, New Hampshire, New Jersey, Ohio, Oklahoma, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.

Secretary of the State Board of Health, Dr. E. J. C. Sward, Oakland, Neb.

Nevada.—Applicants for certificates to practise medicine, surgery, or obstetrics in the State of Nevada shall be required to present a diploma from a legally recognized college, and to pass a satisfactory examination before the State Board of Medical Examiners. The examination shall be conducted in the English language, and shall be, in whole or in part, in writing, and shall be on the following subjects, to wit: Anatomy, Physiology, Materia Medica and Therapeutics, Chemistry, Bacteriology, Pathology, Toxicology, Obstetrics, Surgery, General Medicine, Diseases of the Skin, Eye, Ear, Nose, Throat, Brain, Genitourinary system. Examinations shall be practical in character, and designed to discover the applicant's fitness to practise medicine and surgery. In order to pass 75 per cent. must be obtained on each subject.

Fee for the examination is $25.

If an applicant fails in his first examination, he may, after not less than six months, be reëxamined, without additional fee. If he fails in a second examination he shall not thereafter be entitled to another examination in less than one year after the date of second examination, and shall be required to pay for such examination the full fee.

Examinations are held on the first Monday of May and November.

Reciprocity is allowed; the fee is $25. At present Nevada reciprocates with Colorado, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, South Carolina, Texas, and Wisconsin.

Secretary of the State Board of Medical Examiners is Dr. S. L. Lee, Carson City, Nev.

New Hampshire.—"The regent shall admit to examination any candidate who pays a fee of $10 and submits satisfactory evidence, verified by oath, if required, that he—(1) Is more than twenty-one years of age; (2) Is of good moral character; (3) Has graduated from a registered college; or satisfactorily completed a full course in a registered academy or high school; or had a preliminary education considered and accepted by the regent as fully equivalent; (4) Has studied medicine not less than four full school years, of at least nine months each, including four satisfactory courses, of at least six months each, in four different calendar years, in a medical college registered as maintaining at the time a satisfactory standard; the regent shall accept, as the equivalent for any part of the third and fourth requirements, evidence of five or more years' reputable practice, provided that such substitution be specified in the license; (5) Has either received the degree of bachelor or doctor of medicine from some registered medical school, or a diploma or license conferring full right to practise medicine in some foreign country."

Examinations are held at Concord, at least twice a year. The subjects for examination are: Anatomy, Physiology and Hygiene, Chemistry, Surgery, Obstetrics, Pathology and Diagnosis, and Therapeutics (including Practice and Materia Medica). The fee for the examination is $10.

If a candidate fails in the examination, he may, after not less than six months' further study, have a second examination without fee.

Reciprocity:—Physicians and surgeons examined and licensed by one of the following boards will be admitted to practice in New Hampshire without further examination, upon payment of fee of $5: Colorado, Georgia, Indiana, Kansas, Kentucky, Maryland, Michigan, Minnesota, Missouri, Nebraska, North Dakota, New Jersey, South Carolina, Tennessee, Vermont, Virginia, West Virginia, Wisconsin, Wyoming.

Any legal practitioner of medicine and surgery in any other State or Territory, which will grant to physicians and surgeons registered in this State similar privileges, will be admitted to practice in this State upon payment of a fee of $10, and upon presentation to the New Hampshire Board of Examiners of evidence satisfactory to them of his professional standing.

Regent of the State Board, H. C. Morrison, Concord, N. H.

New Jersey.—Applicants must be over twenty-one years of age, and of good moral character. They must give proof of having received a satisfactory preliminary academic education, either:—(1) A partial or a complete course in a registered literary college; or

(2) A certificate or diploma issued after four years of study either in a normal, manual training or high school of the first grade, or in a legally constituted academy, seminary, or institute maintaining the same or equivalent academic standards; or

(3) A student's certificate of examination for admission to the freshman class of a registered literary college; or

(4) A certificate of graduation from a foreign institution of learning of recognized standing representing the equivalent of an American high school course of the first grade; or

(5) A certificate from the State Superintendent of Public Instruction of New Jersey who is authorized to determine whether the candidate's academic education prior to beginning the study of medicine was fully equivalent to the standard fixed by law.

Candidates for medical lincense must present their academic credentials to the State Superintendent of Public Instruction, Trenton, N. J., for certification, and the certificates of preliminary academic education issued by him must accompany the applications for admission to the medical examination for State license.

Candidates must have received a diploma conferring the degree of Doctor of Medicine from some legally incorporated medical college (which in the opinion of this board was in good standing at the time of issuing said diploma) in the United States, or a diploma or license conferring the full right to practice all the branches of medicine and surgery in some foreign country, and also have studied medicine not less than four full school years of at least nine months each, including four satisfactory courses of lectures of at least seven months each, in four different calendar years in some legally incorporated American or foreign medical college or colleges, prior to the granting of said diploma or foreign license. Candidates who graduated prior to July 4, 1903, however, and have been in continuous and reputable practice for at least five years since graduation may be admitted to the examinations upon satisfactory evidence of three courses of medical lectures in different calendar years. Candidates who graduated prior to July 4, 1894, and have been in continuous and reputable practice since graduation may be admitted to examination upon satisfactory evidence of two courses of medical lectures in different calendar years.

Examinations are held in Materia Medica and Therapeutics; Obstetrics and Gynecology; Practice of Medicine, including Diseases of the Skin, Nose, and Throat; Surgery, including Surgical Anatomy and Diseases of the Eye, Ear, and Genitourinary Organs; Anatomy; Physiology; Chemistry; Histology, Pathology, and Bacteriology; Hygiene and Medical Jurisprudence. In each of these sections fifteen questions are submitted, of which ten must be answered by the candidate. A total average of the Board in the subjects in which he failed.

The fee for the examination is $25.

Examinations are held at Trenton on the third Tuesday in June and October.

Reciprocity.—With New York after January 1, 1906. New Jersey will now indorse the medical license issued by any State, after examination, whose educational, examining, and licensing requirements are substantially equal to, or higher than those of New Jersey, irrespective of reciprocity, provided the applicant complies with the conditions of indorsement. The fee is $50.

Secretary of the State Board of Medical Examiners, Dr. J. W. Bennett, Long Branch, N. J.

New Mexico.—Any applicant of good moral character who has been in active practice for two years next preceding the date of his application and who is a graduate of a medical college in good standing, after payment of the required fee, will be granted a license without examination. Graduates of colleges in good standing who have not been in active practice for two years and also graduates of reputable medical colleges other than those in good standing, who have served interneships in good hospitals or who have taken six months or more of postgraduate instruction in some institution having ample clinical facilities, or who have had three or more years of actual practice since graduation, may secure license by passing an examination in the following, and such other subjects as the board may from time to time prescribe: Anatomy and Histology, 10 questions; Chemistry, 5 questions; Etiology and Hygiene, 5 questions; Physiology, 5 questions; Materia Medica, 10 questions; Therapeutics, 10 questions; Pathology and Bacteriology, 5 questions; Surgery, 10 questions; Physical Diagnosis, 10 questions; Obstetrics, 10 questions; Gynecology, 5 questions; Practice of Medicine, 10 questions; Medical and Jurisprudence, 5 questions. An average of 75 per cent. must be obtained at such examination by each applicant, and not less than 50 per cent. must be obtained in any one subject; the board shall allow an applicant credit marks of 5 per cent. for five years of active practice. In case of failure in not more than two subjects applicant may be allowed to take another examination at the next regular meeting of the Board in the subjects in which he failed.

The fee for the examination is $25.

Examinations are held in Santa Fe, on the second Monday of January, April, July, and October.

Reciprocity is allowed on conditions equal to those of New Mexico.

Secretary of the Board of Health and Medical Examiners, Dr. J. A. Massie, Santa Fe, New Mexico.

New York.—Each applicant has to submit satisfactory evidence, verified by oath, that he (1) Is more than twenty-one years of age. (2) Is of good moral character. (3) Had prior to beginning the second year of medical study the general education required preliminary to receiving the degree of bachelor or doctor of medicine in this State. (4) Has studied medicine not less than four school years, including four satisfactory courses of at least seven months each, in four different calendar years in a medical school registered as maintaining at the time a standard satisfactory to the Regents.

The regents may, in their discretion, accept as the equivalent for any part of the third and fourth requirement, evidence of five or more years reputable practice, provided that such substitution be specified in the license and as the equivalent of the first year of the fourth requirement evidence of graduation from a registered college course, provided that such college course shall have included not less than the minimum requirements prescribed by the regents for such admission. (5) Evidence that applicant has either received the degree of bachelor or doctor of medicine from some registered medical school, or has a diploma or license conferring full right to practise medicine in some foreign country. Candidates must also pass an examination in:—(1) Anatomy; (2) Physiology; (3) Hygiene and Sanitation; (4) Chemistry; (5) Surgery; (6) Obstetrics and Gynecology; (7) Pathology and Bacteriology: (8) Diagnosis.

The Regents may also in their discretion admit conditionally to the examination in anatomy, physiology, hygiene, sanitation, and chemistry, applicants 19 years of age certified as having studied medicine not less than two years, including two satisfactory courses of at least seven months each, in two different calendar years, in a medical school registered as maintaining at the time a satisfactory standard, provided that such applicants meet the second and third requirements.

Each paper has fifteen questions, and of these the applicant selects ten.

Seventy-five per cent. in each topic is required for a license. "Candidates must pass at 90 per cent. or more in each of the eight topics in order to receive an honor license."

The fee for examination is $25.

The examination may be omitted in the case of physicians who "have reached a position of conceded eminence and authority in the profession."

Examinations are held at New York, Albany, Syracuse, and Buffalo, in January, May, June, and September.

Reciprocity exists under certain conditions with Michigan, New Jersey, Ohio, and Vermont.

Secretary of the Regents of the University of New York, Dr. C. F. Wheelock, University of State of New York, Albany, N. Y.

North Carolina.—Applicants must present a certificate of good moral character from two persons known to the board. "All applicants shall exhibit a diploma, or furnish satisfactory proof of graduation from a medical college in good standing requiring an attendance of not less than three years and supplying such facilities for clinical instruction as shall meet the approval of the board. But license or other satisfactory evidence of standing as a legal practitioner in another State shall be accepted in lieu of a diploma, and entitle to examination." Applicants must, further, be examined in the following subjects: Anatomy, Physiology, Surgery, Pathology, Medical Hygiene, Chemistry, Pharmacy, Materia Medica, Therapeutics, Obstetrics, and the Practice of Medicine. To secure a license an average grade of not less than 80 per cent. will be required, but an applicant receiving a grade of 35 per cent. or less in any one branch shall be rejected regardless of his grade in other branches.

The fee for the examination is $10, which shall be returned in the event of the applicant's rejection.

Reciprocity is allowed; but

1. The applicant must have a diploma from a medical college requiring a three years' course of study for such degree.

2. He must have license from a State Board of Examiners requiring the same per cent. as this State, which is 80.

3. He must present a sworn affidavit from two practising physicians as to his professional standing in his community, the burden of proof resting upon the applicant.

4. He shall attend the meeting of the Board at the time of application and make the same in person.

5. He shall pay a fee of ten dollars for such license.

6. He must not have failed before the North Carolina Board.

7. He must have been in actual practise for five years in the State from which he comes.

Secretary of the Board of Medical Examiners is Dr. B. K. Hays, Oxford, N. C.

North Dakota.—From all graduates of 1905 and thereafter a minimum entrance requirement of graduation from an accredited high school or its equivalent is demanded. All applicants must present evidence of having graduated from a reputable medical college and attended three courses of lectures of at least six months each; provided, however, that after the year 1904, applicants must present evidence of having graduated from a reputable college, and attended four courses of lectures of at least eight months each.

Applicants must further pass an examination in the following branches: Anatomy, Physiology, Chemistry, Pathology, Therapeutics, Diseases of Women and Children, Nervous Diseases, Diseases of the Eye and Ear, Medical Jurisprudence, and such other branches as the Board deems advisable. The Board shall cause such examination to be practical and scientific and sufficient to test the candidate's fitness to practise medicine, surgery, and obstetrics. A general average of 75 per cent. is required to pass, and an applicant must not fall below 65 per cent. in any branch. The fee for the examination is $20.

Examinations are in writing, and are held at Grand Forks, on the first Tuesday in January, April, July, and October.

Reciprocity. Under certain conditions and upon licenses bearing the date of July 1, 1905, or later, and secured by examination, North Dakota reciprocates with the following States: Maine, Vermont, Michigan, Illinois, Wisconsin, West Virginia, Wyoming, Minnesota, and Texas.

Secretary of the State Board of Medical Examiners, Dr. H. M. Wheeler, Grand Forks, N. D.

Ohio.—Applicants must furnish satisfactory proof of being more than twenty-one years of age and of good moral character. They must also give evidence of preliminary education as follows:—(1) A diploma from a reputable college granting the degree of A.B., B.S., or equivalent degree; or (2) a diploma from a legally constituted normal school, high school, or seminary, issued after four years study; or (3) a teacher's permanent or life certificate; or (4) a student's certificate of examination for admission to the freshman class of a reputable literary or scientific college.

In the absence of the foregoing qualifications the entrance examiner may examine the applicant in such branches as are required for graduation from a first-class high school of this State, and to pass such examination shall be sufficient qualification.

Applicants must further show that they are graduates in medicine from some legally chartered medical college in the United States, in good standing. Applicants will then have to pass an examination in the following subjects: Anatomy, Physiology, Pathology, Chemistry, Materia Medica and Therapeutics, Surgery, the Principles and Practice of Medicine, Obstetrics, Diseases of Women and Children, and Physical Diagnosis, and such other subjects as the Board requires.

The fee for the examination is $25; in case of failure, another examination may be taken within one year without payment of additional fee.

Examinations are held on the second Tuesday of June and December, at Columbus, and sometimes also at Cincinnati and Cleveland.

Reciprocity with Illinois, New Jersey, New York and Texas upon the basis of examination only; also under certain conditions with Colorado, District of Columbia, Indiana, Iowa, Maine, Maryland, Michigan, Minnesota, Nebraska, Vermont, and Wisconsin.

Secretary of the State Board of Medical Registration and Examination, Dr. G. H. Matson, Columbus, Ohio.

Oklahoma.—Every applicant must submit proof of good moral character, and two unmounted photographs. He must also present a diploma issued by some legally chartered medical school or college, the requirements of which medical school or college shall have been at the time of granting such diploma in no particular less than those prescribed by the American Association of Medical Colleges, or the Southern Association of Medical Colleges in that year in which the diploma was granted. Or he must show satisfactory evidence of having possessed such diploma or license from some legally constituted institution which grants medical and surgical licenses only on actual examinations, or satisfactory evidence of having possessed such license or diploma.

Candidates will be examined on the following subjects: Anatomy, Physiology, Chemistry, Hygiene, Pathology, Physical Diagnosis, Obstetrics, Gynecology, Medical Jurisprudence, Surgery, Bacteriology, Histology, Theory and Practice, Materia Medica and Therapeutics. There will be ten questions on each of the above subjects. The Board may add other subjects whenever it deems it necessary to test the applicant's qualifications, and to keep abreast with medical progress.

Candidates must make an average of not less than 70 per cent., and not less than 50 per cent. on any branch.

The examination fee is $15. Candidates who fail may take another examination within one year without additional fee.

The regular meeting of the Board will be held on the second Tuesday in January, April, July, and October at Guthrie, unless otherwise ordered by the Board.

Reciprocity, none.

Secretary of State Board of Medical Examiners, Dr. Frank P. Davis, Enid, Oklahoma.

Oregon.—Applicants must be "of good repute," must make application stating time spent in study of medicine, place of study, and time and place of actual practice. Applicants must also pass an examination in the following branches: Anatomy, Physiology, Chemistry, Materia Medica, Therapeutics, Practice of Medicine, Surgery, Obstetrics, Diseases of Women, Medical Jurisprudence, and such other branches as the Board shall deem advisable. Such examinations shall be both scientific and practical, and of sufficient severity to test the candidate's fitness to practise medicine and surgery, and shall be by written or printed (or partly written or partly printed), questions and answers. The fee for the examination is $10.

Examinations are held at Portland, Oregon, on the first Tuesday of January and July.

Reciprocity, none.

Secretary of Board of Medical Examiners, Dr. Byron E. Miller, Portland, Oregon.

Pennsylvania.—Applicants must present satisfactory evidence of being more than twenty-one years of age, and of good moral character. Applicants must show that they have received competent preliminary education as follows: (a) A diploma of a literary or scientific college, a State normal

school, a high school having a course of not less than three years, or an academy having an approved high school standing. (b) A teacher's permanent certificate issued by the school department of Pennsylvania. (c) The certificate of a legally authorized State Examining Board covering required subjects. (d) A certificate showing three years' completed work in an approved high school, officially signed and sealed by the principal or other authorized officer. (e) In lieu of any of the above, an equivalent examination. Applicants must also have received a diploma conferring a degree in medicine from a legally incorporated medical college of the United States, or a diploma or license conferring the full right to practise all the branches of medicine and surgery in some foreign country.

Applicants must also pass an examination in Anatomy; Physiology and Pathology; Chemistry and Materia Medica; Surgery; Obstetrics; Diagnosis and Hygiene; Therapeutics and Practice of Medicine.

A general average of not less than seventy-five points is necessary. No license shall be issued to any candidate whose examination papers shall, on any two subjects, fall below fifty-five; provided, that those papers marked below fifty-five shall be subject to revision by the entire Board by which the candidate was examined. The fee for the examination is $25; and in case of failure a reëxamination can be taken after six months and before two years without payment of additional fee.

Examinations are held twice a year in Philadelphia and Pittsburg, in June and December.

Reciprocity, none.

Secretary of the Medical Council, N. C. Schaeffer, Harrisburg, Pa.

Rhode Island.—Applicants must be graduates from a medical school in good standing, and must pass an examination as follows: "Examinations shall be in writing and in English, and of a practical character, but sufficiently strict to test the qualifications of the applicant as a practitioner. Examinations will be presented upon the following subjects or groups of subjects: (1) Anatomy and Physiology; (2) Materia Medica and Chemistry; (3) Pathology; (4) Surgery; (5) Theory and Practice; (6) Obstetrics and Gynecology; (7) Hygiene and Medical Jurisprudence. Ten questions will be presented upon each subject or group of subjects. An average of 80 per cent. of correct answers will be required." The fee for the examination is $10, and for the certificate (if issued) $2.

Examinations are held in Providence, on the first Thursday in January, April, July, and October.

Reciprocity, none.

Secretary of the State Board of Health, Dr. Gardner T. Swarts, Providence, R. I.

South Carolina.—Every applicant (1) must be twenty-one years of age; (2) must exhibit a diploma from a medical college of established reputation; (3) must present a certificate of good moral character and sobriety from at least two reputable persons known to the Board, and (4) must give evidence of sufficient preliminary education (equivalent to the possession of a teacher's first grade certificate). No person who shall have graduated after February 27, 1904, shall be eligible for examination before this Board, unless he or she shall give evidence in addition to the other requirements that he or she has attended *four* full courses of lectures of at least twenty-six weeks each, no two courses being in the same year, and has received a diploma of M.D. therefrom.

The examination is conducted in writing, and is divided into two sections:—the first, or Junior Curriculum, comprising:—1. General Anatomy. 2. Physiology and Histology. 3. Materia Medica and Medical Botany. 4. Chemistry, Organic and Inorganic, and Medical Physics. 5. Bacteriology and Pathology.

The second, or Senior Curriculum, comprises:—1. Anatomy, Regional and Surgical. 2. Practical Hygiene and Sanitary Science, State Medicine. 3. Practical Uranalysis, Urinary Microscopy. 4. Therapeutics and Toxicology. 5. Surgery, General and Special, Surgical Procedure. 6. Practical Medicine and Diseases of Children. 7. Practical Obstetrics and Gynecology. 8. Medical Jurisprudence.

All applicants before the Board, holding a diploma from a four-years' graded medical college of established reputation, who have pursued a study of four separate courses, and have attained a mark of not less than 75 per cent. on each individual branch of their curriculum, as evidenced by a certificate from the Dean of their college, will be exempted from examination in the Junior Curriculum.

The standard required by the State Board of Medical Examiners shall be an average of not less than 75 per cent. on all the branches examined upon, and not less than 60 per cent. on any individual branch.

Examination fee, $10.

Examinations are held once a year, at Columbia, on the second Tuesday in June.

Reciprocity exists under certain conditions with: Illinois, Kansas, Maine, Maryland, Michigan, Minnesota, Missouri, Nevada, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming. Fee, $10.

Secretary of State Board of Medical Examiners, Dr. H. H. Wyman, Aiken, S. C.

South Dakota.—Applicants must give satisfactory proofs of being at least twenty-one years of age, and of good moral character; also a recent unmounted photograph with signature and affidavit. Applicants must also present evidence of having attended four full courses of lectures, of at least twenty-six weeks each in a legally organized and reputable medical college, recognized by the Board of Medical Examiners, no two courses being in the same year; and of having received a diploma from a legally organized and reputable medical college, which shall be in good standing as shall be determined by the Board, and said diploma must be submitted to the Board for inspection and verification; provided that the four courses of lectures of six months each shall not apply to applicants who graduated prior to 1898.

The Board, in its classification of diplomas, will recognize only such medical colleges as require as a condition of admission the equivalent, at least, of a standard high school education, in addition to the full four years' attendance in medical college. After 1910 this requirement will be at least one year in a college of liberal arts, or its equivalent.

Applicants must also pass an examination in the following subjects: Anatomy, Physiology, Chemistry, Pathology, Therapeutics, Practice of Medicine, Surgery, Obstetrics, Gynecology, Diseases of the Eye and Ear, Bacteriology, Medical Jurisprudence, and such other branches as the board may deem advisable.

Ninety questions are given, on twelve principal

subjects, and a general average of 75 per cent. of correct answers is required to pass. The fee for examination is $20. Candidates who fail to pass the examination are entitled to a second trial without extra cost.

Examinations are held twice a year, on the second Wednesday of January and July, at places determined by the board.

Reciprocity, none.

Secretary of Board of Medical Examiners, Dr. H. E. McNutt, Aberdeen, S. D.

Tennessee.*—Applicants must be of good moral character; no diploma is required. Every applicant must take the medical examination. "In examining the written answers of the applicants (in the medical examination), the evidences of an English education as shown in the papers shall be considered in determining the fitness of an applicant for license to practise medicine in this State." Examinations shall be both written and oral, and upon the following branches: Anatomy, Physiology, Chemistry, Pathology, Surgery, Obstetrics, Materia Medica, and Practice. Candidates must obtain 75 per cent. in order to pass. The fee for the examination is $10.

Examinations are held once a year in Nashville, in May.

Reciprocity is allowed with such States as will recognize the Tennessee certificate.

Secretary of the State Board of Medical Examiners, Dr. T. J. Happel, Trenton, Tenn.

Texas.—Every applicant must submit satisfactory evidence of being more than twenty-one years of age, of good moral character, and a graduate of a reputable medical college. The applicant must then take an examination in the following branches: Anatomy, Physiology, Chemistry, Histology, Pathology, Bacteriology, Physical Diagnosis, Surgery, Obstetrics, Gynecology, Hygiene, and Medical Jurisprudence.

Ten questions are set on each of these subjects. In order to pass the examination a general average of 75 per cent. is required.

The examination fee is $15.

Reciprocity is allowed by law with other States and Territories having requirements equal to those of Texas. The fee is $20.

The following States are now in reciprocal relation with Texas: Missouri, Maine, Nebraska, Minnesota, Michigan, Kentucky, Illinois, Indiana, Iowa, District of Columbia, West Virginia, Maryland, Wisconsin, Vermont, North Dakota, Ohio, and Virginia.

Secretary of the State Board of Medical Examiners, Dr. C. B. Foscue, Waco, Texas.

Utah.—Applicants must have received a certificate from a first grade high school, or its equivalent, and also a degree or diploma from a chartered medical college, in good standing, and must also pass an examination. A recent unmounted photograph is also required. The subjects for examination are: Histology, Anatomy, Physiology, Chemistry, Toxicology, Urinalysis, Materia Medica, Therapeutics, Bacteriology, Pathology, Theory and Practice of Medicine, Surgery, Obstetrics, Gynecology, Pediatrics, Dermatology, Hygiene, Medical Jurisprudence, Ophthalmology, Otology, Rhinology, Laryngology, and such other branches as the Board shall direct. An average of 75 per cent. is required. The fee for the examination is $15.

*Legislation is now pending, and may change the requirements.

Examinations are held at Salt Lake City on the first Monday in January, April, July, and October.

Reciprocity exists under certain conditions with: Missouri, Maine, Minnesota, Michigan, Indiana, Georgia, Kansas, Wisconsin, South Carolina, Iowa, Illinois, Colorado, Nebraska, Tennessee, Wyoming, New Jersey, and Kentucky. Fee, $25. "The applicant for reciprocity must have been engaged in reputable practice of medicine in the State from which he comes at least one year before his certificate will be accepted by the Utah board."

Secretary of the Board of Medical Examiners, Dr. R. W. Fisher, Salt Lake City, Utah.

Vermont.—A person twenty-one years of age and of good moral character, who is a graduate of a legally chartered medical college or university, having power to confer degrees in medicine and surgery, and such medical college or university being recognized as determined by the Board, shall, upon payment of a fee of twenty dollars, be entitled to examination, and, if found qualified, shall be licensed to practise medicine and surgery in this State.

By a rule of the Board applicants for examination shall present documentary evidence showing that they are graduates of an accredited high school maintaining a four year course, or its value in counts obtained by an examination in subjects of high school grade or a New York Medical Student's Regent's certificate.

The examination shall be wholly or in part in writing, in the English language, and shall be of a practical character, sufficiently strict to test the qualification of the applicant. It shall embrace the general subjects of Anatomy, Physiology, Chemistry, Pathology, Bacteriology, Hygiene, Practice of Medicine, Surgery, Obstetrics, Gynecology, Materia Medica, Therapeutics and Legal Medicine. Each applicant shall pass a general average of 75 per cent. to entitle him to a license; provided, however, that reputable practitioners may be allowed one per cent. for each year of practice, but such allowance shall not exceed ten per cent.

"In order to receive consideration, examination papers must be legibly written in English and free from such errors in spelling, grammar, and reasoning, as would show gross ignorance of the elementary branches of education."

Examination fee is $20.

Examinations are held in Montpelier on the second Tuesday in January, and in Burlington on the second Tuesday in July.

Reciprocity arrangements have been entered into with the States of Illinois, Indiana, Maine, Michigan, Maryland, New Hampshire, New York, New Jersey, North Dakota, Ohio, Texas, Wisconsin, Wyoming, and the District of Columbia on certificates obtained by examination and whose standard of requirements is equal to that of Vermont.

Secretary of State Board of Medical Registration, Dr. W. Scott Nay, Underhill, Vt.

Virginia.—Applicants must present their diplomas from some recognized medical college, chartered by the State or Territory in which it is situated. Applicants must also pass an examination.

The examination comprises the following subjects: Chemistry, Toxicology and Medical Jurisprudence; Laryngology, Rhinology, Ophthalmology and Otology; Anatomy and Embryology; Histology, Physiology and Hygiene; Pathology, Bacteriology and Neurology; Obstetrics, Gynecology and Pediatrics; Materia Medica and Therapeutics; Practice

of Medicine, Diagnosis and Etiology; Surgery.

A total average of 75 per cent. shall be necessary to license a candidate (he or she having otherwise complied with the law); provided, that in no one section shall the percentage be less than 45 per cent.; if so, the candidate shall be rejected, regardless of the total average.

Physicians who have been in active practice legally for over five years, graduates from reputable colleges, are granted oral examinations.

The fee for the examination is $10; those failing to pass the examination will not be required to pay further fee when they appear for reexamination.

Examinations are generally held in June and December.

Reciprocity exists under certain conditions.

At present the Medical Examining Board of Virginia reciprocates in medical licenses with the following States since June, 1904: Indiana, Georgia, Michigan, Nebraska, Delaware, Maryland, South Carolina, Texas, Wisconsin, and District of Columbia.

Reciprocity with West Virginia, Minnesota, New Hampshire, Missouri, and Kentucky, since June, 1907. Maine, since December, 1907. Wyoming, since June, 1908.

Secretary of Medical Examining Board, Dr. R. S. Martin, Stuart, Va.

Washington.—Applicants must be over twenty-one years of age, must present a written recommendation of good moral and professional character from two physicians in good standing, and must have graduated from some duly authorized and recognized medical college now having at least a four years' graded course. An unmounted photograph must accompany the application; and the applicant's diploma must be exhibited to the secretary.

The examinations will be in writing covering the following subjects, which are so grouped that 100 questions will be the total asked:—Anatomy and Physiology, 15 questions; Histology, Pathology and Bacteriology, 10 questions; Surgery, 10 questions; Toxicology and Chemistry, 10 questions; Preventive Medicine and Medical Jurisprudence, 10 questions; Practice of Medicine and Diseases of Children, 15 questions; Obstetrics and Diseases of Women, 10 questions; Diseases of Eye and Ear and Nervous Diseases, 10 questions; Materia Medica and Therapeutics, 10 questions.

Evidence of the applicant's lack of knowledge of correct language, as derived from his written answers to questions, will militate against him.

Licenses will be issued to those who make a general average of 75 per cent., excepting in the case of physicians of ten years' practice, in which case the required grade is 70 per cent., provided all the requirements of this board are satisfactorily complied with.

Examination fee is $25.

Examinations are held on the first Tuesday of January and July.

Reciprocity, none.

Secretary of the State Medical Examining Board is Dr. K. Turner, Seattle, Wash.

West Virginia.—Every applicant must be a graduate of a reputable medical college, recognized as such by the State Board of Health, and must also pass an examination. At such examinations, written and oral questions shall be submitted to the applicants for license, covering all the essential branches of the sciences of medicine and surgery, and the examination shall be a thorough and decisive test of the knowledge and ability of the applicants. During the past year the examinations embraced the following subjects: Anatomy and Embryology; Physiology and Histology; Chemistry and Medical Jurisprudence; Materia Medica and Therapeutics; Bacteriology and Hygiene; Practice and Pediatrics; Obstetrics and Gynecology; Surgery, and Special Practice (including Physical Diagnosis, Throat, Nose, Eye, and Nervous Diseases).

A general average of 80 per cent. is required, with not less than 65 per cent. on any subject.

The fee for examination is $10; in case of failure, the candidate can be reexamined within one year without additional fee.

Examinations are held not less than three times a year, at places convenient to applicants, or to the Board of Health.

Reciprocity: "The State Board of Health may accept in lieu of an examination, the certificate of license to practise medicine legally granted by the board of registration or examination or licensing board of any other State, Territory, or any foreign country whose standard of qualification for the practice of medicine is equivalent to that of this State, and grant to the said applicant a certificate of license to practise medicine in this State; *Provided*, such States, Territories, or foreign countries accord like privilege to medical licentiates of this State."

Secretary of the State Board of Health, Dr. Hugh A. Barbee, Point Pleasant, W. Va.

Wisconsin.—All applicants must present evidence of good moral character; also a diploma from a reputable medical college requiring a four years' course of at least seven months each before graduation, no two of such courses to be taken within any one twelve months, and that shall require for admission thereto a preliminary education equivalent to that necessary for entrance to the junior class of an accredited high school in this State, including a one year's course in Latin, and that shall, after the year 1906, require for admission to such school a preliminary education equivalent to graduation from an accredited high school of this State. Applicants must also pass an examination in Pathology, Surgery, Obstetrics, Gynecology, Anatomy, Materia Medica, and Therapeutics, Practice of Medicine, Dietetics, Jurisprudence, Physiology, Hygiene, Diagnosis, Toxicology, Histology, Bacteriology, Chemistry, Uranalysis, Neurology, Pediatrics, Laryngology, and Ophthalmology. "A general average of 75 per cent. shall be necessary, provided that in no one branch shall the percentage be less than 60." The fee for the examination and license is $20. If license is not granted, $5 will be returned to the applicant.

Regular meetings are held on the second Tuesday of January, at Milwaukee; and on the second Tuesday of July, at Madison.

Reciprocity: Graduates of reputable medical colleges with a certificate from any State Board whose requirements are equal to those of this State, may be admitted to practise without examination at the discretion of the Board. Fee, $25.

Secretary of the Board of Medical Examiners, Dr. J. V. Stevens, Jefferson, Wis.

Wyoming.—The applicant must be a graduate from a regularly chartered college of the system which he claims to practise. Said college must be recognized by the State Board of Health or the State Board of Medical Examiners of the State in

which it is located. He shall give evidence of the fact that he is a person of good moral character. He shall present his diploma to the State Board of Medical Examiners for verification as to its genuineness. He shall appear before the State Board of Medical Examiners in person at a time and place appointed, and shall pass an examination sufficiently strict to test his qualifications as a practitioner. Said examination may be in whole or in part in writing. It shall be of an elementary and practical character, and shall be upon the following subjects: Anatomy, Physiology, Chemistry and Toxicology, Pathology, Physical Diagnosis, Gynecology, the principles of Surgery, Obstetrics, Hygiene, and Bacteriology. He shall further be required to pass an examination in such branches as are necessary to complete the system of which he is a practitioner. An average grade of 75 per cent. in all branches of the examination shall be required; provided, that the applicant shall not pass lower than 60 per cent. in any one branch.

The fee for examination is $25. Should the applicant fail to pass, he may present himself for re-examination within one year without the payment of an additional fee.

Reciprocity is allowed by law with States having similar requirements, and which recognize the licenses issued by this Board.

Secretary of the State Board of Medical Examiners, Dr. S. B. Miller, Laramie, Wyo.

Dominion of Canada.

Alberta.—Any person who shall produce a diploma of qualification from any College or School of Medicine and Surgery, which exacts for such diplomas attendance on at least a four years' course of lectures of at least six months each, evidence of which shall be produced if required, and who shall furnish to the Council satisfactory evidence of identification, and pass a satisfactory examination, and shall pay the examination fee of $50, can register on payment of a further fee of $52.

The subjects of examination are: Anatomy, Chemistry, Physiology and Histology, Materia Medica and Therapeutics, Pathology and Bacteriology, Sanitary Science, Medical Jurisprudence, Practice of Medicine, Surgery, Diseases of Women and Children, and Obstetrics. The examinations are written and oral.

Examinations are held on the first Tuesday in August, at Calgary, Alberta.

Registrar and Treasurer, Dr. J. D. Lafferty, Calgary, Alberta.

British Columbia.—The Council of the College of Physicians and Surgeons of British Columbia shall admit upon the register any person who shall produce from any college or school of medicine and surgery, requiring at least four years' course of study, a diploma of qualification, provided that where the college or school of medicine did not require a course of study of at least four years, but a post-graduate course has been taken, which in point of time, added to the college of school of medicine course, completes a period of four years, it shall be deemed sufficient; provided, also, that the applicant shall furnish to the Council satisfactory evidence of identification, and pass a satisfactory examination touching his fitness and capacity to practise as a physician and surgeon.

Candidates must produce satisfactory proof that they have actually taken and attended a four years' course of medical lectures.

The examination shall be orally and in writing, upon the following subjects: Anatomy; Chemistry and Public Health; Physiology and Histology; Materia Medica and Therapeutics; Medical Jurisprudence; Theory and Practice of Medicine and Medical Pathology; Theory and Practice of Surgery and Surgical Pathology; Clinical Medicine; Clinical Surgery and Surgical Anatomy; Obstetrics and Diseases of Women and Children; Urinary Analysis and Clinical Microscopy.

Before examination, the candidate shall pay to the Registrar of the College the fee of $100 for the examination, $50 of which shall be returned if the candidate be rejected.

There are two examinations each year, beginning on the first Monday of May and the last Monday of October. All examinations are held at the college rooms, in the New Parliament Buildings, Victoria.

For more particular information apply to the Registrar, Dr. C. J. Fagan, Victoria, B. C.

Manitoba.—The College of Physicians and Surgeons is the sole licensing body in medicine in the province, and the University of Manitoba is the sole examining body.

If the applicant for license be a graduate in medicine from any university in the United States, he shall be required, in addition to sending his degree (or diploma), to furnish complete detailed and authoritative information as follows: (1) As to his matriculation; giving the name and address of the institution in which he was examined, the subjects, and the extent of each required. (2) As to medical course; the number and length of sessions, subjects taught, number of courses in each, and number of lectures in each course, amount of clinical instruction in the different courses, etc., etc.

On receipt of this information the university will decide as to the eligibility or otherwise of the applicant to write for license.

Each applicant, at the same time that he sends his credentials to the Registrar of the C.P.S., should send $15 examination fee in a separate communication addressed to Mr. D. M. Duncan, Registrar of the University, which will be returned to him in case he is not permitted to write.

The subjects of examination for license are: *Written:* Medicine, Surgery, Obstetrics and Diseases of Children, Gynecology, Materia Medica and Therapeutics. *Oral:* Clinical Medicine, Clinical Surgery, Clinical Ophthalmology and Otology. A percentage of 50 is required in each to pass.

A candidate failing in three or more subjects must write on the whole examination again, and can only do so at a subsequent regular spring examination. If he fail in two subjects, or less, he will be required to write on these only, and may do so at the time of the Supplemental Examinations in September, or at the next spring examination.

Examinations are held annually, on the third Monday in April.

The fee for license, $75, is payable immediately after the receipt by the Registrar of the C.P.S. of the report of the university examinations.

Registrar C.P.S., Manitoba, J. S. Gray, M.D., 358 Hargrave Street, Winnipeg, Manitoba

New Brunswick.—No person shall be entitled to have his name entered on the Register of the Council, or to receive a license to practise from such Council, unless he shall satisfy the Council that he has passed the matriculation or preliminary examination; that after passing such examination, he has followed his studies during a period of not less than

four years; that during such four years he has attended at some university, college, or incorporated school of medicine in good standing, a graded collegiate course of four sessions of not less than six months each; that previous to graduation or obtaining a diploma he has passed satisfactory examinations in the subjects of the curriculum, and that the examinations have been conducted, and the diploma granted, by a medical school, college, university, or licensing body, which itself requires a four years' graded course, as above appointed; and in case he has such degree or diploma that he has passed such examination as to his knowledge and skill for the efficient practice of his profession as may be prescribed by the Council; that he is not less than twenty-one years of age; that he has paid to the Registrar of the Council a fee of $10.

Each and every person who may hereafter apply for registration under the New Brunswick Medical Act, 1881, and amending acts, and to have his name entered upon the register of the said Council, shall, whether or not he has a degree or diploma, pass a satisfactory examination, both written and oral, before examiners to be appointed by the said Council, in the following subjects: Anatomy; Chemistry; Physiology and Histology; Materia Medica, Pharmacy and Therapeutics; Practice of Medicine, including Clinical Medicine; Surgery, including Clinical Surgery, and Diseases of Eye and Ear; Obstetrics and Diseases of Women and Children; Medical Jurisprudence and Toxicology and Hygiene; Pathology, including Bacteriology.

The professional examinations will be held in St. John twice each year, commencing on the fourth Wednesday in June, and on the second Wednesday in December.

Registrar of the Council of Physicians and Surgeons, Dr. Stewart Skinner, St. John, New Brunswick.

Nova Scotia.—Every student must spend a period of at least four academic years in actual professional study subsequent to his having passed the preliminary or matriculation examination and being registered as a medical student; and the prescribed period of study shall include four collegiate sessions of at least eight months' duration, or an equivalent, each year.

All persons beginning the study of medicine after July 1, 1908, will be required to complete a course of at least five years, including five collegiate sessions of eight months' duration (or equivalent) each year.

Candidates for the license of this Board will be required, subsequent to their registration as medical students, to pass three examinations, to be known as the First, Second, and Third Professional Examinations.

These examinations will be held twice during the year. The Third or Final Professional will begin on the second Wednesday in April, and on the first Wednesday in September.

Until further notice, any candidate who produces to the Registrar satisfactory certificates of having passed in the subjects of the First and Second Professional Examinations at any medical college or university recognized by the Board, will be exempt from further examination in such subjects.

The First Professional Examination will embrace the following subjects, viz., Physics, Chemistry, Anatomy, Physiology, including Histology. The fee payable for admission to this examination shall be $20; for reentry in all subjects after rejection, $15; for reentry in one or more subjects after obtaining a pass in the others in virtue of Section 20, $5 for each subject.

The Second Professional Examination will include Pathology and Bacteriology, Materia Medica and Pharmacy. The fee payable for admission to this examination shall be $15; for reentry in both subjects after rejection, $10; for reentry in one subject after pass in the other, $5.

The Third Professional Examination shall embrace the following subjects: Medicine, including Therapeutics and Medical Anatomy; Clinical Medicine; Surgery, including Surgical Anatomy and Diseases and Injuries of the Eye, Ear, Throat; Clinical Surgery; Obstetrics and Diseases of Women and of New-born Children; Medical Jurisprudence and Hygiene.

All candidates will be subjected, in addition to the written and oral examinations, to practical clinical examinations in Medicine and Surgery which will include the Examination of Patients, Physical Diagnosis, the Use of the Microscope, Pathology of the Urine, Surgical Appliances, Bandages, Surface Markings, etc.

In case of failure, a candidate who obtains 60 per cent. in any subject or subjects, will, on reexamination, be exempted in such subject or subjects, but will be required to obtain 60 per cent. in each of the remaining subjects.

For candidates who have paid for the First and Second Professional Examinations, the fee payable for admission to the Final Examination shall be $35; for reentry in all subjects after rejection, $25; for reentry in one or more subjects after passing in the others, $5 for each subject.

Secretary and Registrar of the Medical Board, Dr. A. W. H. Lindsay, 241 Pleasant Street, Halifax, Nova Scotia.

Ontario.—Every legally qualified medical practitioner in this province is a member of the College of Physicians and Surgeons of Ontario, and must pass a satisfactory examination before the same.

The Council has power and authority to fix the terms upon which practitioners of medicine, duly qualified in other countries, may be admitted as members of the College of Physicians and Surgeons of Ontario, this being the only mode in which they can become legally entitled to practise their profession in this province.

Proper credentials of satisfactory preliminary education must be presented. Further, every student must have spent a period of five years in actual professional studies, the prescribed period of studies to include four winter sessions of eight months each. The fifth, or final year, to be devoted to clinical work.

Graduates in medicine from recognized colleges outside the Dominion of Canada, who desire to qualify themselves for registration, must pass the matriculation required by the Council; and must attend one or more full winter course of lectures in one of the Ontario medical schools and must complete fully the practical and clinical curriculum required by the Council after the fourth year, and shall pass before the examiners appointed by the Council all the examinations hereinafter prescribed, so as to complete fully the curriculum.

All applicants must also pass the professional examinations required. These examinations are divided into three parts: *Primary*, *Intermediate* and *Final*. The *Primary* examination includes: (*a*) Anatomy; (*b*) Physiology and Histology; (*c*)

Chemistry (Theoretical and Practical); and (*d*) Materia Medica and Pharmacy. The *Intermediate* examination includes: (*a*) Medical, Surgical, and Topographical Anatomy; (*b*) Principles and Practice of Medicine; (*c*) General Pathology and Bacteriology; (*d*) Surgery, other than operative; (*e*) Operative Surgery; (*f*) Midwifery, other than operative; (*g*) Operative Midwifery; (*h*) Medical Jurisprudence, including Toxicology and Mental Diseases; (*i*) Sanitary Science; (*j*) Diseases of Children; (*k*) Diseases of Women, and (*l*) Therapeutics. The *Final* examination includes; (*a*) Clinical Medicine; (*b*) Clinical Surgery; (*c*) Diseases of Women, and (*d*) Diseases of Children, Medical and Surgical. In these examinations 50 per cent. is required to pass, and 75 per cent. for honors. The Primary and Intermediate examinations shall be written and oral; the Final, oral and clinical.

The fees are: For matriculation, $20; Primary examination, $30; Intermediate and Final, including registration, $50. Candidates who have failed in any professional examination in more than one subject shall pay a fee of $20 for each subsequent examination; if only one subject, $10.

Examinations are held in May and September.

Registrar of the College of P. and S. of Ontario, Dr. John L. Bray, Toronto, Ontario.

Prince Edward Island.—Applicants must have passed a matriculation examination satisfactory to the Council. They must also prove attendance during four years at a university, college, or incorporated school of medicine in good standing, upon a graded collegiate course of four sessions of not less than eight months each.

No candidate shall be admitted to the professional examination unless at least fourteen days before such examination he shall have made a written application to the registrar, in a form prescribed by the Council, and shall have produced before the registrar all required certificates, and before such examination shall have paid to the registrar the required fee for such examination, also the fee for registration, which latter fee shall be refunded in the event of failure to pass the examination. All applications shall be submitted to the Council by the registrar, and shall be subject to its approval.

The examinations take place in the months of July and October in each year, at such time and place as the president shall appoint.

In order to pass, candidates must make 50 per cent. of the marks in each subject.

If 50 per cent. be made in all the subjects but one, he may present himself for examination in this subject alone, with or without additional fee, as the Council shall decide.

The fee for the professional examination is $15; and for registration $20.

Quebec.—Every person, possessing or who shall obtain a medical degree or diploma from any university, college, or medical school mentioned in article 3073 of the Revised Statutes of the Province of Quebec, shall be entitled to such license without examination, provided such diploma be obtained, only after, at least, four years of medical studies, from the date of admission to study, and provided his examinations have been passed in presence of the assessors, according to the requirements of the law. The Provincial Medical Board shall always oblige foreign candidates to undergo the professional examination.

No one shall be entitled to the license of the college on the mere presentation of a diploma, unless he has been previously admitted to the study of medicine in accordance with the provisions of the law, or unless he has passed, at least four years previously, an equivalent preliminary examination, before a college, a school, or a Board authorized by law in His Majesty's possessions, outside the Province of Quebec.

The duration of the medical studies fixed at four years, by this and the preceding article, shall be of five years, as soon as the law governing the College of Physicians and Surgeons, shall be modified so as to allow such extension, and such modification in the length of the curriculum shall then apply to any person admitted to the study of medicine after the sanction of such law.

Any person coming from a college or university recognized by the Board, in the British Colonies or in a foreign country, who desires to obtain the license of the college, must first pass the preliminary examination before the Examiners appointed by the Provincial Medical Board, or evidence to the Board, that an equivalent examination has already been passed. He shall moreover attend in an institution of this Province, such courses as may be necessary to complete the curriculum required by the Board, and then undergo the professional examination before the Provincial Medical Board. Such examination may, however, be passed immediately after the preliminary examination.

Every candidate for a license shall furnish proof that he is twenty-one years of age.

The examination for obtaining the license shall be divided into primary and final. The primary examination shall comprise the following subjects: Descriptive and Practical Anatomy, Normal Histology, Chemistry, Physiology, and even General Pathology, Materia Medica, Hygiene, Bacteriology, and Pathological Histology, should the universities so desire.

The final examination shall comprise: General Pathology, Morbid Histology and Anatomy, Hygiene, Bacteriology, Materia Medica, Pharmacology and General Therapeutics (students may, at the discretion of the universities, undergo the examination on the above subjects, at the time of their primary examination); Medicine and Surgery, Obstetrics, Diseases of Infancy, Gynecology, Nervous and Mental Diseases, Pediatrics, Operative and Minor Surgery, Medical Jurisprudence and Toxicology, Ophthalmology, Otology, and Rhinolaryngology.

Saskatchewan.—There shall be a college of physicians and surgeons for the Provinces of Saskatchewan, called "The College," and the members of the said college shall be a body corporate under the name of "The College of Physicians and Surgeons of the Province of Saskatchewan."

Only those persons whose names are inscribed in the register and who are not under suspension by the council shall be deemed to be qualified and licensed to practise medicine, surgery, and midwifery in the province.

The council shall admit upon the register:

(1) Every person registered as a member of The College of Physicians and Surgeons of the Northwest Territories at the time of the coming into force of this Act and whose fees at such time are fully paid to the said college;

(2) Any person who shall produce a diploma of qualification from any college or school of medicine and surgery recognized by the college which exacts for such diploma attendance upon a course of lectures extending over a period of four years

and embracing at least six months of each year, evidence of which shall be produced if required, and who shall furnish to the council satisfactory evidence of identification and pass before the members thereof or examiners appointed by them for the purpose of a satisfactory examination appertaining to the profession of medicine and his fitness and capacity to practise medicine, surgery and midwifery and shall pay to the registrar of the college the sum of fifty dollars toward defraying the expenses of the examination board and in addition the fee for registration. The fee for registration is $50.

Cuba.

The graduate of a foreign school must present his diploma for registration to the medical department of the University of Havana. If this diploma is approved the candidate will be admitted to examination upon payment of a fee of $35. The applicant must undergo a theoretical examination, in which the professors constituting the board may question him, *ad libitum*, upon all matters that are subjects of study in the University course of medicine. The following day the examination will consist of two parts: The first part will consist of the clinical examination of a patient, in whose case the applicant must make a diagnosis, in the presence of the board, as well as a prognosis and plan of treatment. In the second part he must describe the method of performing an operation, selected by chance from the "*Cuestionario de Medicina Operatoria*" used in the examination for the degree of licenciate in medicine, in accordance with existing rules. The last part of the examination will take place on the following day and will consist of the writing of a thesis upon a subject selected by lot from ten proposed by the professors. For the preparation of this thesis, he will be allowed five hours, during which he must not communicate with any one, the board taking such measures as it may deem necessary to secure this end. After writing this thesis, the applicant must read it before the board, three members of which, designated by the president, will question him in regard thereto. When this last part of the examination shall have ended, the board will declare the candidate either "Admitted" or "Rejected."

The examinations, both oral and written, must be in the Spanish language, or through an interpreter. In the latter case the interpreter will be entitled to a fee of $15. The department in charge of public instruction will issue to such person as may pass this examination a degree, in the same form as that issued to graduates of the University of Havana, but stating therein that it has been obtained by examination, on presentation of a foreign diploma. The degree so issued shall have the same legal status as those issued to the graduates of the University of Havana.

Secretary of the Faculty of Medicine and Pharmacy in the University of Havana, Dr. Hernando, Havana, Cuba.

Hawaii.—The applicant must have a diploma from a reputable college whose curriculum embraces not less than four years of study; references of character, etc., and application is made to the Board of Health accompanied by a fee of $10. Then the applicant is referred to the Board of Medical Examiners, composed of three physicians, and is examined by them upon the following subjects: Obstetrics and Diseases of Women; Anatomy, Surgery and Histology; Medicine and Materia Medica; also Pathology. The examinations are written, and occasionally there is an oral examination added to it.

There is no reciprocity.

Chairman of the Board of Medical Examiners, Dr. G. Herbert, Alakea street, Honolulu, Hawaii.

Philippine Islands.

The Board issues a certificate of registration to any person who furnishes satisfactory proof of having received a diploma as Doctor of Medicine from a chartered medical school or college in good standing, or a degree as licentiate of medicine and surgery from the St. Thomas University in the city of Manila, or who has received permission to appear before a Medical Board for examination with a view of obtaining a license to practise medicine, and who passes a successful examination before the Board in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Pathology and Bacteriology, Hygiene, Surgery, Practice of Medicine, Obstetrics, Diseases of Women and Children, Diseases of the Nervous System, Diseases of the Eye and Ear, and Medical Jurisprudence. Examinations may be written or oral, or both.

Examinations are held on the second Tuesday of January, April, July, and October.

Examination fee, $15. In case of failure, the applicant is not permitted again to present himself for examination until the period of six months has elapsed.

Reciprocity, none.

Secretary of the Board of Medical Examiners, Dr. W. F. Dudley, St. Paul's Hospital, Manila, Philippine Islands.

Porto Rico.

Each applicant must furnish proof that he "is a graduate of a medical school or institution in good standing and legally organized, and duly approved by said board of examiners. If the diploma is found genuine, which fact the said board of examiners shall determine, and if the person presenting and claiming said diploma be the person to whom the same was originally granted, at a time and place designated by said board, or at a regular meeting of said board, said applicant shall be required to take an examination embracing those general subjects and topics, a knowledge of which is commonly and generally required of candidates for the degree of doctor of medicine by reputable medical colleges in the United States." "The standard for examination is that for the New York State regents, and a study of their reports will give an idea of the nature of the examination here" (Secretary of Superior Board of Health, February 1, 1904). "Applicants who possess diplomas from reputable medical colleges, and who have been licensed by State boards, may, upon the payment of a fee of twenty-five dollars ($25), be licensed by the board of examiners without examination if the board of examiners so decides." The fee for the examination is $10; and $5 for a certificate if issued. In case of failure to pass the examination, the applicant shall be entitled to a second examination within six months without further fee.

Examinations are held on the first Tuesday of April and October at San Juan.

Secretary of the Board of Medical Examiners, Dr. Quevedo Baez, San Juan, Porto Rico.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE THRESHOLD OF PRACTICE.

To the graduate in medicine the morning after the Commencement exercises is usually a time of serious reflection. The four years of preparation for his life work are over, he has acquired more or less of a theoretical knowledge of medicine and has his diploma in proof thereof, and now the problem is how to turn this acquisition to account. He is a physician, indeed, but the title is an empty one. He is not yet prepared to treat disease and must, if in any way possible, supplement and crystallize his theoretical knowledge by practical training in the wards of a hospital before assuming the grave responsibility of ministering to the sick. But even after the hospital experience, however fit he may be to practise, the State demands that he demonstrate his fitness before she will give him the legal right to exercise his calling. Unfortunately, there is no Federal license law, and the provisions in the different States are not uniform, so one who would settle in any locality must first acquaint himself with the medical law and the conditions for examination in that particular State. After the examination has been satisfactorily passed, however, and the license secured, the beginner's troubles may not yet be over—in many cases they may be said to have only begun. It is one thing to have the ability and the right to practise medicine, and another thing entirely to get the opportunity to do so. To the man with influential friends or with means sufficient to provide for his support during the years of waiting, the outlook is not disquieting: he is either plunged at once into the active practice of his profession under the guidance of an experienced elder, or he waits with what patience he can command until a clientele is built up, employing his abundant leisure in the meantime to continue his studies and fit himself more fully for the responsibilities that are sure to come. To the young graduate without means or influence, however, the problem of subsistence becomes at once more serious.

In the present number of the MEDICAL RECORD will be found a series of articles, courteously written at the request of the editor by men of experience and practical knowledge of the topics of which they treat, designed to guide the young physician in his choice of a career and to point out the opportunities there are of making a living outside of regular practice. These may be roughly divided into three classes—those which offer a permanent career outside of civil practice, such as the public services; those which offer only a temporary assistance, such as most of the municipal appointments; and those which offer a more or less permanent supplement to the income from private practice, such as appointments as insurance examiners, railway surgeons, surgeons to the police and fire departments in the larger cities, etc.

It will surprise some of our readers, no doubt, to learn how many ways there are of increasing one's income in a method not inconsistent with professional dignity, and we hope many will be helped by the information here given to bridge over the critical period of beginning professional life. A word of caution is, however, necessary. The man who wants to succeed in general practice must look on these various helps as merely temporary makeshifts, and form the resolution, and adhere to it, to give them up as soon as his practice will support him. If, seduced by the security which a salary, however small, gives him, he follows the extra-professional, or rather extra-practical, calling too long, he will in the end become dependent upon it, and the demands it makes upon his time and strength will seriously handicap him in the race for success in practice.

It is different, of course, with the public services and some other positions which carry with them a living salary from the beginning. These offer the young physician a career outside of private practice, and should be taken up only as a life work. The man who enters the Army, the Navy, or the Public Health and Marine-Hospital Service with the idea of remaining there only a few years and then resigning to enter upon private practice, makes a fatal mistake. The training he receives in these services is not well adapted to fit him for civil practice, and his salary in the early years is hardly more than enough for daily needs, so that it will be practically impossible to save a sum sufficient for support during the waiting period.

But there are other things of interest to the medical graduate besides the choice of a career and the question of immediate support. These weighty matters being settled, he has still to remember that he has been admitted to a learned profession, one in which the sum of knowledge is immense and is increasing with amazing rapidity. If he would keep up with his fellows his life must be one of constant and unremitting study. If he neglects this it will not be for lack of opportunity. The output of medical books, new books and new editions, is very large; in every issue of the MEDICAL RECORD there is a page, and sometimes two, containing notes or more extended reviews of six or eight medical books—in the year 1908 no less than 339 books were reviewed. Any one reading this page each week, or the list of new books which is published from time to time, can keep himself well informed regarding the permanent literature of his profession. But, important as it is to collect a good working library of books of reference, it is even more important for a physician worthy of the

name, who accounts himself a member of a learned profession and who would give himself and his patients the benefit of all that is newest and best in his science and art, to keep abreast of the rapid progress therein by reading the medical journals. There are many excellent medical journals in this country from which the young physician can make his choice. If he can take but one journal it should be one of the larger weeklies, but he will do well, if he can, to read also one of the important monthly periodicals and to subscribe to his local journal which will keep him informed of what is going on in his own neighborhood. To these he may add, if he inclines to some particular branch of medicine, one of the journals devoted to a single specialty.

The young practitioner, whose means will permit and who can afford the time, will find much profit in a visit to the teaching centers of Europe, where he will learn not so much new things as new or unfamiliar ways of doing the old things. They may be better ways than those he has learned at home, or they may be not so good, but it will profit him to observe them, it will broaden his outlook and give him a better understanding of how to apply the knowledge he already possesses. Many practical hints to one contemplating such a tour of observation and study will be found in the article in this issue on Post-Graduate Study in Europe. We have not included an account of the post-graduate schools in this country, for they are not so much for the use of the recent graduate as for one who has been practising for some years away from the medical centers and feels the need of brushing up his knowledge and familiarizing himself with the most recent methods of diagnosis and treatment. For one who contemplates devoting himself more exclusively to some particular branch, or even becoming a pure specialist, a course in a post-graduate school and a term of service in a special clinic or hospital will be indispensable. But this also is for a later period. The would-be specialist should never think of becoming one until he has had several years of general practice; he will be a narrow man if he does and will be a failure as a specialist. When the time comes, however, that one's general medical knowledge and experience are sufficient to fit him to become a specialist in any one branch, he need not go abroad to prepare himself for the task. The post-graduate schools in any one of a dozen of the large cities in this country will give him all that he needs in the way of clinical material and of thorough training in diagnostic and therapeutic methods.

The physician is, like men in every other calling, a member of the body politic; he has rights as a medical practitioner which other members of the community are bound to respect and he has duties to his fellow-citizens and his patients which he is under obligation to fulfil. Every citizen is supposed to know what the law demands of him in his relations with his fellows, but there are in addition certain legal rights and obligations peculiar to the physician which should be thoroughly understood by the young practitioner who would avoid the annoyance and expense of a possible malpractice suit, or the chagrin of being unable to establish his claim for professional services rendered those able but unwilling to pay. All that is necessary for him to know in this regard may be learned from the very practical article on the Legal Rights and Obligations of the Medical Practitioner in this issue.

Finally, if we may be permitted a word of advice and of warning to our new colleagues in this, which we are wont to call, with seeming conceit but really some truth, the noblest of professions, we would say that upon you depends whether it shall be such or not. The practice of medicine is a means of livelihood, but also a charitable profession. The physician's duty is to prevent disease, without a fee, as much as it is to cure disease, with or without a fee, as the case may be. He must be a public man, a man of prominence in his community, as well as the confidant of his patients and the alleviator of suffering. If an epidemic of disease breaks out in his community, he must search for its cause and proclaim the cause, when it is found, no matter what interests he may antagonize in so doing. Then he must be ever ready to respond to the call of suffering, even if this call comes from one whom he has relieved before and who has failed to recompense him. On the other hand, he must insist upon his just dues; his bills for service should be rendered promptly, and if they are not paid and he is sure that the non-payment is not because of pecuniary inability, he must not hesitate to invoke the law if necessary. In all this nice adjustment between his duty to the public, to the suffering, and to himself and his family, there will be a call for infinite tact, and tact—not chicanery—is the secret of success in medical practice. One must be all things to all men, but honest and honorable withal.

THE MEDICAL SCHOOL AND THE STUDENT.

The well-considered addresses delivered at the recent meeting of the Association of American Medical Colleges in this city emphasized what most of us have been cognizant of for some time, namely, that whatever merits the present methods of instruction may have in comparison with those used twenty years ago, there is still much to be desired in the matter of adjusting the curriculum to the student's needs. To be sure a great stride has been taken in equalizing the requirements for preliminary education so that young men taking up the study of medicine shall be equipped equally to a certain extent, and hence shall have the foundations for future acquisition of knowledge laid deep and wide. So far so good. There is, however, no good reason why the medical school should undertake to teach its students such fundamentals as general chemistry, physics, and biology. These subjects do not belong in the purely medical curriculum. They belong to the advanced high school and university courses, which are, as a rule, better able to supply the essentials of material and competent instructors than the unaffiliated medical school can ever hope to be.

If our students are not educated up to the standards that obtain in the Old World, and the implied

consensus of opinion of the speakers at this meeting seemed to be that they are not, is it not because we are crowding into a few short months facts and theories which cannot be rapidly assimilated? The continental term of study is five, six, or seven years. How can America teach in four years what can scarcely be taught elsewhere in six or seven? Counting out the Christmas and Spring vacations, and single holidays, the school year consists of only about seven and one-half months; hence at graduation a student has had about thirty months of actual instruction. As a result, any one lesson assigned must consist of many pages of a textbook to be practically memorized, besides such notes as the instructor may have dictated or given in lecture form from time to time. This means for the average student three solid hours of preparation; and if he is unfortunate enough to have two or more such recitations falling on the same day he comes into the classroom his head crammed with a mass of undigested facts, his memory rebelling under the strain, and his attention distracted by its burden of over-application.

To be of excellence and practical usefulness the course should be especially strong on diagnosis and treatment, particularly treatment by other means than surgery. The only place one can really acquire a working knowledge of surgery is during an interneship in the wards and operating rooms of a large general hospital. If it could be so arranged it is during such incumbency that lectures in surgery would be of the most value, when the subject matter is fresh and illustrative material close at hand. Special subjects, such as diseases of the eye or of the nose, throat, and ear, should be taught almost exclusively from the standpoint of diagnosis. No hard-worked general practitioner can do justice to the treatment of these diseases; all that he can do in most cases is to make a diagnosis of the actual condition present in order to refer the patient to a physician who makes these things his special study. If the future practitioner's work is to be in the country he must prepare himself in the special branches by post-graduate study.

Instruction in therapeutics is in too many schools inadequate and incomplete. Few students when they are graduated know how to write out a diet for hyperchlorhydria or intestinal putrefaction, or how to use hydrotherapy, or electricity, or massage, including the so-called osteopathic movements. Patients are going to demand these things, and consequently are going to drift away from their medical advisers, who ought to know how to administer such treatment, to others who may know how, but do not know when or how much. Even the materia medica is often slurred over, or the student's time is wasted in learning how to recognize the crude drug, as though he was to gather his own simples, or how to extract the active principles or make the tinctures or fluid extracts, as though he was to be his own manufacturing chemist. The curriculum of the medical school is too crowded. The term of study should be lengthened or only the essentials should be taught, and taught practically, in the four short years of the medical course.

MEDICAL PARTNERSHIPS.

A Massachusetts court was recently called upon to decide upon the validity of a partnership contract between two physicians. A young man was engaged as the assistant of an established practitioner upon the understanding that he should receive one-half of the money collected for work done by himself, and further that he should not practise independently in the same town during the lifetime of the older physician in case the partnership was dissolved for any cause. Under the terms of the covenant either party could terminate the agreement on giving ten days' notice to the other party. After the partnership had existed two or three years, one of the associates, which one it does not appear, terminated the agreement and the younger man opened an office in the same town and set up for himself. Thereupon the older man brought suit to restrain his quondam partner from practising there, and the court decided in his favor. The decision seems to have been a just one, but the case illustrates one of the disadvantages of a medical partnership. If the younger man had given honest service and had been discharged because the senior partner found he was becoming too popular with their patients, it was hard for him to lose everything but the half fees he had earned and be forced to start anew in another town among strangers. On the other hand, if he had been engaged in undermining his partner's hold on the patients, who were originally the older man's, and when he felt himself strong enough in their confidence had suddenly terminated the agreement in order to rob his former partner of a part of his clientèle, it was manifestly unfair and he deserved his sentence of banishment.

A partnership between two men of honor is often mutually advantageous. The senior member, having a large practice which taxes his possibly failing strength, and in any case of the burden of which he wishes to be in a manner relieved, gladly avails himself of the assistance of a young and active man, fresh from the school and the hospital and skilled in all the newer laboratory methods. He turns over to the junior partner the care of the minor cases and the work of watching by the bedside in the serious cases, securing thereby for himself more sleep and a clearer mind for the solution of the difficult problems of practice; and the younger man can also make the urinary and blood examinations which may be necessary. The junior partner enjoys the advantages of immediate occupation, of an introduction to a large clientèle which he otherwise would have had to wait and work many years to obtain, and, last but by no means least, he will have the opportunity to profit by the wisdom of the older practitioner and to supplement his theoretical training by practical instruction at the bedside under the guidance of a man of wide experience and mature judgment.

In any partnership there are, of course, some disagreeable features; the patients naturally prefer the older man and some of them will resent being committed to the ministrations of the junior and may not hesitate to make their displeasure manifest. But with tact and conscientious attention to duty, the

young man will gradually win the confidence of the patients, and, even without any conscious effort on his part, they may come to prefer him to his partner. This is the disagreeable feature for the senior, but it is only what he must expect, and if he is a man with a saving sense of humor he will regard the situation with equanimity and without jealousy. When, in the course of time, the partnership is amicably terminated, the younger man will find himself with an established practice and with a true friend as a colleague to whom he can turn for advice or whom he can call in formal consultation; the older man, still with a clientèle of devoted patients sufficient in number to keep him as busy as he wishes to be, is content in the knowledge that he has a grateful friend in the profession to whom he can turn for assistance in time of disability or when he takes a needed vacation. This is the ideal medical partnership, the successor of the former institution of instructor and student in the olden times when colleges were few and the neophyte received his entire training, theoretical and practical, in the office of the family physician. Such human partnerships still exist, and that there are others marred by wrangling and mutual jealousies is no more an argument against medical cooperation than are the annals of the divorce courts on argument against marriage.

THE ATTITUDE OF THE PUBLIC TOWARD POST MORTEM EXAMINATIONS.

"Experience is fallacious and judgment difficult." This is the saying of Hippocrates which Osler has chosen as the epigraph for his book on the "Practice of Medicine," and in spite of the many centuries which have passed since those words were first pronounced, the truth of them, so far as medical experience and judgment are concerned, remains as absolute as it was then. Medical art and science are both very imperfect branches of human activity and knowledge, the immense addition to them obtained by the researches of the last few decades simply serving to accentuate the facts concerning the human organism which are hidden from us at present and promise to remain thus for a long time to come. The progress of the last few decades can be traced in the main to the introduction of one important method of study, that of animal experimentation in the laboratory. The thoughtless agitation carried on by the antivivisectionists in favor of restrictions upon animal experimentation seems almost criminal when the amount of knowledge gained by such experimentation and the results of the application of such knowledge to human therapy are considered. Animal experimentation has become so valuable an asset in the study of pathological conditions because it has brought with it the possibility of studying diseases of function and the observation of disorders intelligently and purposefully produced in the living animal and so aiding in the study of disease as it occurs in the human or other organism independent of any wilful and purposeful interference. Just as careful dissection of the human body soon served to overthrow the imaginary ideas of its structure founded upon preconceived notions, so the introduction of animal experimentation has dispelled many idle and unfounded explanations of the phenomena of health and disease derived from observation uncontrolled by experiment.

There has, however, always existed another method of adding to the store of medical knowledge, a method which is even more productive of immediate results than animal experimentation, and that is the careful examination of the bodies of persons dying of disease. A carefully performed autopsy gives the best possible explanation for the clinical phenomena observed during the life of the patient, points out the limitations of the means of observation at our command and, in general, serves to facilitate correct diagnoses in similar or other conditions, occurring in the future practice of the physician witnessing the autopsy. There is no need to accentuate at this late date that correct diagnosis leads to correct treatment, and the introduction of new therapeutic methods founded upon the results of animal experimentation has made it possible to have such treatment effectual in curing disease in a much greater proportion of cases than heretofore.

These facts have long been recognized in Germany among both medical men and the lay public, and the autopsies performed in that country probably exceed in number those of any other land; there is no doubt, too, that the great advances in medical art and science which we owe to German physicians are largely due to their greater opportunities of acquaintance with the anatomical changes produced by disease. The trouble in our land does not lie directly with the medical profession, but is due to the lack of an intelligent public opinion on the question. Our newspapers very frequently print notices of this or that man who has "willed his body to science" as if such bequest was of any great value so far as progress of medical knowledge is concerned. It cannot be said that our colleges lack dissection material, yet this is about the only use to which a body of one whose disease has not been carefully watched can be put. On the other hand, the great majority of the bodies of patients dying in the hospitals of this city, for instance, are interred without any post-mortem examination, just because the public has not yet been taught to understand the great importance of such examinations for the training of the men who take care of the health of the public, as well as for the progress of medical knowledge in general.

The medical press must lead in the proper education of the public in this respect and it is to be hoped that agitation in medical publications will call forth expressions of opinion from writers in the general press favoring the granting of autopsies in cases where the attending physicians consider it profitable and important to have them. There are already institutions in America that reserve the right of having the bodies of persons dying while under their care examined after death and the introduction of such a provision among other hospitals may be quickly realized if public opinion is properly educated. This matter is certainly as important as any of the questions which the American Medical Association has decided to bring before the laity,

and it may be hoped that some measures will be taken at the next meeting of the Association to have the point of view held by the profession explained to the general public. In the meanwhile it should be almost a matter of routine in our hospitals to insist upon post-mortem examination of persons who have died of some obscure disease which only such examination could clear up, or in cases of more usual pathological conditions which have run an unusual course and have not responded properly to treatment. There is no doubt that such examinations will greatly enhance the training value of a hospital course for the internes and make of them better practitioners of medicine as well as stimulate those who are naturally fit for scientific research to give up time and labor to this field of medical activity. The public must be taught to understand the fact that the granting of an autopsy is not a favor to the physician asking for it, but a mere legal acquiescence in what is his moral privilege to demand because of the care and time he has bestowed upon the patient. Mere curiosity is not the feeling that leads to such request on the part of the busy cosmopolitan physician; it is the desire to improve his knowledge of medicine so that the next man may have a better chance of being delivered from his affliction, a desire in the realization of which all right-thinking people ought to assist as far as it is possible for them to do so.

Medicine of the Future.

It is a curious fact and one that is often commented upon that the greatest efforts of the medical profession, the members of which are dependent for their living upon the treatment of disease, are directed toward reducing the number of the sick; the profession of medicine, so far as it is a profession of healers, is constantly and strenuously engaged in digging its own grave. In concluding a chatty and interesting little book,* one that is filled with practical therapeutic hints and random notes on all sorts of medical topics, W. J. Tyson, noting this strange phenomena, attempts a forecast of what the result will be of this trend of medical healing and practice. The teaching of hygiene and preventive medicine will, he thinks, increase more and more and become part of the regular curriculum of the primary schools. When, as a result of this, a knowledge of the general principles of physiology and of the laws of health is the common property of all men and women, "medicine will no longer be looked upon as the art of curing disease, but as a science of preventing such of them as cannot be altogether abolished." As a direct consequence of this, he believes, if men are going to gain a livelihood by practising the medical profession, fewer men must be admitted to its ranks, and these highly qualified; moreover many of these will be supported by the State in return for the work they do in preventing the causes of disease. Doubtless he is right in believing that many diseases will be largely prevented, if not entirely abolished, these being in great part the infectious diseases; but there will still remain a multitude of ills, diseases of the vascular, nervous, and digestive systems, brought about by individual habits and modes of living which will never be wholly corrected so long as civilization remains what it is. Physicians are themselves among the greatest sufferers from these ills, and if they, the teachers of hygiene and preventive medicine, do not escape, there is little hope that others will be more fortunate. Sickness and death will never be abolished; some diseases may become extinct, but others will take their place and mankind must pass yet through many centuries of evolution before the profession of healing will be of the past.

*Notes and Thoughts from Practice, by W. J. Tyson, M.D., F.R.C.P., F.R.C.S. John Bale, Sons & Danielsson, London, 1909.

News of the Week.

An Examination for Medical Interne, Government Hospital for the Insane.—The United States Civil Service Commission announces an examination on June 16, 1909, at the places mentioned in the list to be found elsewhere in this issue to secure eligibles from which to make certification to fill at least two vacancies in the position of medical interne (male), Government Hospital for the Insane, Washington, D. C., at $600 per annum each, with maintenance, and vacancies requiring similar qualifications as they may occur in that hospital. From the grade of medical interne the hospital makes promotions to the next higher position in the medical staff as vacancies occur. As considerable difficulty has been experienced in filling vacancies in the position of medical interne in the hospital service during the past several years owing to the limited number of eligibles available, qualified persons are urged to enter this examination. Applications will be accepted only from persons who have been graduated from reputable medical colleges not more than two years prior to the date of the examination. Both men and women will be admitted to this examination. Applicants must be unmarried. Age limit, 20 years or over on the date of the examination. Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place in the list above mentioned for application form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington.

Council on Medical Education.—The fifth annual conference of the Council on Medical Education of the American Medical Association was held at the Auditorium Hotel, Chicago, April 5, with the Chairman, Dr. Arthur Dean Bevan, presiding. Reports were presented by the chairmen of the ten sub-committees on medical curriculum. The reports recommended a curriculum which aggregated 4,400 hours. On the day preceding the conference a comparison of these reports was made, duplicates of courses eliminated, and the total hours for each section reduced as follows:

Subject.	*Hours.*
1. Anatomy, including histology and embryology	700
2. Physiology and physiological chemistry, including 80 hours of organic chemistry	530
3. Pathology and bacteriology	500
4. Pharmacology, toxicology, and therapeutics	240
5. Medicine, including pediatrics and nervous diseases	800
6. Surgery, general and special	650
7. Obstetrics, 180 hours, and gynecology, 60 hours	240

8. Diseases of the eye, ear, nose, and throat..	140
9. Dermatology and syphilis.....	90
10. Hygiene, medical economics, and medical jurisprudence	120
Total	4,010

These figures represent the maximum requirement of a medical curriculum covering four years of thirty two weeks each of actual work.

University of Pennsylvania Home-coming.—The week of April 12 was devoted by the Medical Department of the University of Pennsylvania to a series of meetings and demonstrations illustrative of the progress being made in the field of medical activity. The exercises were opened on April 12 by a gathering at the Henry Phipps Institute for the Study, Prevention and Treatment of Tuberculosis, where a number of addresses were made on the subject of tuberculosis. On April 13 clinics were held by various members of the Medical Faculty and teaching corps, and in the evening Army and Navy Night was celebrated by a smoker given by the Philadelphia Alumni of the Medical Department in honor of members of the medical corps of the Army and Navy. On the evening of April 14 a dinner was held, and addresses were made by Provost Harrison, U. S. Attorney-General Wickersham, Dr. James Tyson, Dr. A. E. Taylor, and Dr. S. Weir Mitchell. On April 15 the new clinical laboratories were formally dedicated. On April 16 an address was delivered by Dr. A. E. Taylor on "The Relation of the Stomach and the Intestines to the Work of Digestion," and later a reception was held in honor of Dr. Taylor and other visiting alumni.

Philadelphia Medical Club.—A reception was held on April 16 in honor of Dr. Joseph S. Neff, Director of Public Health and Charities of the City of Philadelphia. In an address Dr. Neff spoke of the importance of educating the public in hygienic and sanitary matters. He pointed out the advances made by preventive medicine and the promise for the future from this source. He emphasized the necessity of diminishing infant mortality, and he dwelt upon the necessity of securing accurate vital statistics. He appealed for the coöperation of physicians in the maintenance of accurate statistical data in his department, in the strict preservation of quarantine, and, in particular, in rooting out malpractitioners.

The New York Milk Committee.—This committee, which is a part of the Association for Improving the Condition of the Poor, met at the Bar Association on April 11, to consider means to insure the production and distribution of pure milk throughout the State and city. Mr. Stephen G. Williams is the president of the committee, and Mr. W. C. Phillips is secretary. It was decided to ask for the organization of a State milk committee to safeguard the quality of the milk, this committee to be composed of city milk dealers, up-State farmers and dairymen, consumers, lawyers, physicians, and social workers. It was also decided to continue the committee's present milk depots, and to publish frequent bulletins on matters pertaining to milk. The Committee on Laws and Legislation of the Board of Aldermen is considering an ordinance providing that no milk or cream shall be sold at retail in the city unless it comes from herds certified to be free from tuberculosis. Milk and cream must also be certified by the Department of Health as not containing more than 500,000 bacteria to the cubic centimeter, all milk or cream which is not thus certified to be pasteurized under the supervision of the Health Department.

"The Military Surgeon" Changes Editors.—With the April issue of the *Military Surgeon*, the monthly journal of the Association of Military Surgeons of the United States, Dr. James Evelyn Pilcher relinquishes the editorial chair which he has for many years so adequately filled. His retirement will be a loss to the *Military Surgeon* and to medical journalism at large. He will be succeeded in the offices of secretary and editor by Major Charles Lynch, U. S. A. All communications to the Association or to the *Military Surgeon* should be addressed to Major Lynch at Washington, D. C.

Visiting Nurses.—The Department of Health of New York has again taken up the work of saving the lives of the city's babies by means of the instruction of mothers by a corps of visiting nurses. One hundred and forty-one nurses began the work on April 16, under the supervision of Dr. S. Josephine Baker. The visiting and instruction will be carried on along the lines which proved so successful last summer, and as the work has been begun two months earlier this year than last, it is hoped that better results will be obtained.

The Quarantine Commission.—A new bill to abolish the office of Quarantine Commissioners of New York, and to turn the work entirely into the hands of Dr. Alvah H. Doty, Health Officer of the Port, has been introduced into the State Senate. At present all but one of the Quarantine Commissioners are out of office, either through death or other cause. This legislation has been recommended by the Governor for two years past.

Conviction for Selling Cocaine.—A druggist of Grand street, New York, was found guilty in the Court of General Sessions of selling cocaine, and was sentenced on April 13 to eleven months and twenty-nine days in the penitentiary, and to pay a fine of $500.

Street Car Accidents.—During March, 1909, twenty persons were killed on the railroads of New York City, and 2,434 were injured. The figures for March, 1908, as given in the report of the Public Service Commission, were forty-four killed and 2,631 injured.

State Reservation at Saratoga Springs.—The Senate, on April 13, passed the Bracket bill providing for the appointment of a commission to purchase the springs at Saratoga for a State reservation. The bill carries an appropriation of $600,000 for the purpose.

Dr. Lucy Waite has resigned her position as head surgeon in the Mary Thompson Hospital of Chicago for Women and Children and has retired from practice.

Dr. Julius Grinker of Chicago was recently appointed a member of the consulting staff of the Cook County Hospital.

Municipal Tuberculosis Sanatorium of Chicago.—Drs. William A. Evans and Theodore B. Sachs have been appointed Directors of this proposed institution.

New Hospital Heads.—Governor Hughes of New York has sent to the Senate the following nominations of managers of State institutions: Dr. Whitman V. White, New York, Manhattan State

Hospital; Dr. Maximilian Toch, New York, Central Islip State Hospital; Dr. John T. Rafferty, Brooklyn, Kings County State Hospital.

The New York State Branch of the Red Cross held a conference in New York from April 13 to 16. Mrs. W. K. Draper, the secretary of the branch, announced that in New York City alone more than $15,000 had been raised by the sale of the Christmas stamps, all of which is being used in the fight against tuberculosis. A strong appeal was made for more nurses to take up the Red Cross work.

Rockefeller Institute Hospital.—Miss Nancy P. Ellicott, a graduate of the Johns Hopkins Training School for Nurses, and formerly superintendent of the Church Home and Infirmary of Baltimore, has been appointed to a similar position in the new hospital of the Rockefeller Institute. The appointment of Dr. Rufus I. Cole, associate in medicine in the Johns Hopkins Medical School, as medical director of the hospital has already been announced.

Hospital Changes Name.—The Mercy Hospital is the new name given to the old City Hospital of Baltimore, Md., which has been for many years skillfully and successfully managed by the Sisters of Mercy. The old name was misleading as implying that the institution was a municipal one, which is not the case, out of the 250 beds only about ninety being maintained by the city as free beds for public dependents. The hospital is shortly to be enlarged at a cost of about $300,000, and will then have accommodations for some 550 patients. It is also rumored that the College of Physicians and Surgeons of Baltimore, which is connected with the Mercy Hospital is to be enlarged by a very substantial addition, affording both laboratory and clinical rooms, the lack of which has long been felt.

Vacancy at Gouverneur Hospital.—It is announced that a vacancy exists at present in the position of Attending Physician to Out-Patients at Gouverneur Hospital, with which is associated the position of Assistant Attending Physician to the Hospital proper. Applications for appointment to this position may be addressed to Dr. John H. Huddleston, secretary of the Medical Board of Gouverneur Hospital, Gouverneur and Front Streets, New York.

City Hospital Staff House.—Janeway Hall, the recently completed home for the staff of the City Hospital on Blackwell's Island, New York, was opened on April 15, with appropriate ceremonies. Among the speakers were Commissioner Hebbard, Archdeacon Nelson, Dr. John A. Fordyce, President of the Medical Board of the Hospital, and Dr. William Rhinelander Stewart. The new building has been fittingly named for Dr. Edward G. Janeway, whose connection with the hospital dates back many years. To the right of the main entrance of the house has been set a bronze tablet bearing an inscription setting forth the distinguished service rendered by Dr. Janeway. The house will accommodate twenty-five physicians, is four stories high, and has cost about $75,000. Its opening will make it possible to increase the capacity of the City Hospital by about one hundred beds, through the releasing for ward purposes of space formerly needed for housing the staff.

Illinois Psychopathic Hospital.—On April 16, the Public Charity Service of Illinois opened its fourth new psychopathic hospital at Anna, when the new hospital building, built in connection with the Illinois Southern Hospital for the Insane, was formally dedicated. The appropriation of $25,000 for a similar institution at Elgin was insufficient, and an additional appropriation of $15,000 is asked of the present General Assembly to complete a modern fireproof psychopathic hospital at Elgin.

Colonies for Epileptics.—The Illinois State Board of Charities proposes three colonies for epileptics if the Legislature will grant the necessary appropriations. The proposition for Illinois is to attempt to provide for all epileptics in the State, those in asylums for the insane and feeble-minded, those in county almshouses, and those who are cared for in private homes. It is hoped and thought that the Legislature will take favorable action and grant the request of the Board in this important matter.

Caroline Rest.—The new home for needy mothers and children at Hartsdale, N. Y., to be known as Caroline Rest, will be opened on May 5. The home, which has been built as a memorial to Mrs. Caroline Schrader, will be under the management and control of the New York Association for Improving the Condition of the Poor. It is intended to be, not only a sanatorium for sick mothers and infants, but a school where, under most favorable conditions, mothers will receive instruction in the duties of motherhood, personal hygiene, care of children, and conduct of homes.

Gifts to Charities.—The Hospital for the Ruptured and Crippled, of New York, will receive one-third of the estate of the late Miss Jane Pindell, who died recently.

The Children's Free Hospital of Cedar Rapids, Ia., has received a gift of $4,000 from Mr. Daniel W. Norris to be used in erecting a detention ward and gymnasium.

Announcement has been made that Mrs. G. F. W. Duff, of New York, will build and equip a children's hospital in Augusta, Ga., as a memorial to her husband.

By the will of the late Charles E. Ellis, of Philadelphia, a sum believed to be in the neighborhood of $3,000,000 is devised as an endowment fund for a college for the education of fatherless white girls. Work upon a building is to be begun as soon as the sum of $100,000 shall have accrued in interest. In addition, the sum of $10,000 is bequeathed to the Presbyterian Hospital for the endowment of a private room. Also the sum of $500 annually in two equal payments is bequeathed to the Sanitarium for children at Red Bank.

By the will of the late Frank W. Hoyt, of Cheltenham Township, Pa., his executors are directed to endow a bed in the Samaritan Hospital, Philadelphia, to be known as the Mary Edith Hoyt Bed. Contingent bequests are made also as follows: Samaritan Hospital, Philadelphia, $10,000; Children's Hospital, Philadelphia, $5,000; Homeopathic Hospital, Philadelphia, $5,000; Free Hospital for Poor Consumptives, Philadelphia, $5,000.

Death of a Centenarian.—Mrs. Elizabeth Hunt of Brooklyn, N. Y., who would have been 100 years old on August 31 next, died on April 13. Mrs. Hunt remembered shaking hands with Gen. Lafayette when he made his famous visit to the United States.

Rabies Quarantine Extended.—The quarantine against rabies which is now in force in many cities and towns in New York State, has been extended to Binghamton, to last for sixty days from April 19.

American Gastroenterological Association.—The twelfth annual meeting of this association will be held at the Hotel Windsor, Atlantic City, N. J., on June 7 and 8, 1909. The preliminary program contains the following papers, among others: "Development of Gastroenterology in America," by Dr. J. Friedenwald, of Baltimore; "Duodenal Ulcers," by Dr. Max Einhorn, of New York; "Disturbances of the Chemic co-ordinations of the Organism," by Dr. J. C. Hemmeter, of Baltimore; "Pathogenesis of Gastric Tetany," by Dr. W. G. MacCallum, of Baltimore. There will also be a symposium on the subject of gastroenterostomy.

National Association of the Study and Prevention of Tuberculosis.—The fifth annual meeting will be held at the New Willard Hotel, Washington, on May 13 to 15, 1909. The congress will open with a general meeting on Thursday, May 13, when the vice-president, Mr. Homer Folks, of New York, will speak. Following this there will be meetings of the various sections. Among the other speakers will be Dr. Victor C. Vaughan, of Ann Arbor, whose subject will be "Tuberculosis Legislation, State and Municipal"; Dr. William H. Welch, of Baltimore, "The Selection of a Library for the Study of Tuberculosis"; Dr. G. B. Webb, "Some Hematological Studies in Tuberculosis"; Dr. John W. Brannan, of New York, "Treatment of Surgical Tuberculosis." There will be also a discussion on various methods of increasing the efficiency of the sanatorium, the subject being taken up by a number of speakers from different points of view.

Twelfth International Congress on Alcoholism.—This congress will meet in London, England, July 18 to 24, 1909. This will be the second great international congress under Government auspices to discuss the alcoholic problem, the congress two years ago having met under the auspices of the Swedish Government. The Duke of Connaught will preside at the coming meetings as Honorary President, and invitations have been sent to all the governments of Europe and America to send formally delegates. In response to this invitation the United States has appointed Dr. Thomas D. Crothers, of Hartford, Conn., as its delegate, and he has been made an Honorary Vice-president. Further information may be obtained from him.

Medical Library Association.—The twelfth annual meeting of the Medical Library Association will be held in Washington and Baltimore during the week of the meeting of the Association of American Physicians. The first session will be held at the library of the Surgeon General's office, on the afternoon of May 12, and on May 13 the members will go to Baltimore for the dedication of the new library building of the Medical and Chirurgical Faculty of Maryland, when Dr. William Osler, of Oxford University, will deliver the oration. Prof. George Dock, of Tulane University, is the president of the Association.

The Hillsborough County (N. H.) Medical Society, at its fourth annual meeting in Nashua, on April 6, elected the following officers: Dr. Eugene Wason, Milford, *President;* Dr. J. H. Gleason, Manchester, *Vice-President;* Dr. Ella Blaylock Atherton, Nashua, *Secretary and Treasurer;* Dr. J. B. Pettingill, Amherst, *Auditor;* Dr. F. E. Kittredge, Nashua, *Delegate* for three years to State Society; Dr. W. E. Reed, Nashua, Dr. J. W. Finnerty, Milford, and Dr. G. H. Greeley, Merrimack, *Executive Committee.*

The Hartford County (Conn.) Medical Association held its one hundred and seventeenth annual meeting in Hartford on April 6. Officers for the ensuing year were elected as follows: *President,* Charles D. Alton, Hartford; *Vice-President,* H. Strosser, New Britain; *Secretary-Treasurer,* Frederick B. Willard, Hartford; *Councilor,* O. C. Smith, Hartford; *Censor* for three years; E. R. Lampson, Hartford; *Delegates,* F. B. Willard, Hartford; Harry B. Rising, Glastonbury; W. R. Tinker, South Manchester; E. P. Swasey, New Britain; P. H. Ingalls, Hartford; M. H. Gill, Hartford, and J. H. Rose, Hartford.

The Middlesex County (Conn.) Medical Society, at its annual meeting, on April 8, elected the following officers: *President,* Dr. M. D. Murphy, of Middletown; *Vice-President,* Dr. M. W. Plumstead, of East Haddam; *Censors,* Drs. J. M. Keniston and J. H. Kingman, of Middletown; *County Reporter,* Dr. James Murphy, of Middletown; *State Councilor,* Dr. J. M. Keniston, of Middletown; *Delegates* to the State convention, Dr. C. E. Stanley and Dr. C. B. Young, of Middletown.

Obituary Notes.—Dr. Letchworth Smith of Louisville, Ky., died at his home, of organic heart disease, after a short illness, on April 7, aged 39 years. Dr. Smith was graduated from the College of Physicians and Surgeons of New York in 1898, and served in Porto Rico during the Spanish War. He had for some time been director of laboratories at the University of Louisville, and was chief inspector of milk in the Louisville Health department, and a member of the Tenement House Commission and the Babies' Milk Commission.

Medical Inspector Henry Tucker Percy, U. S. N., died at the Naval Medical School Hospital in Washington on March 31, from uremia, aged 59 years. Dr. Percy was graduated from the medical department of the University of Virginia in 1872, and entered the naval service during the next year. During the Spanish War he was attached to the Charleston, and later was on duty at the Norfolk and Washington Navy Yards. During 1905-06 he was in command of the United States Naval Hospital at Yokahama, Japan.

Dr. Gustav Hessert, of Chicago, Ill., died at his home on April 4, aged 64 years. Dr. Hessert was born in Germany and was graduated in 1858 from the University of Würzburg. In 1863 he settled in Chicago where he practised until his death.

Dr. Louis Benjamin Durocher, of Montreal, Canada, died at his home on April 5, aged 79 years. Dr. Durocher received his degree from the Victoria University of Cobourg in 1853, and had practised in Montreal for over thirty years. He was for many years Dean of the Laval Medical Faculty, an office which he held until 1892.

Dr. Samuel Cager Johnson, of Fitchville, Conn., died at his home on April 6. He was graduated from the medical department of the University of New York in 1877.

Dr. Albert W. Neufield, of New York, died at the Mt. Sinai Hospital on April 11. Dr. Neufield was a graduate of the College of Pharmacy and of the College of Physicians and Surgeons, New York, in 1882. He was a Fellow of the New York Academy of Medicine and a member of the New York County Medical Society and of the Harlem Medical Society, and was for many years chief pharmacist of the New York Dispensary.

Dr. George E. Tytler, of New York, died on

April 15, after a short illness, aged 60 years. Dr. Tytler was graduated from the New York Homeopathic Medical College in 1873, and was a member of the American Institute of Homeopathy, the State Homeopathic Society, and the Academy of Pathological Science.

Dr. Oscar M. Barber, for forty years a leading physician of Mystic, Conn., died at his home on April 4, aged 71 years. Dr. Barber was graduated from the New York Homeopathic Medical College in 1869. He was for several years health officer of the town of Stonington, Conn.

Dr. Henry K. Macomber of Pasadena, Cal., died at his home on March 23, of acute gastritis, aged 65 years. Dr. Macomber was a veteran of the Civil War, and a graduate of the medical department of New York University, Class of 1867.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE ROYAL COMMISSION'S REPORT ON MEDICAL POOR LAW RELIEF—TUMOR-LIKE FORMATIONS OF FAT—THE SUCKING CUSHION—CANCER OF THE STOMACH—OBITUARY.

London, April 2, 1909.

The report to the Royal Commission on the Poor Laws respecting medical relief was intrusted to Dr. C. McVail, who was instructed to inquire into the present system of both in and outdoor medical relief. He carried out his investigations in both rural and urban districts, and his report was presented on Wednesday and was in circulation yesterday. It deals with the questions involved in various aspects and makes recommendations for new administration which many will think revolutionary. In that, however, it resembles the reports of the Royal Commission, which engaged his services, for both their majority and minority reports advise changes so extensive that Sir C. Dilke, who is an experienced parliamentarian, declared the other day at the Royal Economic Society they were dead before being born, as far as practical action was concerned. It is possible Dr. McVail's conclusions may prove too sweeping for many earnest reformers, but none can question their importance or the value of the investigation he has made. He points out that the Poor Law medical relief is a cripple on two crutches—the general hospitals on one side, gratuitous medical work on the other—and says the whole system would break down if it were not for these helps. The hospitals supplement the workhouse and unpaid medical work the outdoor relief. But these forms of charity cannot be systematic or complete the public provision. He holds that the worst public policy is to confer personal benefit without requiring good order or obedience. It is crystallized in a case he mentions when a guardian, on a report that an applicant was a lazy loafer, who refused to work and spent all he got in public houses, maintained no one had a right to ask how he spent his money. Under the Poor Law this is a daily occurrence. Dr. McVail tells the commission that lazy drunkards are taken into the workhouse to be cleansed, fed, tended during recovery from their debauch, and let out again to return without let or hindrance to their misconduct; as women are admitted and treated for the foulest diseases, and go out to resume their career; as weak-minded girls or dissolute women enter to give birth to illegitimate children and go away again, to return after a time in the same condition. Again, phthisical cases are maintained in crowded houses, where the disease is conveyed to their families. Diabetics live on the rates and eat what they please. Outdoor relief is provided by the guardians freely for the sick and quite as freely for the drunken and immoral. Should there not be public control over the recipients of public money, and some distinction between them further than the fact of destitution? The able-bodied, infirm, victims of acute and chronic diseases, epileptics, imbeciles, deserted wives and children, widows, orphans, and so on, are all grouped together because they are destitute. The guardians must prevent their death by starvation, but have no power to help the unfortunate to regain a lost position or to control the future conduct of the unworthy or the vicious.

Mr. Shattock, at the Royal College of Surgeons, where he is pathological curator of the museum, gave a lecture on March 15 on "Tumor-like Formations of Fat in Man and Animals." Amid a wealth of information on this subject he described a little bit of human anatomy, which, I suspect, only a minority of students have examined. That is the small spherical mass, isolated from the surrounding fat, which lies upon the buccinator just in front of the masseter, and the function of which is to prevent the cheek being drawn between the jaws in the act of sucking. This "sucking cushion" persists in the adult, though in a less pronounced form, and is attached by a pedicle to the canine fossa. Moreover, it does not undergo absorption during emaciation, though most of the subcutaneous fat of the cheeks may have disappeared. Yet the adipose tissue under the microscope is identical in structure with the surrounding fat, being separated by a thin layer of connective tissue. Chemically, also, the two structures are identical. Why the cushion should withstand absorption has not been satisfactorily explained, but Mr. Shattock suggested that the mechanical function of bearing a higher degree of pressure than the surrounding fat may lead to increased vascularity, besides which there is its isolation and the narrowness of its attachment. Absorption would less readily take place through the vessels of such a pedicle than in the surrounding tissues with their more vascular connections.

Cancer of the stomach has been the subject of discussion at the Harveian Society, and, considering how frequent a cause of death it is, must always be of interest. Dr. Hale White opened with a reference to this point, saying half the cases of cancer seen in the post-mortem room begin in the stomach, but, of course, many cases do not come into the hospitals, and of those that do not all reach the post-mortem room. Three-fourths of the cases occurred between the ages of 40 and 70, and he went on to say that if gastric indigestion, first coming on after 40, was unaffected by treatment after three or four weeks organic disease was probable and the abdomen should be opened. Early diagnosis was often impossible, as advice was not sought early. Pain, present in 90 per cent., was usually constant without relation to food; weakness more profound than in dyspepsia; loss of appetite a striking feature with early nausea; free hydrochloric acid diminished, though in 10 per cent. it might be increased. In 35 to 40 per cent. blood was at some time seen in the vomits, and should be sought for in centrifugalized washings, as, too, should cancer cells. *X*-rays afforded much help. Before operation the liver and left supraclavicular glands should be examined for secondary growths. Gastroenterostomy could give relief even when the growth could not be removed.

Mr. Moynihan said surgical treatment should be advised in all stomach cases where there was obstruction, stasis or tumor, and in all cases of chronic ulcer. An exploratory incision should be for early diagnosis, not to confirm an almost hopeless one. So far as cancer of the stomach originated in ulcer it might be regarded as preventible, and therefore the importance of a history of repeated attacks of dyspepsia alike in origin, course and subsidence could not be exaggerated.

Mr. D'Arcy Power said he found hospital cases came in the late stages and private patients were unwilling to admit more than indigestion until hematemesis or secondary deposits appeared. Cancer was almost always secondary to chronic ulcer, developed slowly, and was localized for a long time to the point of origin. In early cases he found skiagrams failed to reveal thickening. Exploratory operation was to be trusted. Irritation not only led to cancer but increased its rapidity of growth. Gastroenterostomy would give rest, and if complete removal was impossible it would prevent further irritation.

Dr. H. D. Rolleston drew attention to the great difference exhibited according to the locality of the growth. At the cardiac end the symptoms were mainly constitutional—fever, anemia, debility; at the pylorus, mechanical. In cardiac cancer growth was rapid, liable to increase and to invade the left lobe of the liver. The diagnosis of pyloric cancer should be early, i.e. before a tumor was palpable, for by that time metastasis had often occurred. If an exploratory incision were made, and cancer without metastasis found,

the surgeon should go on to partial excision rather than gastroenterostomy.

Dr. Warren Low confessed he had yet to learn how to make an early diagnosis, for every one knows that the most experienced surgeons have been deceived at an operation by the similarity of an old ulcer to carcinoma. He relied chiefly on examination of the stomach contents.

Dr. Hertz emphasized the importance for early diagnosis of skiagraphy and of occult blood in the feces. He said the growth rarely gave rise to obvious malaise, and blood in the vomit was seen in less than 40 per cent. But minute bleedings were constantly occurring from malignant ulcer, so that a small quantity of blood was excreted in the feces, detectible by chemical tests. This was not the case in dyspepsia, gastritis or pernicious anemia. In simple gastric or duodenal ulcer blood might be met with in the feces, but soon disappeared under dietetic treatment. Skiagraphy he thought less reliable than other methods. Traces of bismuth might remain six hours and cast a shadow to *x*-rays, but be no proof of pyloric obstruction. Food residues obtained by tube at 8 A.M., after a last meal at 8 P.M., proved almost certainly pyloric stricture.

Mr. Crisp English stated that when a radical operation was contemplated diagnosis must be certain. He excised a bit of the diseased area, and if it proved malignant did a partial gastrectomy later.

The mortality of the profession in March has seemed heavy, influenza and pneumonia having affected young and old.

Prof. Arthur Gamgee, M.D., F.R.S., died on Monday, March 29, at the age of sixty-seven in Paris, to which city he had gone to meet a friend. He was not well on the journey. Probably influenza had begun, for it developed and pneumonia came on. He was emeritus professor of physiology at Victoria University and had held important professorships at other institutions. He was also physician at St. George's Hospital. You probably know his textbook of physiological chemistry—a standard authority.

Dr. Blakie-Smith, who died on the 29th ult. at San Remo, was consulting physician to the Royal Infirmary at Aberdeen, where he graduated and practised for many years. He had been professor of chemistry and examiner in medicine in the university.

Dr. Edgar Oswald Hopwood died on March 26. He took B.A. at Oxford with first-class honors in 1874, and proceeded to M.D. in 1882. He was for a long time the resident medical superintendent of the London Fever Hospital, and contributed the articles on "Typhus," "Scarlatina" and "Rötheln" to Fowler's Dictionary of Practical Medicine.

Dr. S. B. de Mesquita, M.D., B.S., B.Sc.Lond., who died on March 28, in his forty-seventh year, was physician to the Tottenham Home for Incurables, and had held other appointments.

Dr. F. H. Gervis, who died of pneumonia on March 24, at the early age of 37, had served as house surgeon at Thomas's and the Children's Hospitals, and took great interest in the volunteers, in which he became surgeon-captain.

Mr. Charles Edward Baker, F.R.C.S., died suddenly at the age of 44, it is thought from an accidental overdose of veronal. He was connected with the Royal Eye Hospital. At an inquest the verdict was misadventure.

At an inquest held yesterday at the London Hospital as to the death of one of the house surgeons, Dr. Angus Bewley Wilson, it was shown that he died of septicemia from a bite on his thumb, inflicted by a woman who was being gagged in order to use the stomach pump for laudanum poisoning. The coroner, Mr. Baxter, referred in a most appreciative manner to the death of this young doctor, sacrificed for a woman who, as far as the public was concerned, was worthless, for she had attempted suicide on more than one occasion. There was a vast amount of generous self-sacrifice, he said, on the part of doctors.

Headache of Puberty.—Paul Dalché describes several forms of headache occurring at the time of puberty in young girls and boys. The headache is diffuse, and occupies the frontal or occipital region. It is not migrainous nor neuralgic. In girls it may last all the time, but is generally paroxysmal, occurring at the time of the menses. It seems to be due to a sort of intoxication of the system from ovarian insufficiency. It is curable only by long-continued hygienic measures.—*Gazette des Hôpitaux.*

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

CAMP PROPHYLAXIS AGAINST TYPHOID FEVER, MALARIA, AND DYSENTERY—SUPPRESSION OF A CHOLERA EPIDEMIC—CULTIVATION OF THE LEPRA BACILLUS—HYPERTONIC SALINE SOLUTION IN THE TREATMENT OF CHOLERA—WHAT SANITATION HAS DONE FOR THE TROPICS—PIROPLASMS—FILARIA IN THE PHILIPPINES.

MANILA, March 2, 1909.

The following papers, in addition to those mentioned in my letter of February 26, were read at the meeting of the Philippine Islands Medical Association:

A paper entitled "A Resumé of Camp Prophylaxis Against Typhoid, Malaria, and Dysentery" was read by Dr. Percy L. Jones, Captain, Medical Corps U.S.A. The author stated that while the causative factors in the diseases mentioned in the title were well known, yet the practical preventative measures were usually applied only after costly experience. He further stated that he had found that better results were obtained from fuel petroleum than from crude petroleum, because the latter does not spread so well and a uniform coating is not obtained, and further, the wind shifts it and causes it to accumulate along the edges of the pool. The remainder of the paper dealt with the routine hygienic measures which are employed in camps of the United States Army at the present time.

A paper entitled "The Suppression of a Cholera Outbreak in the Provinces" was read by Dr. Allan J. McLaughlin, Assistant Director of Health. He gave a brief description of the manner in which this work is done in the Philippines and showed conclusively that where there are enough funds and a number of reasonably intelligent persons a cholera outbreak can be most easily controlled, and that without employing general quarantine measures. The plan in use in the Bureau of Health practically since 1905 has been to quarantine the houses in which cases of cholera occurred until the patient can be removed to the cholera hospital. If this is not practicable, a continued quarantine of the patient was imposed, with the further precaution of passing the dejecta into disinfectant so that there might be no danger from flies. Another important measure found to be of considerable use is to require the persons who live in cholera communities to wash their hands in disinfecting solution before eating, carbolic acid being the one solution usually employed.

The paper that probably attracted most attention at the meeting was that read by Mr. Moses T. Clegg, entitled "Some Experiments on the Cultivation of the Lepra Bacillus." Mr. Clegg started out on the basis that perhaps the organism could be grown in symbiosis, believing that the lepra bacillus derives its nutrition from the product of the tissue cells on account of the fact that it occurs almost entirely within the protoplasm. He then selected an organism resembling as closely as possible a living cell, that is, one with the nuclei and protoplasm. For this purpose amebas were grown by the method previously published by Musgrave and Clegg. It will be remembered that in order to grow the ameba successfully it is necessary constantly to add symbiotic intestinal bacteria, but in this case, instead of adding them, lepra bacilli were used, which was done by smearing the surfaces of the media containing the amebas with the pulp of a leper spleen. The first series of plates was made from a case of leprosy autopsied by Dr. Teague at the San Lazaro Hospital. The spleen in question was removed aseptically and was found to contain enormous numbers of lepra bacilli. After the plates had been smeared with this pus of the spleen, they were incubated at a temperature of 37° C. for six days. Smears were then made, stained with carbol fuchsin, decolorized, counterstained by Gabbett's method, and examined. A great number of lepra bacilli were present, together with a short, plump, acid-fast bacillus occurring mostly in the clumps of the leprosy bacilli and associated closely with the amebas. The leprosy bacilli were believed to have been carried over from the original source. Transplants were then made on fresh ameba plates and incubated for two days at the same temperature. Smears were made and stained in the same manner, and upon examination showed short, plump, acid-fast bacilli in large numbers, which showed conclusively that the organisms had multiplied. Control plates without the material from the leper spleen made at the same time, in the same manner, and with the same amebas, showed no acid-fast organisms.

After this another series was tried. The spleen was removed aseptically from a leper subject just dead. The lungs contained cavities, but there was no evidence of tuberculosis elsewhere. Smears from the spleen showed a fair number of lepra bacilli. The process described above was repeated, with similar controls and with similar results. The author of the paper stated in closing that he believed that he had found an acid-fast bacillus which was somewhat different in morphology from the leprosy bacillus, but still may be that organism, because we know nothing of the morphology of the latter on artificial media. Among the sources of error he mentioned the possibility of air contamination, which he dismissed, however, as being improbable. Second, that the acid fast bacillus originally may have grown with the ameba, but in view of the fact that control plates show no such organism it would seem to indicate that such was not the case. But the author specially mentioned the fact that it was possible that such organism might have been overlooked. Third, that there might be present as yet an undescribed acid-fast bacillus in the spleen of a leper subject. The author stated that the paper in question was merely a preliminary note and that this matter was now under thorough investigation.

Another paper that attracted considerable attention was that by Leonard Rogers, M.D., of the India Medical Service, at Calcutta School of Medicine, entitled "The Treatment of Cholera by Injections of Hypertonic Saline Solutions, with a Simple and Rapid Method of Intraabdominal Administration." Professor Rogers stated that for some years he has been studying blood changes in cases of cholera. He found by rapidly defibrinating and centrifugating the same the percentage of corpuscles showed that the corpuscles are not lost In some cases he found as many as 8,000,000 corpuscles in a cubic centimeter, with a loss of serum amounting sometimes to as much as 64 per cent. At first sight it might be expected that the loss of such a large quantity of fluid would be associated with an increase in the percentage of salts in the circulating blood, and that this may act as a conservative process by producing osmotic currents carrying into the blood rather than from it, and so checking further escape through the bowel wall in the form of water diarrhea. Further, that intravenous transfusions of normal saline fluids, such as have been used in the treatment of the disease for the last eighty years, would reduce the excess of salines in the blood and again retard the draining of fluid through the intestines. It is just this recurrence of diarrheas so commonly found in cases that have been transfused that he attributes the failure of this promising plan of treatment. From the foregoing it occurred to him that if the amount of salt content in the circulating blood was augmented by the use of hypertonic saline solutions the desired result might be arrived at. In actual practice he found that by using a solution of 1.35 per cent., to which 3 grains of calcium chloride had been added, the most gratifying degree of success was obtained. During the year 1908 the death rate at the Calcutta Medical College Hospital has been reduced from an average of 61 to 32½ per cent. In order to overcome the obvious difficulty in injecting from 3 to 4 pints of serum into the veins, he injects the fluid directly into the abdominal cavity by a specially devised cannula, with which he claims it is impossible to puncture the intestines. A study of the microscopical changes in the kidneys of patients who had died of post choleraic uremia led him to suspect that there was an actual mechanical obstruction to the circulation produced by the effusion of blood into and around the tubules. In order to test this hypothesis he measured the height required to perfuse normal saline solution through the kidney circulation post mortem, both in healthy kidneys and in those of persons who had died of choleraic uremia. The results were striking; in normal organs the pressure of from 20 to 30 mm. of mercury sufficed to run a good stream through the organs, while in the choleraic kidneys after death from uremia from 90 to 100 mm. was found necessary. In view of the fact that many of the cholera patients died of uremia and that this method of treatment aided considerably in avoiding this condition, it offered considerable hope The author formulated the following conclusions:

1. The severity of cholera is in proportion to the loss of fluid and salts from the blood, which, in all but mild cases, it is necessary to replace.

2. This can best be done by the intravenous injection of about 4 pints of hypertonic salt solution. 2 drachms to the pint, or 1.35 per cent being a suitable strength, the use of which has reduced the mortality during 1908 in the Calcutta Medical College Hospital by nearly one-half.

3. When time and staff do not suffice for the regular administration of intravenous injections they may be given intraperitoneally by the simple method described with great advantage.

4. Post choleraic uremia is associated with deficient blood pressure and should be treated by methods which raise the tension in the arterial system.

Major Probyn, D.S.O., R.A.M.C., Hongkong, read a paper entitled "What Sanitation Has Done for the Tropics," which consisted principally of an historical review of what had been done in Hongkong since British occupation. It was particularly instructive in that it showed the almost insurmountable obstacles that were put in the way of medical officers in their attempt to combat malaria fever without the knowledge of the mosquito theory.

A paper entitled "The Intestinal Worms of Women and Children in the Philippines" was read by Dr. Philip E. Garrison, Assistant Surgeon, U.S.N., and the same will be published in full in the *Philippine Journal of Science*.

Professor Martin, Imperial German Navy, read a paper entitled "Piroplasms." He gave a brief review of the work which had been done from the time that Theobald Smith in 1893 first recognized the true nature of piroplasms up to the present time. By his recent work in the Philippines he confirmed the work which has been done in Japan, showing that the piroplasm which was found among the animals there could be developed into a trypanosome.

The next paper, entitled "The Distribution of Filaria in the Philippine Islands," was read by Dr. J. M. Phalen, Captain, Medical Corps, U.S.A. He stated that the blood examination made among 7,000 native troops (Filipinos) in the Philippine Islands shows that in different sections of the Philippines filarial infection varied from ½ to 10 per cent. For instance, in the provinces of Northern Luzon the infection was about ½ per cent., while in the province of Albay the infection ran as high as 10 per cent. The next most heavily infected province was found to be Leyte, in which the infection seemed to be almost uniformly distributed throughout the island. So far, no systematic filarial examinations have been made in American soldiers, and it is not know how widely the disease prevails among them. One case of elephantiasis of the scrotum in the person of a negro soldier was under observation at the Division Hospital a few months ago.

A paper entitled "The Relation of the Indian Form of Relapsing Fever to African Tick Fever" was read by Dr. Richard P. Strong and will be published shortly in the *Philippine Journal of Science*.

DR. BULL'S FAREWELL TO HIS STUDENTS

To the Editor of the Medical Record:

Sir:—The great affection and esteem in which Dr William T. Bull was held by all students who were fortunate enough to sit at his feet will grow from more to more as the influence of time plays upon our memories and leads us back in calm retrospect to those happy days of undergraduate life. Dr. Bull possessed an exceedingly strong personality, combining those rare qualities of vast knowledge of his subject, a wide acquaintance with the hearts of his hearers, and the power of making a lasting impression upon their minds. To the writer he was a veritable tower of strength. He had the dignity and grace of royalty. There was nothing of the bizarre or blatant egoist in his nature. Never was he known to criticize in the classroom the work of other surgeons, nor to jest concerning the poor efforts of his students to master the principles of the theory and practice of surgery. He was in all respects a good fellow, and a sense of his greatness as man and teacher will grow with the coming years. None of us as yet has a proper sense of perspective as to his real worth, and any little word of appreciation must prove empty and inadequate at this time.

On May 4, 1904, Dr Bull delivered his last lecture at the College of Physicians and Surgeons, with which he had for so many years been prominently identified. Fortunately, I took careful notes of everything he said and copied them into my notebook containing his lectures His address upon this occasion follows. "I

part with pleasant company at the end of a long and agreeable voyage. I have always maintained that medical students are the best of professional students, because of the time they are willing to spend in acquiring their knowledge, the energy and enthusiasm they display, and the great interest in more or less humdrum details which they manage to maintain. It is curious how loafers from a university when taking up the study of medicine set up for themselves a new standard and show by their excellent records how they have grasped the true spirit of our noble profession. We must, all of us, always be students in order to keep up with medical progress, and, if possible, to add a bit to the knowledge of disease; and I hope to find in this respect sufficient leisure to remain one with you. I am glad my successor in teaching and those who shall come after me in my practice are graduates of these benches."

Deeply affected, Professor Bull started to withdraw from the room, but was detained by the tremendous applause which greeted him. One of the students of the graduating class, F. D. H. Coerr, arose at this point, and in a few well-chosen words presented a handsome loving cup, the gift of students in the third and fourth years. Dr. Bull replied: "I wish only for the voice, the hands, the feet, the lungs to express to you my extreme gratification for this expression of good-will. Never before have I had such a send-off, save once, and that was when suspended from college for some foolish prank, my fellow students put me aboard my train with hearty demonstrations of good feeling. I bid you all an affectionate farewell."

Dr. Bull, with bowed head, then quickly left the room, but the applause of the students continued until he was well out of the range of hearing.

Irving Wilson Voorhees, M.D.
New York.

Progress of Medical Science.

Boston Medical and Surgical Journal, April 8, 1909.

Examination of the Feces for the Study of the Functional Condition of the Alimentary Tract in Clinical Work.—This elaborate paper by H. P. Hewes discusses the details of the Schmidt and Strasburger method which gives attention to the macroscopic and microscopic examination of the stools as distinguished from chemical analysis of the same products. The results in a test case are compared with those of a normal individual on the same diet. The object is to discover conditions of primary disturbance of the functional capacity of the digestive organs or those concerned in absorption and to determine in any given case that these organs or their functions are normal or abnormal. Normal stools indicate normal functions, but abnormal stools as to food content may be due to an altered peristalsis of the intestine from any cause. The author goes on to describe the method used, enumerating the test diet given for three or four days, following which a stool passed on the third day is observed for study. Size, color and consistency are all recorded. The stool is then mixed thoroughly with water and portions are spread on a plate for microscopic examination and a portion is ground with a pestle and a drop placed on a slide for the miscroscope, viz., for muscle fibers, starch granules, free or in cellulose capsules (Lugol's solution added), and fat remains in their various forms. The author claims that the trained observer can determine (1) whether or not the digestion of meat muscle is normal or disturbed; (2) whether digestion of starch is normal or disturbed, and (3) something in regard to the normality or abnormality of both the digestion and absorption of fats. He presents tabulated results in twenty-one cases of various maladies examined along these lines. The general usefulness of the method he regards as very great. It tells us nothing in regard to the state of proteid or carbo-hydrate absorption, its indications in regard to the utilization of these two forms of food substance, consisting only of evidences of the condition of the function of digestion of one special form of proteid substance, viz., meat fiber, and one form of carbohydrate substance, viz., starch. We are still dependent on chemical analysis for knowledge of the absorption of proteid and carbohydrates as also for exact indications of the extent of disturbance of function of fat utilization and the proportionate quantities of the various forms of fat substance present.

A Cursory Review of Surgical Methods for the Extirpation of Hemorrhoids.—T. C. Hill reviews Whitehead's suberation, clamp and cautery and ligature, giving preference to the latter. He says that statistics show that about 25 per cent. of hemorrhoidal cases are under forty years of age and for such cases the Whitehead operation, which removes the pile-bearing area, should be chosen if the patient is insistent on an absolute guaranteed cure. Still in these younger subjects it is the rule to find only one or two tumors requiring removal and to excise the lower end of the rectum for so trivial an affair seems hardly justifiable. Recurrences after small operations are not numerous, for the scar tissue left after removing one or two tumors is generally sufficient to support the remaining vessels and prevent their becoming varicose. The author has operated on over 300 hemorrhoidal cases in the last four years and has never had any abscess, fistula, stricture, fissure or ulceration follow. Operators of inexperience often overlook the smallest tumors when obscured by the bleeding incident to the operation. The result is that two or three hemorrhoids are left and after a while the patient is as much inconvenienced as before.

New York Medical Journal, April 10, 1909.

Flat Foot.—This subject is discussed at considerable length by F. E. Peckham, who considers the question of proper shoes, etc., and commends the use of a "foot exerciser" figured and described in the text. Among the complications of the condition which he says has been neglected are large callous places not infrequently found on the ball of the foot. They may be pared down, but this does not relieve much of the pain or tenderness. When callosities exist on the various corners of the feet, they are due to friction, and the friction is due to a badly fitting shoe or a shoe which may be too tight or too loose. Most of the callosities disappear on the wearing of a proper shoe. But these very tender callous places across the ball of the foot are very persistent. The pressure may be relieved by cutting a piece of gummed white felting to the proper shape and size and then cutting out a hole just the size and shape of the callous place and moistening the gummed surface and sticking it on the skin of the foot, thus relieving the tender area from such direct pressure. Also the callous may be painted every night with a mixture of salicylic acid in collodion in the strength of 4 grammes to 30 c.c. If this should prove occasionally to be too strong in the individual case and causes tenderness, it may be omitted for a week or two, when it may be continued again. Hence it is seen that the treatment of what was formerly called flat foot, but now in all but the later stages is called weak foot, has changed wonderfully in the last few years and instead of putting braces under the feet and letting it go at that, a great deal is now done in the way of rendering the joints more flexible, or developing the tone and muscular and ligamentous strength by physical exercises and vibration, by breaking up adhesions, by hot air and manipulation, and pendulum apparatus treatments and *brisement forcé*, if necessary, by regulating the footwear and by reducing the use of supporting apparatus to a minimum.

The Intraabdominal Injection of Oxygen as Studied in Animals. Report of Cases in the Human Subject.—H. D. Meeker reports his results with different series of animals. In one series the oxygen was completely absorbed in hours and in two instances not after eighteen hours. The absorption was but little hastened by increasing the intraabdominal pressure. In another series the gas was left undisturbed seventy-two hours. There was a slight increase in the pulse and respiration rate, slight rise in blood pressure the animals showed a tendency to come out immediately from under the anæsthetic, and all reactions were more prompt when the oxygen was heated. From animal experimentation the following conclusions are deduced: (1) Oxygen is completely absorbed from within the abdominal cavity. (2) It is a slight respiratory stimulant. (3) It is a slight cardiac stimulant. (4) It has but little effect on blood pressure when the pressure of the gas is moderate. (5) It tends to bring an animal out quickly from deep anesthesia. (6) It hastens the recovery of an animal after discontinuance of anesthetic. (7) A pressure of more than 1,800 mm. of water may cause collapse. (8) Oxygen tends to prevent the formation of adhesions. It does so more effectively than any inert gas. (9) It quickly changes a dark blood to scarlet in cases of anoxæmia. (10) It stimulates intestinal peristalsis. (11) It is not an irritant to the peritoneum of abdominal viscera. The so-called pure, 95 per cent. oxygen should be used. The oxygen is warmed to a temperature of about 100 deg. Fahr. by passing it from the tank in which it is compressed through a bottle containing hot water and then through a tube, preferably of metal, which is submerged in hot water. The gas enters the abdominal cavity through a rubber or blunt glass tube. The abdominal wound is closed except

at the upper or lower end, where the tube is left partly in the abdominal cavity. Interrupted stitches are placed in the peritoneum at this point, but not tied, and a pursestring loop is passed in the peritoneum around the tube. The other layers of the abdominal wall are sutured in the usual manner excepting those around the tube. After sufficient oxygen has been passed into the abdomen, the tube is withdrawn, the peritoneal stitches quickly tied, and the succeeding layers sutured. A practical rule in determining the proper amount of oxygen to be used is to distend the abdomen until liver dullness is obliterated, having previously ascertained that the liver is not adherent to the abdominal wall. Notes of personal experience in five patients are given.

Neuroretinitis Due to Typhoid Fever.—J. V. Clothier refers to one case, his patient being a girl of sixteen years. In the second week of a typhoid fever she complained that the light hurt her eyes. The following day she was unable to recognize her attending physician and her own family. She could recognize the form but not the face or color of the individuals, and complained that everything looked black to her. Ophthalmoscopical examination showed bilateral neuroretinitis. Papilla was swollen, outline obscured, vessels were partly concealed, and veins full and somewhat tortuous. The macular region was cloudy, with some faint radiating striæ to disc side of macula. The temperature gradually declined with corresponding subsidence of the papillitis and improvement of vision. Later she had a relapse of the febrile condition, but the vision steadily improved. After recovery from the fever, the ophthalmoscope showed swelling of disc had subsided, temporal and nasal margin of disc was fairly well defined, superior and inferior borders still partly obscured. In the macula were some faint radiating striæ still present. Vessels were of nearly normal caliber.

Paralytic Conditions of Childhood.—C. Rosenbeck enumerates the various forms of paralysis occurring in childhood, beginning with cerebral birth palsies, and considering cortical agenesis or defective development, the brain inflammations, anterior poliomyelitis, compression paraplegia, multiple neuritis and muscular dystrophies. Under each heading the striking features of the consequent paralysis are set forth.

Journal of the American Medical Association, April 10, 1909.

Partial Myxedema.—J. B. Nichols describes the condition of incomplete thyroid disease, or what is called by the French *myxœdème fruste*, as it manifests itself in its various forms, spontaneous adult partial myxedema, and the infantile and postoperative types. In the adult and infantile forms heredity is an important factor, and females are much more subject to the adult type than are males. The symptoms are numerous and confusing; they include asthenia, sometimes mental impairment, pain in the form of headache, backache, etc., the typical metabolic changes, trophic disorders, obesity, lowered temperature, the cardiac symptoms of the disease more or less developed, decay of the teeth, dyspnea and other respiratory symptoms, and derangements more or less extensive of the reproductive functions. These do not all appear in a single case, but in various combinations, and the diagnosis may remain obscure until cleared up by the thyroid treatment. The infantile type is distinguished from the congenitile critinism developing at or soon after birth, while infantile partial myxedema may make its appearance at any time before puberty, is more common in males than in females and may appear after an acute infection, such as measles. The most usual type is characterized by retarded development, in addition to which there are attenuated symptoms of thyroidism. The sexual organs and functions are especially affected in this retardation. Adult instances of this type are not unknown, the underdevelopment, rudimentary sexual organs and history sharply differentiating them from the adult type. Mentality may be unaffected or only slightly impaired, but sometimes there is a complete arrest. A special type of infantilism is mentioned in this connection as described by Lorain in 1870. The reported cases are nearly all in males and the specific myxedematous symptoms are absent. The specific treatment of all forms consists in the administration by the mouth and with due caution of preparations of the thyroid gland. Special care is necessary in giving the drug to patients with cardiac or arterial disease, as it may be dangerous. The best results are generally to be anticipated from this treatment, and the therapeutic test is conclusive. A case is reported.

Spelling of Medical Students.—G. Dock gives his observations of the mistakes of spelling in the examination papers of medical students. He doubts the existence of many incorrigible bad spellers and thinks that poor training is responsible in nearly all cases. He also allows for mistakes that can be easily explained by slips of the pen or mind, such as confusion of ei and ie, of single or double e, and other double letters. He also overlooks an isolated phonetic spelling, but gives a list of some of the more flagrant examples he has encountered in his experience. He also notices the misspelling of proper names and shows why he thinks there is a close relation between such mistakes as he has submitted and imperfect technical training in other respects. The causes of the condition are, he thinks, chiefly the following: (1) imperfect training in the precollegiate years; (2) imperfect scrutiny of candidates for admission to the medical schools; (3) looseness with respect to scholarly fitness all through the medical course. The fact that his observations were made on two years' students in a university shows the need of greater care as to scholarship. The habit and effort for improvement has not been required and Dock has been told by the constant perpetrator of a blunder that he did not come there to learn English. Dock thinks that a constant determined effort will be needed to alter this state of affairs.

Muscular Heat Spasm.—H. M. Welsh has frequently observed cases of muscular spasm of peculiar character due to a severe exertion in intense heat in iron workers. To make up for the loss of water by perspiration they drink large quantities, sometimes gallons, during the eight-hour period of work. There seems to be a special susceptibility in some persons, as some men will escape the cramps while others have them every hot day. They are rare in the winter months, but are apt to occur in the first warm days of the spring. Men whose work is light do not develop the symptoms, and if rest between shifts is missed for any reason the susceptible man is liable to develop the symptoms somewhat earlier in his term of work. Humidity of the atmosphere bears some relation to the condition and anything that lowers the physical vitality in a susceptible person increases the chances of an attack. The cramps are sometimes very severe and considerable force is required to prevent the contractions of the muscles, especially to extend the contracted limb. Patients sometimes say they would rather die than undergo another attack, and while Welsh says that he has never known a case to result fatally, he has had several patients who had to change their occupation on account of them. In the treatment, morphin has been largely used, but its effects are temporary. Hot packs are more effective. In all attacks, an effort is made to prevent flexion of the limbs, as that makes them less painful. Apomorphin in doses varying from 1/12 to 1/20 grain will cause immediate relaxation with, as a rule, prompt emesis, followed by marked prostration. A slap on the affected muscle will cause temporary relief, but the best treatment is probably to treat the milder cases with hot water or hot packs to avoid the prostration from apomorphin, but in all severe cases apomorphin should be given, preferably the smaller dose if it is effective and followed by strychnine 1/30 grain every four hours. He has treated between 50 and 60 of these cramps in 24 or 25 separate individuals and reports five of them briefly.

Syphilis of the Stomach.—Arthur Curtis gives an elaborate report of a case of gastric syphilis which is notable on account of the rarity with which it is diagnosed and the fact that serious complications amenable to treatment have arisen in two of the sixteen cases which have been reported. One is the case of Frankel in which death was due to extensive ulceration and peritonitis, and the other that of Flexner in which death occurred from perforated syphilitic ulcer. He also discussed the diagnosis. The synopsis of cases in the literature shows four important diagnostic factors: (1) The seat of primary involvement is, as a rule, the submucosa, the gummatous tissue invading other coats secondarily; (2) miliary gummata, sometimes with giant cells of the Langhans type; (3) *Spirochæta pallida*. These are not to be depended on according to the views of Koch and Schmorl; (4) peculiar vascular changes of high grade, resulting in partial occlusion or partial obliteration of vessels. The patient was in the surgical service of Dr. Braun at the Krankenhaus Friedrichshain, Berlin. A gastrotomy was performed and a histological examination made. The diagnosis had to exclude simple gastric ulcer and tuberculous ulcer. The former did not account for plate-like non-cicatrical thickening of the stomach wall of extensive vascular proliferation with high grade vascular occlusion. Tuberculosis was more difficult to exclude, but in addition to the epithelioid cells three factors opposed tuberculosis: First, there was no caseation; second, there was no sharp demarcation from surrounding tissues; third, there was present in each nodule a liberal number of small blood vessels. Accessory factors in the diagnosis were the negative tuberculin tests, lack of

tubercles on the serosa and absence of tubercle bacilli. Syphilis, therefore, had to be accepted as the diagnosis. Curtis emphasizes the value in this case of utilizing every available resource in diagnosis of stomach diseases. Syphilis is probably a more frequent cause of gastric tumor than is supposed, and, since the therapeutic mercurial test is so easily applied, it is at least worthy of consideration in certain selected cases. The patient made an uneventful recovery after the operation. The article is illustrated.

The Lancet, April 3, 1909.

Spontaneous Cure of Thoracic Aneurysm.—T. Oliver reports one case, the patient being a man of fifty-five years. His history dated back some twelve years. On admission to hospital he had dyspnœa, some increase of arterial tension, rapid and irregular pulse and considerable albuminuria. He died a month later, no positive diagnosis having been made. Autopsy showed chronic pleuritic thickening and effusion, alteroma of the aorta and contracted kidneys. About one inch from the aortic valve was an aneurysmal dilatation of the vessel extending almost to the origin of the left carotid and left subclavian vessels, while beyond ther was at the commencement of the descending aorta a fusiform dilatation of the vessel. The main aneurysm which was saccular had a definite daughter saccule nearly the size of a golf ball, springing from its anterior surface and pointing forward. The dilatation of the aorta extended to the root of the innominate, but not to the vessels arising from it. The interior of the aneurysm was occupied by firm, decolorized clot, but this did not extend into the innominate artery to block it. No involvement of nerves in the sac was found. The author regards especially sacculated aneurysms of the thoracic aorta as frequently cured by nature.

Pemphigus in a Nonagenarian; Recovery.—J. G. Glover's patient was a man who for five or six years had had severe attacks of nose bleed and had aged rapidly. For some eighteen months he had had eczematous patches on the left arm and left leg and for six months bullæ. The blebs were confined to the exterior aspect of the left forearm and to the outer side of the left thigh and appeared only once or twice a week. General health was excellent. The blebs later appeared on the right arm and the patient was placed on arsenic without much benefit. This was continued with morphine in small doses and the patient slowly improved. There was great dryness of the skin with some exfoliation, but otherwise the skin recovered wonderfully well. The general condition was at a lower level than before the illness. Various local applications to the skin failed to arrest the disease or allay the excessive irritation.

Graduated Rest in the Treatment of Pulmonary Tuberculosis.—E. E. Prest notes that it is possible to give the lungs approximate, not complete rest. This latter measure should be prescribed sufficiently early and for sufficiently long periods. All patients who exhibit even the smallest sign of invasion by tuberculosis must be treated with the utmost rigidity. Rectal temperatures should be taken while the patient is in bed and so long as there is any fever bed rest must be maintained. Such cases should not be put out on verandas in long chairs. Absolute silence must be maintained when during rest in bed the temperature rises over 100.4 deg. at any time of the day. If this limit is not exceeded, the patient may visit the lavatory and perform the usual duties of the toilet. The morning temperature should be taken before breakfast and it should fall at least as low as 97.8 before the patient is allowed to get up. Cases commencing with an initial hemoptysis are as a class the cases which exhibit the least fever and consequently require the least rest, but all require some rest in bed at the commencement of the bleeding. Later such patients may be allowed to exercise cautiously. Early resting prevents acute and incipient cases from becoming chronics. Patients who manifest at the outset the most violent constitutional symptoms, if they eventually survive, ultimately make the most perfect recoveries. All these suggestions apply to laryngeal lesions with double force. The cough should be controlled with opium derivatives and absolute silence must be maintained for a period of even months. So soon as the temperature falls, laryngeal patients may be allowed to exercise.

British Medical Journal, April 3, 1909.

Treatment of Gastric Ulcer by Immediate Feeding.—E. L. Spriggs gives his experience with the Lenhartz treatment, which is as follows: (1) Complete rest in bed for four weeks; (2) feeding from the beginning of the attack with small quantities of beaten-up egg and milk, increasing the amount daily; (3) icebag to the epigastrium; (4) adding to the dietary after the first week boiled rice, mince and other semi-solid and solid foods; (5) bismuth and iron in suitable form. Thirty-three patients were thus treated and a second series of thirty-four in the usual manner. The author has been able to follow up the later histories of many of his patients and comes to the following conclusions: First, the Lenhartz method is not more dangerous than treatment by nutrient and saline enemas followed by a graduated milk diet. In his particular cases the occurrence of hemorrhage was less frequent and there were no deaths; second, the pain suffered by the patient on the Lenhartz diet is less; third, the diet gives far more nourishment than can be introduced into the body by nutrient enemas who have frequently been for a long time in a state of semi-starvation or have suffered a loss of blood or both; fourth, in cases treated by this method rectal injections may be entirely avoided. This is an advantage in hospital practice and a still greater advantage in treating patients at their homes, where rectal injections are regarded as extremely unpleasant and are seldom efficiently administered.

Early Diagnosis and Treatment of Cancer of the Stomach.—W. Hale White says that cases come under observation, in the majority of cases, too late for surgical intervention, and as medical treatment is futile early diagnosis is all important. We should suspect cancer in people who come to us with symptoms of serious chronic gastric symptoms after the fortieth year, if this is their first appearance. If a course of remedies does not relieve them it is justifiable to open the abdomen, search for a tumor and remove it if found. The commonest symptoms is pain, and if it is absent we should be chary in making a diagnosis of malignancy. If cancer has developed on the site of an ulcer, the free HCl may not be diminished. In a suspected case the diminution of free HCl should be regarded as of great significance, but it must be a considerable diminution, for various diseases other than malignant will diminish it somewhat. The gastric contents should be submitted to the microscope, for occasionally free cancer cells are seen. Sometimes a few blood cells or pigment will aid in our decision. In over 60 per cent. of the cases the disease is located at the pylorus, causing a stagnation of stomach contents. Even if we cannot remove the growth or if metastases render this undesirable, much benefit often follows a gastroenterostomy for the relief of pyloric obstruction.

Another paper on the same subject is presented by B. G. A. Moynihan, whose knowledge of the subject is summed up in the following propositions: (1) Cases of cancer of the stomach when examined in regard to their previous history may be divided into three groups: (a) Cases, generally acute, in which the symptoms appear suddenly and progress rapidly; the whole history may be confined within a space of four to nine months. (b) Cases in which there is a history of one ancient attack, or of repeated attacks, due undoubtedly to the presence of a chronic gastric ulcer. (c) Cases in which there is no previous history of gastric ulcer; in some of them a condition of "ulcus carcinomatosum" may be found. (2) The acute cases are not seldom ushered in by an attack of severe hematemesis, with or without melena. It is possible that such copious bleeding is dependent upon multiple hemorrhagic erosions. (3) The importance of a history of repeated attacks of indigestion, alike in their origin, course, and termination, cannot be exaggerated. Such attacks are due to a chronic gastric ulcer, which at last becomes malignant. (4) Cancer of the stomach, in so far as it depends upon a chronic ulcer for its origin, is a preventable disorder. It is probable that two-thirds of the whole number of cases may be so classed. (5) The final attack is distinguished from former attacks by its lingering character, its rebellion against the treatment, dietetic and medicinal, which has proved helpful before, but chiefly by the presence of a profound distaste for food, anemia, and a progressive loss of weight. (6) The chemical examination of stomach contents is of little or no value in so far as early diagnosis of carcinoma of the stomach is concerned. In the later cases, when a possible diagnosis of malignancy is made on the clinical evidence, the results of repeated chemical analyses of the stomach contents afford additional evidence of considerable value. (7) Surgical treatment should be advised in all cases of stomach disorder where there is obstruction, stasis, or tumor, and in all cases of chronic ulcer; in this way early cases of carcinoma will be found, and radical treatment will be possible. (8) There are no symptoms, and there are no signs which, individually or collectively, permit of an assured diagnosis of cancer of the stomach in an early stage. In cases where there is grave suspicion an exploratory operation should be advised. Such operations should be practised to enable a diagnosis to be made in an early stage, not to confirm an almost certain diagnosis in a hopeless stage.

Book Reviews.

THE RECTUM: Its Diseases and Developmental Defects. By Sir CHARLES B. BALL, M.Ch., F.R.C.S.I., Hon. F.R.C.S. (Eng.), Regius Professor of Surgery in the University of Dublin, Surgeon to Sir Patrick Dunn's Hospital, Hon. Surgeon to the King. London: Henry Frowde, Oxford University Press, 1908.

THIS work is founded mainly upon a course of lectures delivered in San Francisco in 1902 and in London in 1903. The aim of the author being to present the material in as concise a form as possible, it was found necessary to omit historical references to the evolution of the modern methods of treatment and to the description of obsolete operations. But few statistics are given, and authorities are rarely quoted. A well-illustrated introductory chapter on the anatomy of the rectum is followed by several on the developmental defects and their treatment, in which the writer calls attention to the need of a thorough understanding of the embryological factors involved in the production of these lesions in order to formulate satisfactory surgical procedures for their cure. In the treatment of fistulæ Ball favors, in all but very complicated cases, the method first proposed in 1886 by Stephen Smith of New York, of closing fistulous wounds following incisions by sutures, instead of allowing them to heal by granulation. The important subject of rectal stricture is ably discussed, and a very practical table is appended showing the more important points of difference between malignant and non-malignant varieties. The writer details a number of procedures, original with himself, for the treatment of various lesions, including fissure, prolapse, and cancer, which appear to have stood the test of time and experience. The book is well written and is well made, and can safely be recommended as affording a clear and concise presentation of a very important subject.

GLIMPSES OF MEDICAL EUROPE. By RALPH L. THOMPSON, M.D., Professor of Pathology, St. Louis University School of Medicine. Illustrated from photographs and from drawings by Tom Jones. Philadelphia and London: J. B. Lippincott Company, 1908.

THIS is a most entertaining account of a summer tour in Europe, told in a sketchy and amusing manner, yet containing much information of interest to any medical man about to visit the schools or hospitals of the European capitals. Dr. Thompson visited Christiania, Copenhagen, Stockholm, St. Petersburg, Berlin, Vienna, Budapest, Paris, London, and Liverpool, and kept his eyes very wide open. The account he gives is, as we have said, more or less sketchy, yet accurate so far as it goes. An appendix contains a list of the medical courses most frequently taken by English and American physicians in Berlin, together with the fees, and an indication of which is given in English, or at least by English-speaking instructors. In another appendix is given a brief account of the German universities.

PRACTICAL BACTERIOLOGY, BLOOD WORK, AND ANIMAL PARASITOLOGY, including Bacteriological Keys, Zoological Tables, and Explanatory Clinical Notes. By E. R. STITT, A.B., Ph.G., M.D.; Surgeon, U. S. Navy; Graduate London School of Tropical Medicine; Instructor in Bacteriology and Tropical Medicine, U. S. Naval Medical School; Lecturer in Tropical Medicine, Jefferson Medical College. With 86 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1909.

THIS is a thoroughly practical manual of laboratory instruction in the subjects mentioned in the title, written by a man who knows his subject and who has the happy faculty of imparting his knowledge in few words in a clear and comprehensible way. The work is by no means cyclopedic, but includes only the methods which practical experience has shown to be the best adapted to the requirements of a satisfactory clinical laboratory diagnosis. The subject-matter is treated in four parts: I. Bacteriology; II. Study of the Blood; III. Animal Parasitology; IV. Clinical Bacteriology and Animal Parasitology of the Various Body Fluids and Organs. An appendix contains sections on Preparation of Tissues for Examination in Microscopic Sections, Mounting and Preservation of Animal Parasites, Preparation of Normal Solutions, and a List of Diseases of Unknown Etiology. The description of the various micro- and macro-parasites is systematic and is greatly facilitated by the classifications and keys which precede each section. In addition to the parasites, the mosquitos, flies, and other insects known to be the agents of transmission or the alternate hosts of the microparasites are described and figured. The book will be found useful not only as a guide for the laboratory worker, but as a work of reference to the pathogenic parasites and their insect carriers.

DER SCHIFFSARZT. Leitfaden für Aerzte und Kandidaten der Medizin, mit Angabe der Reedereien ihrer Linien und Anstellungs-Bedingungen und Berücksichtigung aller einschlagigen Fragen. Von Dr. M. BRENNING und Dr. E. H. OPPENHEIMER. Mit sechs Textfiguren. Berlin. Verlag von August Hirschwald, 1909.

THIS book may be called the ship-surgeon's vade mecum, for it contains about everything that the ship-surgeon or one wishing to become such can possibly need or wish to know. It is, of course, intended primarily for the German physician, and the information it gives regarding the various lines refers naturally only to those employing German surgeons, but what it has to say concerning the duties of the ship-surgeon and the advantages and disadvantages of his calling is of general application. Every one contemplating entering the medical service of the mercantile marine under any flag, and even the already more or less experienced ship-surgeon, will find much of interest and more of practical utility in this little book, which is evidently written by men who know all the ins and outs of the service and tell what they know in a plain and straightforward way. The pictures illustrate the gymnasiums on three of the German steamships, and the drug-room, the hospital, and the surgeon's cabin on the *Kronprinzessin Cecilie* of the North German Lloyd

BACTERIAL FOOD POISONING. A Concise Exposition of the Etiology, Bacteriology, Pathology, Symptomatology, Prophylaxis, and Treatment of So-called Ptomaine Poisoning. By Prof. Dr. A. DIEUDONNÉ, Munich. Translated and Edited, with Additions, by Dr. CHARLES FREDERICK BOLDUAN, Bacteriologist, Research Laboratory, Department of Health, City of New York. Authorized Translation. New York: E. B. Treat & Company, 1909.

THE importance of the early recognition of food poisoning, whether occurring in isolated cases or affecting large numbers of individuals, is so very great that all practitioners should be entirely familiar with the manifestations of the condition and the circumstances under which it may arise. The literature of the subject though not very extensive is for the most part not easy of access to the general reader, and Professor Dieudonné has performed a useful service in thus summarizing what is known concerning this form of intoxication. Formerly regarded as the direct result of the ingestion of the toxic products of putrefaction, it has now been shown that in most instances specific bacteria are responsible for the symptoms. The first section of the book is devoted to the poisoning caused by meat—usually associated with *B. enteritidis, B. paratyphi, B. proteus, B. coli,* or *B. botulinus*—the next to poisoning through fish and molluscs, the following two to that due to cheese, ice cream, etc., and in the closing sections potato poisoning, that occurring through canned goods, and the metallic poisons are considered. The translator has performed his task with his usual skill, and the additions for which he is responsible render the book thoroughly satisfactory for American readers. The little volume is to be heartily commended to the attention of all medical men.

PRÉCIS DE STOMATOLOGIE. Par J. REDIER. Professeur à la Faculté libre de Médecine de Lille. Tome premier. Paris: F. R. de Rudeval, 1909.

THIS is not a treatise on stomatology, as we understand the word in America, inasmuch as it treats of those oral diseases only which are of dental origin. It is, therefore, not of especial interest to physicians, although certain chapters may be read with some profit by the general practitioner. The sections of the book dealing with the development of the mouth and teeth, dental anomalies, dental orthopedics, and dental caries are of value, though they contain nothing new.

ÉTUDES SUR LA PHYSIO-PATHOLOGIE DU CORPS THYROÏDE ET DE L'HYPOPHYSE. Par les Drs. LEOPOLD-LÉVI et HENRI DE ROTHSCHILD. Preface de M. CH. ACHARD, Professeur Agrégé à la Faculté de Médecine; Médecin de l'Hôpital Necker. Avec 4 Figures et 9 Planches. Paris: Octave Doin, Editeur, 1908.

THIS volume contains eight chapters, on various conditions connected with the thyroid gland. There is a lengthy introduction of nearly seventy pages, which is, perhaps, the most important part of the book. The studies and problems connected with the physiology and chemistry of the thyroid are barely alluded to; and the literature referred to is almost entirely French. The work is readable, but does not materially add to what has been known of the subject for many years.

Society Reports.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

Nineteenth Annual Meeting, Held in New York, March 15 and 16, 1909, under the auspices of the New York Academy of Medicine.

THE PRESIDENT, DR. ELI H. LONG, UNIVERSITY OF BUFFALO, IN THE CHAIR.

Committee on Medical Education.—This committee recommended (1) that the Association place itself on record by emphasizing the importance of the standard public high school, as evaluated in its schedule, as a natural education basis on which to build, when it becomes feasible, additional educational requirements, and that the colleges of the Association pledge themselves to a strict enforcement of the present standard.

(2) That the Association recognizes the importance of standardizing the secondary educational system of the country, and places itself on record by asking the individual colleges, members of the Association, to pledge themselves to lend their influence and support to all the educational forces looking to this end.

(3) That the Association, in accordance with its position favoring additional preliminary education beyond the present standard as a prerequisite to a medical course as soon as practicable, endorses and encourages the combined baccalaureate and medical courses given by many universities.

Committee on Equipment.—This committee did not, in the main, depart from the report made by the secretary last year, except in that it elaborated on the buildings to some extent. The equipment standard adopted last year has since then been adopted by the American Confederation of Reciprocating Examining and Licensing Medical Boards and also by the Michigan State Board of Registration in Medicine.

Committee on Curriculum.—This committee, which considered only the subjects usually taught in the first two years of the medical course, presented the following schedule as the final result of the work done by the committee since its appointment in 1907:

	Total.	Didactic.	Laboratory.
Gross anatomy		120	420
Microscopic anatomy	750	30	105
Embryology		30	45
Inorganic chemistry		60	120
Organic chemistry	420	60	45
Physiological chemistry		60	75
Physiology	240	165	75
Bacteriology		30	105
Hygiene	405	30	
Pathology		45	195
Pharmacology	185	40	145
Materia medica and pharmacy.		?	?
	2,000	2,000	

(Materia medica and pharmacy may be taught under the head of pharmacology or separately, as desired.)

The last two years of the course will be reported on at the next meeting of the Association.

Committee on Medical Teaching.—This committee concerned itself entirely with pedagogical problems, such as the training of the medical teacher and the methods of instruction. The committee was of the opinion that the student was not a proper teacher to be placed in charge of any phase of educational work; that no one should be placed in charge of any work who had not had at least two years of experience in the subject he was called on to teach. The laboratory man should not be engaged in the general practice of medicine, and the teacher should be working in the line he was called on to teach: that is, an internist should not teach applied anatomy; the surgeon should not teach therapeutics. The teacher should present those simple things that the student will be called on to use and not the impossible things that he never will employ. The medical teacher should keep in mind self-effacement rather than self-exploitation. With regard to the State board examinations, the committee was of the opinion that they tend to encourage quiz compend methods, emphasizing the memorizing of facts rather than the development of knowledge and judgment. The committee viewed with favor the introduction of practical tests in such examinations. Mass instruction was condemned; individual instruction was recommended as being pedagogical and valuable; the student should not be deluged with lectures and work that consumed more time than he could well afford to spend in college, thus shortening the hours devoted to study.

The following resolutions were adopted:

Resolved, That it is the opinion of the Association that State board examinations should be divided into two parts, the examination in the laboratory sciences being offered at the end of the second year of the course, and that State boards enter into such an arrangement wherever this is legally possible.

Resolved, That the Association favors practical and laboratory examinations as substitutes for part of the written examination now almost universally employed, and that State examining boards be requested to adopt such examinations, if possible.

Medical Education.—DR. HENRY S. PRITCHETT, president of the Carnegie Foundation for the Advancement of Teaching, said that the very first thing of interest in connection with medical education was the different plane on which it stood with respect to support, as compared with the other great technical schools, where instruction is carried on under the grants coming from great endowments, whereas the medical school is of necessity on a commercial basis, depending for its teachers almost wholly on medical practitioners who give their services free, and for financial support on the income of its students. The medical profession has not brought home the claims of medical education in the same way that other professions have brought home their claims. So far as the layman was concerned, he has the right to demand that the medical practitioner be grounded in the sciences that are fundamental to medicine. Some pre-requisite in education is absolutely essential for medicine, but just what that shall be seemed to be undetermined. It was necessary to know, first, what can be gotten in the various States and what can be enforced. The Carnegie Foundation was now collecting material for an exhaustive report on this very question, and expected to report within the next six or eight months. Until this evidence was obtainable it was considered unwise to attempt to set any standards for admission to the medical school. The general educational system of the country must be investigated before standards can be set. The standards in various parts of the country differ so much that any attempt to set a standard without taking into cognizance these variations would fail. In the meantime it was advised that colleges enforce their present standards honestly, giving such aid to the Foundation in carrying on its work as was possible.

Combined Course.—Professor WILLIAM H. CARPENTER, Columbia University, outlined the course adopted by Columbia some years ago with reference to the combined course not only in medicine, but in other professions. He insisted that rigid supervision of the work was essential to successful administration of such a course, and pointed out that not all colleges were in a position to give the course. The student must be placed on a definite basis of

study, and a definite requirement must be laid down, so that a definite result will accrue. As a rule, the baccalaureate degree of the American college means nothing, often not as much as the entrance requirement of the good colleges. Therefore, it is absolutely necessary that the combined course must be administered in such a manner that it will stand for something. The student who proposes to take the combined course should be required to take in addition to his regular work such studies as will give him a broader and sounder foundation for his professional studies. The intending student of medicine should have physics, chemistry, elementary biology. So far from weakening the baccalaureate degree, it strengthens it because it makes the degree much more difficult of attainment, and it strengthens the professional school by giving to it a better student, a man better prepared to take up his professional studies. Dr. Carpenter also mentioned the so-called Rochester plan, which permits the senior student in the science school to take the first year of the medical course while still registered as a college student, returning to his college for his degree at the completion of the first year medical work, thus getting the two degrees in seven years. He did not advise that every college be permitted to offer the combined course, but only such institutions as were prepared to do so by reason of superior facilities.

Present Status of Medical Education.—Dr. Frederick C. Zapffe, University of Illinois, reviewed the gradual evolution of medical education, and pointed out that it was better and to the best interests of education in general for the medical school to demand and enforce an entrance requirement that was within reach, and not one that was not obtainable. It was shown what the influence of the Association had been in the matter of raising the requirements and particularly of standardizing them, not only for entrance, but in course of study and graduation and equipment. By demanding more of the prospective student of medicine than he could possibly offer, because of the status of general education in his State, he was forced into the poorer, weaker, inefficient medical school, thus defeating the very objects for which standards are made. The present high school standard was deemed about as high a standard as it was possible to enforce, except in individual instances and by certain colleges, but for the mass of students, the high school standard was high enough, for the present at least. The honest administration by all medical colleges of the requirements now in force was considered a decided step in advance, and in that direction much had been accomplished by the Association. The combined course was commended very highly, and all prospective students of medicine were urged to take such a course, if possible. In order to relieve the congestion of the medical curriculum, it was suggested that the course of study be lengthened to five years, and a tentative course of that kind was outlined, in which the student would receive instruction also in physics, biology and botany as well as in the subjects now contained in the curriculum. A six-year course was also proposed, a course of two kinds, leading to two different sets of degrees; first, a practical course, where the student devotes six years to medical study, leading to the degrees of B. S. M. D.; second, a scientific course, two years being taken in the science school and four in the medical school, leading to the degrees of B. S. M. B., a course which the prospective research worker might elect to take. A third course might consist of four years in the medical school after graduation from the high school, the degree of L. M. being granted when the candidate secures his license to practice.

Five-Year Course.—Dr. John Rogers, Cornell University Medical College, favored a preliminary fifth year for the purpose of providing instruction in subjects in which the high school graduate is not proficient or is lacking and to relieve, in small measure at least, the congestion of the medical curriculum. This preliminary fifth year would include teaching in chemistry, medical physics, with physical chemistry, biology and comparative anatomy. Electives might be provided for advanced students and opportunities for research. This fifth year must not be elective, inasmuch as it is intended to provide the student with a solid foundation for medicine. The principles on which the science and art of medicine rest are all that the colleges could expect to teach. They do this now in four years, but can do it better in five. Such a course was not a remote possibility, but was an immediate necessity, and if the colleges that now demand the highest preliminary education possible escape the dilemma long, it will be only because of radical reforms in the academic colleges.

Addresses were also delivered by the president, Dr. Long, who discussed the functions of the medical school, and by Dr. John A. Wyeth, president of the New York Academy of Medicine, who described very vividly and entertainingly the medical student of 1867, narrating his early experiences as a medical practitioner.

Officers Elected.—*President,* Dr. George Howard Hoxie, University of Kansas; *Vice-Presidents,* Drs. David Streett, Baltimore Medical College, and J. A. Witherspoon, Vanderbilt University; *Secretary-Treasurer,* Dr. Frederick C. Zapffe, University of Illinois; to fill vacancies on *Judicial Council,* Drs. Egbert LeFevre, University and Bellevue Hospital Medical College, and Wm. P. Harlow, University of Colorado. Baltimore was selected as the next place of meeting, March 21 and 22, 1910.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held March 4, 1909.

Dr. John A. Wyeth in the Chair.

This meeting was held under the auspices of the Section on Otology.

Sinus Thrombosis of Otitic Origin and Its Relation to Streptococcemia.—Dr. Emil Gruening read this, the paper of the evening. He said that the microorganisms which caused purulent inflammation of the middle ear were chiefly the *Streptococcus pyogenes* and *Streptococcus mucosus.* In almost 70 per cent. of the cases the streptococcus was found. The pneumococcus and the staphylococcus played no rôle of importance. Thrombosis of the lateral sinus as a result of purulent middle-ear disease was often associated with systemic infection. In many cases it had been shown that streptococci circulated in the blood. In the last ten cases of sinus thrombosis occurring in the otological service at Mt. Sinai Hospital, the blood cultures were made under the supervision of Dr. E. Libman. Blood was taken from the median vein immediately after ligation of the internal jugular vein. The blood cultures were positive in seven cases and negative in three. In five cases *Streptococcus pyogenes,* in one *Streptococcus mucosus,* and in one other *Bacillus proteus* were found. Of the ten consecutive cases occurring in Mt. Sinai Hospital, eight recovered and two died. All the cases having streptococcemia recovered after ligation of the internal jugular vein. The diagnosis of thrombosis was, however, not made from the blood culture, but from the clinical data. Still, a positive blood culture could be advantageously used in the diagnosis of obscure cases of sinus thrombosis in which the aural symptoms were not very marked. In two cases admitted to the medical wards with high fever, systemic infection, and without prominent ear symptoms, Dr. E. Libman was able to diagnosticate thrombosis of the lateral sinus, and this diagnosis was made chiefly because of the presence of streptococcus in the blood, after excluding other foci than the ear. In these two cases the lateral sinus was found to be thrombosed, and the patients recovered, one with and one without ligation of the jugular.

Dr. Edward B. Dench said that he had had 23 cases of sinus thrombosis in which the internal jugular was excised. Of these 14 were cured and nine died, one of hemorrhage into the spinal canal, one of general pyemia, three of pneumonia, one of gangrene of the lung, one of malnutrition, one of hemorrhage into the cerebellum, and one of gangrene of the neck. In his experience the differential blood count had been rather unsatisfactory; he had seen a number of cases of sinus thrombosis in which the differential blood count showed no great departure from the normal. In cases of jugular thrombosis the tenderness, in his experience, had been in the lymphatic glands and not in the vein itself. The enlargement of the lymphatic glands along the course of the vein he regarded as one of the clinical signs of sinus thrombosis. Dr. Dench mentioned 48 cases of sinus thrombosis; also 28 cases of sinus thrombosis, in which the jugular was not excised, and of which 24 were cured and only four died. In all of these cases the clot was removed from the sinus by operative interference, but it was not necessary to interfere with the jugular. These statistics showed that in a certain proportion of the cases excision of the jugular was not necessary to cure sinus thrombosis.

Dr. Frederick Whiting said he understood that the question raised was: Given a suppurating ear and streptococcus in the blood, was one justified in making a diagnosis of a clot in the sinus? It did not necessarily follow that because there was a streptococcemia present in such cases there were clots in the sinus; there had not yet been a sufficient number of cases reported to prove that it necessarily followed. Dr. Gruening's findings were strongly corroborative of the view that clot was found in the sinus where there was no streptococcemia. It would seem that if one could eliminate from the patient's condition endocarditis, erysipelas, cryptic throat, and other suppurating foci, and if one could find a focus in the ear, and streptococci were found in the blood, then one was justified in looking for a clot in the sinus.

Dr. Libman said that, with Dr. Celler, he had been engaged in the study of infections of otitic origin by means of blood cultures for about ten years. There had been much difference of opinion among authorities as to the most common infecting organism in acute otitis media. More recent investigators had found the streptococcus most frequently, whereas the early writers considered the pneumococcus the most common infecting agent. In their study of about 360 cases they had found *Streptococcus pyogenes* most frequently, *Streptococcus mucosus* less frequently, and the pneumococcus in the smallest number of cases. Notwithstanding the fact that the pneumococcus had been found frequently by many authorities in the middle ear and notwithstanding the fact that they had found the organism in a certain number of cases, there were hardly any records of sinus thrombosis being due to this organism. With regard to the conditions under which bacteria were found in the blood in cases of acute otitis media, with or without complications, in their experience they had not found bacteria present in cases of pure otitis media, mastoid disease, extradural abscess or brain abscess. Their positive results had been in the cases of sinus thrombosis and meningitis. In some cases of sinus thrombosis the blood culture was negative. They were not yet able to explain all the negative results. It was very unusual to find streptococci in the blood in cases of erysipelas. They had no trouble from a possible confusion because of an angina. A positive blood culture was valuable if there was doubt as to the existence of a sinus thrombosis after the patient had been operated upon for mastoid disease. The most valuable field for the blood culture studies was the border line cases. If a patient had been operated upon for sinus thrombosis and the jugular vein was tied, and the bacteria disappeared from the blood, it was clear that the entrance of infection to the system had been stopped. A negative blood culture in these cases was of great value, for it helped decidedly in excluding an infective endocarditis. It was interesting to know how quickly the blood got rid of the bacteria after the clot had been removed, or after the jugular vein had been ligated.

Dr. Arthur B. Duel believed that the conclusions reached by Dr. Libman were altogether too sweeping, and that further investigation would teach them not to interpret results of examinations of the blood as definitely settled. Dr. Duel was inclined to doubt the advisability of accepting the presence of bacteriemia in a case with suppurative otitis as sufficient cause for invasion of the sinus, in the absence of some clinical symptoms.

Dr. John D. Richards did not believe that the presence of streptococci in the blood necessarily meant a thrombosis in the sigmoid sinus, for he had seen cases clinically in which there was merely a purulent phlebitis, yet sinus thrombosis was present and metastases had occurred; therefore, to assume a clot in the sinus merely upon the bacteriological findings that streptococci were present was doubtful.

Dr. Joseph A. Kenefick reported two cases which occurred in infants to illustrate the difficulty of applying blood cultures. When cases occurred in infants under three years of age, and where there was a complicating pneumonic process in the lung, and where both ears were involved, the question of diagnosis became a very serious problem. In the first case the diagnosis was made postmortem. In the second case a blood culture was made and was negative.

Dr. Kopetzky said that the question as to whether or not streptococci were to be found in the blood in other conditions besides sinus thrombosis was another side of the question which must be satisfactorily settled; until it was settled, the final diagnostic value of Dr. Libman's findings must be accepted with reserve.

Dr. Gruening said that only ten cases of sinus thrombosis had been reported, and these were diagnosticated by the clinical symptoms alone. Blood cultures were made in these cases and it was found that positive results were more frequent than negative results. The patients who had streptococci in the blood recovered after ligation of the jugular vein.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of Maryland.

December, 1908.

ANATOMY.

1. Describe the acetabulum.
2. Describe and give the anatomical relation of the appendix vermiformis.
3. Give attachments, action, and nerve supply of the following muscles: Digastric, gastrocnemius, rectus oculi externus, triceps extensor cubiti.
4. Describe the valves of the heart.
5. Locate and describe the spleen.
6. Name the opening into the pharynx.

PHYSIOLOGY.

1. Give functions of spinal cord.
2. (*a*) Describe the normal flow of blood through arteries, capillaries and veins, and factors which cause the flow in each. (*b*) What is the total quantity of blood as compared with weight of the body? (*c*) About what time is required for a complete circulation of the blood through the body?
3. What are tonic and clonic muscular contractions? Give examples.
4. Where is bile formed? How does it reach the digestive tract? What are its functions?
5. Describe the functions of the thyroids and parathy-

roids, including a consideration of the effects of their removal.

6. Describe the condition of food upon entering and upon leaving the stomach and the digestion which takes place there.

CHEMISTRY.

1. Define oxidation, combustion, crystalloid, and colloid, and give an illustration of each.

2. Name three chemical substances in frequent use as general anesthetics; give the chemical composition (formula) and general properties of each, and state what they are chemically.

3. Give the chemical composition (formula) of peroxide of hydrogen and permanganate of potassium; give the general properties of each, and state to what element they owe their antiseptic and disinfecting qualities.

4. What, chemically, is Paris green? Give in detail a reliable test for its detection in a supposed case of poisoning from it.

5. Describe in detail the various steps in an ordinary examination of the urine.

6. Give in detail a reliable test for the detection of free hydrochloric and lactic acids, respectively, in specimens of gastric contents.

MATERIA MEDICA.

1. Name three drugs which may be used to produce diaphoresis.

2. Arsenic: its preparations and the dose of each.

3. Name two galactagogues, two cholagogues, and two sialagogues.

4. Codeine, atropine, eserine: give the source and dose of each.

5. Name the physiological antagonists of pilocarpine, morphine, and phytolacca.

6. Santonin, creosote, elaterium, sulphonal, podophyllum, picrotoxin: give the dose of each.

THERAPEUTICS.

1. Ergot: its therapy.

2. How would you determine the proper dosage for a child?

3. Scoparius: its active principle, dose and physiological action.

4. Define the terms *ad libitum, compositus, fiat, chartula, macero, misce, pro re nata, quantum sufficiat,* and *ter in die.*

5. Cocaine: its derivation; symptoms and treatment of an overdose.

6. Write a prescription for an adult for one dozen pills containing iron, arsenic, and strychnine, using Latin terms and giving directions for taking.

PATHOLOGY.

1. (*a*) Give the gross pathology as regards the lungs of acute miliary and chronic ulcerative tuberculosis, respectively; describe in detail the method of staining the tubercle bacillus in the sputum. (*b*) Give the gross pathology of two diseases of the urinary tract associated with hematuria; give in detail the method of staining of the organism, if any, associated with each. (Candidate may answer either question (*a*) or question (*b*) above, but must not answer both.)

2. Give the gross and microscopic pathology of the disease you would expect to find in an elderly woman suffering from an offensive bloody vaginal discharge.

3. Explain what is meant by the terms physiological and pathological leucocytosis, respectively, and state whether a leucocytosis is present in the following diseases: Typhoid fever, malarial fever, appendicitis, acute miliary tuberculosis.

4. Describe the change one would expect to find in the appendix and surrounding structures in a case of gangrenous appendicitis. Give reasons for the formation of an abscess or the onset of general peritonitis in such a case.

5. Give in detail the pathology of a severe case of tertian malarial fever and describe in detail the parasite involved. What insect acts as an intermediary?

6. Give in detail the pathology of the blood in a case of pernicious anemia and one of chlorosis, respectively.

PRACTICE.

1. Define (*a*) Endemic disease. (*b*) Vocal fremitus, and state its significance in pulmonary diseases. (*c*) Argyll-Robertson pupil, and name the disease in which it is one of the diagnostic symptoms. (*d*) What is the significance of the patella reflex as a sign of disease? (*e*) What is the diagnostic significance of Cheyne-Stokes respiration?

2. (*a*) What are the characteristic symptoms of Graves' disease? (*b*) Give the differential diagnosis between catarrhal pneumonia and croupous pneumonia; (*c*) between gastric cancer and gastric ulcer.

3. (*a*) How would you treat acute nephritis accompanying or following scarlet fever? (*b*) How would you treat herpes zoster? (*c*) Describe treatment of acute inflammatory articular rheumatism.

4. Give differential diagnosis between spasmodic and membranous croup.

5. How would you diagnose and treat intestinal perforation in typhoid fever?

6. Differentiate between neuritis and neuralgia.

SURGERY.

1. Give the signs, symptoms, and treatment of acute synovitis; of chronic synovitis.

2. Give the details of the operative treatment of gunshot wounds of the stomach and intestines.

3. Give the symptoms of enlargement of the prostate, with a description of its surgical treatment, palliative and radical.

4. Describe the more important effects of nasopharyngeal growths and nasal affections upon the ear.

5. Describe pterygium and its surgical treatment.

6. Give the indications for nerve suture and describe the operation.

OBSTETRICS.

1. Describe cephalic version by the internal and external methods.

2. Give the management of a face presentation.

3. Write short articles on two of the important toxemias of pregnancy.

4. What are the dangers to be avoided in performing a dilatation of the cervix and a curettement of the uterus?

5. Give etiology, classification, and treatment of perineal tears.

6. Give indications for a suspension of the uterus and the various steps of the operation.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF MARYLAND.

December, 1908.

ANATOMY.

1. The *acetabulum* is a deep, hemispherical depression in the os innominatum. It is made up of all three bones comprising the os innominatum, viz.: the ilium, ischium, and pubis. It looks downward, outward, and forward. It is made deeper by a marginal rim, which does not go completely around it. At the bottom of the cavity is a circular depression, called the fossa of the acetabulum, which lodges a mass of fat, and to the margins of which are attached the ligamentum teres. There is a deep notch on the lower border, called the cotyloid notch, which is converted into a foramen by a tough ligamentous band which passes across it; through this foramen the nutrient vessels and nerves enter the hip joint.

2. The *vermiform appendix* is a long, narrow, musculomembranous tube which is given off, as a rule, from the inner side of the posterior wall of the cecum; but its position, as well as its size and direction, are very variable, usually it is about 2 or 3 inches in length by about $\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter, but it may vary in length from $\frac{1}{2}$ to 9 inches. It generally points upward and inward (in a line pointing toward the spleen); it may be found in almost any relation to the cecum and ascending colon. It consists of four coats: the serous (usually completely covering the appendix, and making a mesentery), the muscular, submucous, and mucous; this last contains blood vessels, nerves, and lymphatic glands.

3. *Digastric.* The posterior belly arises from the disgastric groove on the internal surface of the mastoid process of the temporal bone; the anterior belly, from a depression on the inner surface of the lower border of the inferior maxilla, near the symphysis. These two bellies are connected by a central tendon which perforates the stylo-hyoid, and is bound down to the greater cornu of the hyoid bone by a process of fascia. *Action*:—It raises the hyoid bone and depresses the lower jaw. *Nerve supply*:—The posterior belly is supplied by the facial, the anterior belly by the mylohyoid branch of the inferior dental.

Gastrocnemius:—The inner head arises from a depression on the upper and back part of the inner condyle of

the femur and the adjacent part of the femur; the outer head from an impression on the external surface of the outer condyle, and from the posterior surface of the femur immediately above the condyle, It unites with the tendon of the soleus to form the tendo Achillis, which is inserted into the lower part of the posterior surface of the os calcis. *Action*:—It flexes the knee, raises the heel, and extends the ankle. *Nerve supply*:—Internal popliteal.

Rectus oculi externus:—The upper head arises from the outer margin of the optic foramen; the lower head from the lower margin of the sphenoidal fissure and the ligament of Zinn. It is inserted into the sclerotic coat about 3 or 4 lines from the margin of the cornea. *Action*:—It turns the eye outward. *Nerve supply*:—The sixth cranial nerve (the Abducens).

Triceps extensor cubiti:—The long, or middle, head arises from a depression on the axillary border of the scapula immediately below the glenoid cavity; the external head from the root of the great tuberosity on the posterior surface of the humerus, and the upper part of the musculospiral groove; the internal head from the posterior surface of shaft of humerus, below musculospiral groove, and the internal and external muscular septa. It is inserted into the back part of the upper surface of the olecranon process of the ulna. *Action*:—It extends the forearm. *Nerve supply*:—The musculospiral.

5. The *spleen* is situated in the back part of the left hypochondriac and epigastric regions, being covered by the ninth, tenth, and eleventh ribs, on the left side, It is of an oblong, flattened form, the external surface being convex; on the inner surface is a vertical ridge dividing it into two parts, the posterior of which is applied to the outer surface of the left kidney, while the anterior one receives the tail of the pancreas, and lies against the cardiac end of the stomach. Near this ridge is a fissure,*the hilum*, where the vessels enter. The anterior border is notched, and the lower end is pointed and rests on the costocolic ligament, situated in the left hypochondriac region. It is covered by peritoneum, except at the hilum, where it passes forward and inward in a double line enclosing the vessels, as the gastrosplenic omentum, to the fundus of the stomach. It usually measures 5 by 3 by 1 or 1½ inches, and weighs about 7 ounces.—(From *Aids to Anatomy*.)

6. *The openings into the pharynx* are: The two posterior nares, the two Eustachian tubes, the mouth, the larynx, and the esophagus.

PHYSIOLOGY.

1. *The functions of the spinal cord* are: (1) The conduction of nerve impulses; (2) reflex action; (3) coordination; it also contains special centers which preside over definite functions.

2. (*a*) The circulation of the blood is regulated in (a) *the arteries*, by: (1) the elasticity and tone of the arteries; (2) the force and frequency of the cardiac contractions; (3) the resistance in the capillaries; (b) in the *capillaries* it is regulated by: (1) the action of the heart; (2) the action of the arteries: (c) in the *veins* it is regulated by: (1) the action of the heart; (2) aspiration of the thorax; (3) the contraction of the muscles, and (4) slightly by the valves in the veins.

(*b*) The total quantity of blood is supposed to be about one-thirteenth of the weight of the body.

(*c*) The time required for a complete circulation of the blood through the body is about twenty-three seconds.

3. In *tonic muscular contraction* the muscle remains for some time in a state of rigid contraction. In *clonic contraction* the muscle alternately contracts and relaxes. Tonic muscular contraction occurs in tetanus; clonic, in an ordinary convulsion.

4. (*a*) Bile is formed in the liver cells.

(*b*) The bile is conveyed from the liver by the bile capillaries which eventually form the hepatic duct; it (the bile) is stored in the gall bladder, whence it flows through the cystic duct and the ductus communis choledochus into the duodenum, about three inches below the pylorus.

(*c*) *The functions of the bile* are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

5. The *function of the thyroid* is not definitely settled; (1) it has some trophic function, regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the sexual functions; (2) it is supposed to antagonize toxic substances; and (3) it produces an internal secretion.

Removal of the thyroid gland causes mental and bodily dullness and apathy, tremors, twitchings, overgrowth of the connective tissues, and development of fat; the hairs fall out, and the patient becomes unwieldy and clumsy in both body and mind. The complete removal causes death in most animals, and it is not considered justifiable in man.

Removal of all the parathyroids causes death from acute tetany. Their exact function is unknown, but it is supposed that some of the evil effects attributed to removal of the thyroids is really due to the removal of all the parathyroids as well, and that if the parathyroids are left (with their blood supply intact) these results will not ensue.

6. On *entering the stomach* the food is already crushed, mixed with saliva, and reduced to a pulp; it is rendered slightly alkaline, and a small amount of the starch has been converted into maltose; the proteids and fats are unaltered.

In the stomach, where the contents are rendered acid, conversion of starch into sugar ceases, connective tissue of fats is dissolved, and fats are set free. Proteids are dissolved and peptones formed. The albuminous foods are dissolved for the most part, and a grumous mixture of peptones, liquid fats, and starches is formed, which is termed chyme, and is gradually passed through the pylorus into the intestine.

The contents of the stomach at the close of gastric digestion are: Water, inorganic salts, acidified proteids, peptones, liquid fats, starch, cellulose, and the indigestible residues of various foods.

CHEMISTRY.

1. By *oxidation* we mean the act of union of oxygen with another element or compound. This process is attended by the liberation of heat, and, when it takes place rapidly, of light. The rusting of a given weight of iron is a slow oxidation, while the burning of the same in oxygen is a rapid oxidation. Only the latter produces light, while in both cases the same amount of heat is liberated.

By *combustion*, in a general sense, is meant the rapid union of the oxygen of the air with some other substance, as coal or phosphorus. In a wider sense, however, combustion may be defined as any chemical union of two substances attended by liberation of heat and light.

Crystalloids are substances which usually crystallize, and whose solutions are readily diffusible. *Example*—alum.

Colloids are substances which do not form crystals, and are not diffusible through porous membranes. *Example*—Albumin.

2.

THREE GENERAL ANESTHETICS.	CHEMICAL COMPOSITION (FORMULA).	CHEMICAL NAME.
1. Chloroform.	$CHCl_3$	Trichlormethane.
2. Ether.	$(C_2H_5)_2\ O$	Ethyl oxide.
3. Nitrous oxide.	N_2O	Nitrogen monoxide

Chloroform is a colorless liquid, volatile, with a strong, pleasant odor and a sweet taste; it is slightly soluble in water, but readily mixes with alcohol and ether; it is a good solvent for many substances which do not dissolve in water, such as phosphorus, fats, etc.

Ether is a colorless liquid with a sharp, burning taste and a peculiar odor; it is very volatile, very inflammable, and burns with a luminous flame. The vapor of ether, with air, forms a highly explosive mixture. It is a good solvent of several substances which do not dissolve in water and alcohol, such as fats and resins.

Nitrous oxide is a colorless, odorless gas, with a sweetish taste; it is soluble in water, also in alcohol; it is not combustible, but is a good supporter of combustion.

3. *Peroxide of hydrogen*, H_2O_2, is a colorless, syrupy liquid, heavier than water; it has a disagreeable metallic taste. It is a powerful oxidizing agent, also a bleacher and disinfectant. It is unstable, and it acts as a disinfectant and antiseptic by giving up free oxygen.

Potassium permanganate, $K_2Mn_2O_8$, is a crystalline solid, with a sweet and astringent taste, odorless, soluble in water. It is an oxidizing agent and disinfectant. It acts as a disinfectant and antiseptic by oxidizing the organic matter with which it comes in contact.

4. *Paris green* is, chemically, acetometarsenite of copper. The tests for its detection are the regular tests for arsenic and for copper.

Reinsch's test for arsenic is as follows: To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water,

dry on filter paper, but be careful not to rub off the deposit. Coil up the copper and put it into a clean, dry glass tube, open at both ends, and apply heat at the part where the copper is. If arsenic is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of octahedral crystals of arsenic trioxide.

5. In examining *normal* urine the following points are to be considered:

The quantity voided in twenty-four hours, its general appearance, color, odor, reaction, specific gravity, quantity of solids excreted, quantity of urea, uric acid, chlorides, sulphates, phosphates.

In *abnormal* urine, in addition to the above, examination should be made for albumin, sugar, excess of indican, acetone, blood, bile, pus, casts, epithelium, parasites, pathogenic bacteria, and foreign bodies.

6. *Tests for free hydrochloric acid in the gastric juice*:—The best is probably the Dimethylamido-azobenzol test; the reagent is used in 0.5 per cent. alcoholic solution, of which one or two drops are added to a like amount of the filtered gastric juice. If free HCl is present, the yellow solution turns red.

"*The presence of lactic acid* is detected by *Uffelmann's reagent*, which consists of a solution of Fe_2Cl_6 and phenol, diluted to an amethyst blue color, which is changed to yellow by lactic acid. In order to avoid error by the action of other substances which have a like action upon the reagent, 10 c.c. of the filtered gastric contents are agitated with ether, and the ethereal extract separated and agitated with the reagent; or, it may be evaporated, the residue dissolved in water, and the solution added to the reagent." (Witthaus' *Manual of Chemistry.*)

MATERIA MEDICA.

1. *Three drugs which will produce diaphoresis*:—Pilocarpus, Dover's powder, and Liquor ammonii acetatis.

2. The official preparations of arsenic, with their doses, are: Arseni trioxidum, gr. 1/30; Liquor acidi arsenosi, ♏vij; Arseni iodidum, gr. 1/20; Sodii arsenas, gr. 1/6, Sodii arsenas exsiccatus, gr. 1/20; Liquor potassii arsenitis, ♏vij; Liquor sodii arsenatis, ♏v; Liquor arseni et hydrargyri iodidi, ♏vij.

3. *Two galactagogues*:—Pilocarpus and the leaves of the castor oil plant, applied locally.

Two cholagogues:—Podophyllin and aloes.

Two sialagogues:—Pilocarpus and ipecac.

4.

	SOURCE.	DOSE.
Codeine.	Opium.	gr. 1/2.
Atropine.	Belladonna.	gr. 1/160.
Eserine.	Physostigma.	Of the sulphate, or salicylate, gr. 1/64

5. PHYSIOLOGICAL ANTAGONISTS:—Of *pilocarpine*: Atropine, strychnine, and morphine. Of *morphine*: Atropine, caffeine, cocaine, strychnine, and amyl nitrite. Of *phytolacca*: Alcohol, ether, opium, and digitalis.

6. *Dose* of: Santonin, gr. j; creosote, ♏ij; elaterium, gr. 1/6; sulphonal, gr. xv; podophyllum, gr. vijss; picrotoxin, gr. 1/90.

THERAPEUTICS.

1. Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative; it raises the blood pressure, it increases peristalsis, and is an emmenagogue.

Indications for the therapeutic application:—To promote uterine contractions during third stage of labor; fibroids, menorrhagia, postpartum hemorrhage. Some forms of amenorrhea and dysmenorrhea, dysentery, arterial hemorrhage, congestive headaches, laxity of sphincters, of bladder or rectum, hemorrhoids, aneurysm, diabetes, urinary incontinence, direct paralysis of the sphincter vesicæ, atonic spermatorrhea.

2. *To determine the proper dosage for a child*: Let x = the age of a patient; then $\frac{x}{x+12}$ = the fraction of the adult dose which the patient should receive. Thus, a patient of four years old should receive $\frac{4}{4+12} = \frac{4}{16} = \frac{1}{4}$ of an adult dose.

3. SCOPARIUS:—*Active principle* is sparteine. *Dose*, of scoparius, is 3jss; of sparteine sulphate, is gr. 1/5. *Physiological action*: Diuretic; also diaphoretic and laxative; it strengthens the heart beat, slows the heart, raises arterial tension; it stimulates the vasomotor center to contract the abdominal vessels; the respiration is first quickened, then slowed and deepened.

4. *Ad libitum* means, at pleasure; *compositus*, compound; *fiat*, let it be made, or let there be made (singular); *chartula*, a little paper (for a powder); *macero*, I macerate; *misce*, mix; *pro re nata*, as occasion requires; *quantum sufficiat*, as much as may be sufficient; *ter in die*, three times a day.

5. *Cocaine* is an alkaloid derived from the Erythroxylon coca.

Symptoms of an overdose:—Pain and fulness in the head, pulse at first quick but later feeble and slow; extremities cold. The symptoms are not constant.

Treatment consists in the administration of ammonia or coffee; morphine, strychnine, chloroform, and ether have all been suggested; artificial respiration may be necessary. The safest plan is to treat whatever symptoms are present.

6. ℞ Ferri reducti, gr. xij.
Arseni trioxidi.
Strychninæ sulphatis āā, gr. 1/4.
Misce et fiat massa in pilulas no. xij dividenda.
Signa: Take one after each meal.

PATHOLOGY.

1. (*a*) *Method of staining the tubercle bacillus in the sputum*:—The sputum must be recent, free from particles of food or other foreign matter; select a cheesy looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin, red rods, while all other bacteria will appear blue.

3. A *physiological leucocytosis* is a leucocytosis which is found in certain physiological conditions; it is generally moderate and of brief duration. It is found in the newborn, after parturition, after exertion, after a cold bath or massage, during pregnancy, and during digestion.

A *pathological leucocytosis* is a leucocytosis which is found in certain pathological conditions; it is generally found in inflammatory, toxic, and infectious conditions. As a rule, the polynuclears are increased.

Of the diseases mentioned there is a leucocytosis present in: Appendicitis (sometimes only). It is absent in: Typhoid, malaria, and acute miliary tuberculosis.

6. In *pernicious anemia*:—"The color of the blood is often strikingly pale, though it may be dark, in spite of marked anemia. The specific gravity is reduced. The marked feature of the disease is pronounced oligocythemia. This progresses rapidly, and in ordinary cases the number of red corpuscles sinks to 1,000,000 or less per cu. mm.; at the same time, changes in size (microcytes and megalocytes) and in shape (poikilocytes) make their appearance and reach grades rarely attained in other diseases. Nucleated red corpuscles are always present in some number, and are usually abundant. The largest forms (megaloblasts) as a rule predominate, but in some cases the smaller forms are more abundant. Karyokinetic figures may be found in the nuclei. Polychromatophilia is generally present. The leucocytes may be decreased or normal in number; in the late stages leucocytosis is not uncommon, and it may become extreme. The larger mononuclear leucocytes are usually more abundant than in health, and myelocytes often occur in considerable numbers. In the terminal leucocytosis of pernicious anemia the lymphocytes often predominate."

In *chlorosis*:—"The blood is paler than normal and watery. The specific gravity decreases progressively, and the solid matter is deficient. Increased coagulability is sometimes observed. The number of red corpuscles may be normal even in well developed cases, but the proportion of hemoglobin sinks progressively. In prolonged cases the corpuscles become reduced in number, but the deficiency of hemoglobin continues to be excessive. Severe cases of chlorosis frequently show 3,000,000 or 2,000,000 red corpuscles per cu. mm. and 30 per cent. to 20 per cent. of hemoglobin. The red corpuscles may be little altered in appearance in the early stages; later, irregularities in size and shape are frequent, and nucleated red corpuscles (especially small forms) make their appearance. The latter sometimes occur in great numbers in crops (blood-crises). The leucocytes are usually normal in number and

kind; but in some cases myelocytes have been met with." (Stengel's *Pathology.*)

PRACTICE.

1. (*a*) An *endemic disease* is a disease which is found in a certain locality more or less constantly, as malaria and yellow fever in certain tropical regions.

(*b*) *Vocal fremitus* is the sense of vibration imparted by the voice of the patient to the hand of the physician palpating the chest.

It is *increased*: If the patient has a loud, low pitched, or harsh voice; when the lung is consolidated, as in pneumonia or tuberculosis.

It is *diminished*: If the patient has a feeble, high pitched voice; also in pleural effusions, pulmonary collapse, emphysema, obstruction of bronchus, edema of the lung.

(*c*) *Argyll-Robertson pupil* is a condition in which the pupil accommodates for distance but not for light. The condition is chiefly found in locomotor ataxia and paretic dementia.

(*d*) The *patella reflex* is nearly always *present* in health, and denotes a healthy condition of the entire reflex arc (tendon, afferent, or sensory nerve, posterior roots and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself). It is *absent* when there is a lesion which affects any part of this reflex arc, such as is the case in locomotor ataxia, poliomyelitis, Landry's paralysis, neuritis, in apoplexy just after the shock, and in epilepsy following the convulsion, etc. It is *exaggerated* in: Hemiplegia, lateral sclerosis, general paresis, transverse myelitis, injuries to the spinal cord, hysteria, neurasthenia, tetanus, and strychnine poisoning.

(*e*) In *Cheyne-Stokes respiration* the respirations gradually increase in volume and rapidity until they reach a climax, when they gradually subside, and finally cease for from ten to forty seconds, when the same cycle begins again.

"In the majority of instances it is associated with apoplexy (toward the end), chronic nephritis (uremia), tumor of the brain, tuberculous meningitis, or degeneration of the heart muscle. Less frequently it is observed as a result of cardiac valvular defects and consequent embolism, diabetes, and certain acute diseases, notably typhoid, pneumonia, pertussis, cerebrospinal fever, scarlet fever, and septicemic conditions." (Butler's *Diagnostics of Internal Medicine.*)

2. (*a*) The characteristic symptoms of Graves's disease are: (1) Tachycardia; (2) goitre; (3) exophthalmos, and (4) tremor.

(*b*)

CROUPOUS PNEUMONIA.	CATARRHAL PNEUMONIA.
Generally a primary disease.	Generally secondary (to bronchitis or an infectious disease).
Age has little influence.	Generally found in very young or very old.
Sudden onset.	Gradual onset.
Fever is high and regular.	Fever is not so high, and is irregular.
Ends by crisis between sixth and tenth day.	Ends by lysis, at no particular date.
Generally only one lung affected.	Generally both lungs affected.
The physical signs are distinct; and there is a large area of consolidation.	Physical signs indistinct; and the evidences of consolidation are indefinite.
Sputum is rusty.	Sputum is rather streaked with blood.

(*c*) *Gastric cancer* does not usually occur before forty years of age, is more common in males, pain is localized and constant, vomiting is copious and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; severe anemia and cachexia are also present.

Gastric ulcer is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents show an excess of free HCl.

3. (*a*) *In the acute nephritis accompanying or following scarlet fever*:—The patient should be kept in bed, kept quiet, and kept warm. Milk diet should be the rule; the milk can be diluted with limewater or Vichy. Salines, as potassium bitartrate or magnesium citrate or sulphate, and diaphoretics, as sweet spirit of niter, or pilocarpin, may be administered. Warm baths are helpful, and infusion of digitalis should be given.

(*b*) *Herpes zoster*:—The vesicles should be protected with collodion or zinc oxide; if the pain is very severe, morphine may be given; tonics and nutritious diet are indicated; strychnine or phosphide of zinc have been recommended.

(*c*) *Acute inflammatory articular rheumatism*:—The patient must lie in bed, between blankets, and in flannel; the affected joints and limbs must further be covered with warm flannel or cotton wool. Sodium salicylate or oil of wintergreen must be administered, and oil of gaultheria may also be applied locally to the affected parts. Acetate and citrate of potassium are also useful. For the pain, Dover's powder, or phenacetin, or morphine may be necessary. A cold bath is probably the best thing for the high fever. The diet should be liquid, and simple but nourishing.

4. *Spasmodic croup* generally comes on suddenly, at night. There is no appreciable fever, no previous malaise or sickness, and often the patient is asleep again by the time the physician arrives. There is frequently a thick, tenacious mucus, but neither Klebs-Loeffler bacilli nor streptococci are present. It is entirely a local disturbance.

Membranous croup is either laryngeal diphtheria or a streptococcus infection. In either case there is a prior stage of malaise, accompanied by chills, fever, and sore throat. The fever may become very high. A membrane forms, in which are found the Klebs-Loeffler bacillus or streptococci.

5. *Intestinal perforation in typhoid fever*:—Sometimes there is severe, sudden pain localized in the abdomen, and sometimes there is little or no pain. Marked tympanites, great weakness, collapse, anxious look, small, rapid pulse, and difficult breathing are present. The legs are apt to be drawn up, and nausea and vomiting may ensue. Hepatic and splenic dullness disappear, and leucocytosis may be present.

The *treatment* is surgical; laparotomy, with suture of the intestine, should be done as soon as possible. In the meantime opium (or preferably morphine) should be administered.

6. In *neuralgia* the pain is paroxysmal and intermittent; it is independent of the use of the nerve; it may vary in situation; painful points are not often present; the nerve trunk is not particularly tender, and a light pressure along the nerve trunk may cause as much pain as a heavy pressure; neuralgia only affects sensory nerves, and wasting and trophic disturbances only rarely occur.

In *neuritis* the pain is continuous, is always worse after use of the nerve, and does not vary in situation; painful points are present; the nerve trunk is tender, and the pain can be increased proportionately with pressure; it is not limited to sensory nerves, and trophic disturbances, wasting, and alterations in the electrical reactions are very apt to appear.

SURGERY.

1. In *acute synovitis* there are: Pain in the joint, which is worse at night and is increased by motion or pressure; the join is swollen, hot and tender; the swelling is fluctuating and elastic and conceals the outlines of the articular ends of the bones; the patient places the limb in the position of greatest ease; there is fever, which is proportionate to the size of the joint and the acuteness of the attack. *Treatment* consists in: Immobilization of the joint; firm bandaging and a splint; elevation of the limb and application of hot fomentations; application of leeches; massage or passive motion; later on, active movements, if possible; if adhesions exist they must be broken down, under anesthesia.

In *chronic synovitis* there are: Pain on movement or pressure, but not at other times; swelling and weakness of the joint; limitation of movement; fluctuation in the joint; atrophy of the muscles about the joint; later suppuration may occur. *Treatment* consists in: Rest; fixation of the joint; firm pressure on joint; blisters; massage; aspiration and drainage; the joint may be opened and hypertrophied synovial fringes removed and the joint washed out with sterilized water. The hot air apparatus is often of service.

3. The *symptoms of enlargement of the prostate* are: Frequent and difficult urination; the presence of residual urine; cystitis, pain and sense of fulness in the perineum.

Palliative treatment consists in: Regular catheterization, the administration of urinary antiseptics, bladder irrigation.

Radical treatment consists in: Prostatectomy, either suprapubic or perineal.

4. Nasopharyngeal growths and nasal affections all have a tendency to affect the mucous membrane of the nasopharynx, which is continuous with the middle ear through

the Eustachian tube. This mucous membrane becomes swollen, the Eustachian tube is obstructed, and consequently sufficient air is not admitted to the tympanum; the equilibrium of air is destroyed, the tympanum is retracted, the chain of ossicles is pressed inward, and sound conduction is interfered with. Inflammation of the middle ear, purulent or nonpurulent, may result.

6. The *indications for nerve suture* are: For repair of injury to nerve; in neuroplasty and nerve grafting or nerve implantation.

OBSTETRICS.

2. If the chin is presenting anteriorly, expectant treatment may suffice; but care must be taken to observe that the chin does not rotate backward. Spontaneous version may occur, and the presentation becomes a vertex one. Failing this, or as a means of favoring this, postural treatment, such as Walcher's position, has been recommended. If, in spite of this, engagement has not occurred, cephalic version is indicated. If this is not successful, podalic version should be tried. If, after all these manipulations the child is still alive and the head is engaged, symphyseotomy is indicated; if the child is dead, craniotomy should be performed.

4. The *dangers to be avoided in dilating the cervix* are: Infection, laceration of the cervix.

The *dangers to be avoided in curettage of the uterus* are: Sepsis, hemorrhage, perforation of the uterus, inflammation of uterus or aduexa, peritonitis, unintentional production of an abortion.

5. PERINEAL TEARS:—*Etiology*: Relative disproportion between size of the child and the perineal outlet; rapid labor; edema of the vulva; unfavorable head presentations (especially occipito posterior); large shoulders; poor perineal tissue.

Classification: (1) Slight; (2) when it reaches the margin of the anus; (3) when it reaches the splinchter ani and extends into the rectum.

Treatment: Repair, in all cases.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	July 13
Arizona*	Aneil Martin, Phoenix	Phoenix	July 5
Arkansas*	F. T. Murphy, Brinkley	Little Rock	July 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	Aug. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	July 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 13
Delaware	J. H. Wilson, Dover	Dover	July 15
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	July 13
Florida*	J. D. Fernandez, Jacksonville	Tallahassee	May 19
Georgia	E. R. Anthony, Griffin	Atlanta	April 30
Idaho*	W. F. Howard, Pocatello	Boise	Oct. —
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	May 2
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	D. P. Cook, Clay Center	Kansas City	June 10
Kentucky	J. N. McCormick, Bowling Green	Louisville	April 27
Louisiana	P. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 20
Maine	Wm. J. Maybury, Saco	Augusta	July 1
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 15
Massachusetts*	E. B. Harvey, State House, Boston	Boston	May 11
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	June 1
Mississippi*	S. B. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	May 4
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 5
Nebraska	E. J. C. Ward, Oakland	Lincoln	May 5
Nevada	S. L. Lee, Carson City	Carson City	May 3
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	June 29
New Jersey	J. W. Bennett, Long Branch	Trenton	June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	July 13
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	May 18
N. Carolina	B. K. Hays, Oxford	Asheville	June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	July 9
Ohio	Geo. H. Matson, Columbus	Columbus	June 8
Oklahoma*	P. P. Davis, Enid	Guthrie	July 6
Oregon*	B. E. Miller, Portland	Portland	July 6
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	June 22
Rhode Island*	G. T. Swarts, Providence	Providence	July 1
S. Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota*	H. E. McNutt, Aberdeen	Watertown	July 14
Tennessee	T. J. Happel, Trenton	Memphis Nashville Knoxville	May —
Texas	C. B. Foscue, Waco	Cleburne	June 22
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	July 5
Vermont	W. Scott Nay, Underhill	Burlington	July 13
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	K. Turner, Seattle	Seattle	July 6
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	July 13
Wisconsin	J. V. Stevens, Jefferson	Madison	July 13
Wyoming	S. B. Miller, Laramie	Laramie	June 23

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Civil Service Examination.—The following is the list of places where examinations are held, under the United States Civil Service Commission, for medical and other appointments by the national government. Application blanks for permission to come up for examination may be secured from the secretary of the board at the post office at any of the following named places, except where the letters "C. H." occur, which refer to the Custom House:

Alabama—Birmingham, Mobile (C. H.), Montgomery.

Arizona—Phœnix, Prescott, Tucson.

Arkansas—Fayetteville, Fort Smith, Little Rock, Texarkana.

California—Eureka, Fresno, Los Angeles, *Marysville, Sacramento, San Bernadino, San Francisco, San Jose, San Luis Obispo.

Colorado—Denver, Durango, Fort Collins, Grand Junction, Pueblo, Trinidad.

Connecticut—Hartford (C. H.), Middletown, New Haven.

District of Columbia—Washington.

Florida—Gainesville, Jacksonville, *Key West, Miami, Pensacola, *Tampa.

Georgia—*Athens, Atlanta, Augusta, Macon, Savannah, *Thomasville.

Hawaii—*Honolulu (C. H.).

Idaho—Boise, Moscow

Illinois—Cairo, Champaign, Chicago, Peoria, Quincy, Springfield.

Indiana—Bloomington, Evansville, Fort Wayne, Indianapolis, Lafayette.

Iowa—*Ames, Burlington, Des Moines, Dubuque, Fort Madison, Iowa City, *Mason City, Sioux City.

Kansas—Emporia, Fort Scott, Lawrence, Manhattan, Salina, Topeka, Wichita.

Kentucky—Lexington, Louisville, Paducah.

Louisiana—Baton Rouge, New Orleans (C. H.), Shreveport.

Maine—Bangor, Bath, Calais (C. H.), Houlton, Lewiston, Portland.

Maryland—Baltimore, Cumberland, Salisbury.

Massachusetts—Boston, Fall River, Fitchburg, Lawrence, Lowell, Pittsfield, Springfield, Worcester.

Michigan—Ann Arbor, Detroit, Grand Rapids, Manistee, *Marquette, Saginaw, Sault Ste. Marie.

Minnesota—Duluth, Mankato, St. Paul.

Mississippi—Greenville, *Meridian, Vicksburg.

Missouri—Columbia, Jefferson City, Kansas City, Kirksville, Springfield, St. Joseph, St. Louis (Old C. H.).

Montana—*Billings, *Bozeman, Butte, *Great Falls, Helena, Missoula.

Nebraska—Grand Island, Lincoln, Omaha.

Nevada—*Reno.

New Hampshire—Concord, Hanover, Keene, Manchester, Portsmouth.

New Mexico—Albuquerque, Las Vegas.

New York—Binghamton, Buffalo, Elmira, Ithaca, Jamestown, New York (C. H.), Ogdensburg (C. H.), Plattsburg (C. H.), Poughkeepsie, Rochester, Syracuse, Troy, Utica.

North Carolina—Asheville, Charlotte, *Durham, Goldsboro, Greensboro, Raleigh, Wilmington.

North Dakota—Bismarck, Fargo, *Grand Forks, *Minot, *Pembina (C. H.).

Ohio—Cincinnati, Cleveland (C. H.), Columbus, *Ironton, Toledo, Zanesville.

Oklahoma—Ardmore, Enid, Guthrie, McAlester, Muskogee, Oklahoma.

Oregon—Astoria (C. H.), Baker City, Eugene, Portland.

Pennsylvania—*Altoona, Harrisburg, Philadelphia, Pittsburg, *South Bethlehem, *Warren, Williamsport, Wilkes-Barre.

Porto Rico—*San Juan.

South Carolina—Charleston, Columbia, *Greenville.

South Dakota—Aberdeen, Deadwood, Sioux Falls, Watertown.

Tennessee—Bristol, Chattanooga, Knoxville, Memphis, Nashville.

Texas—Austin, *Brownsville (C. H.), Dallas, El Paso (C. H.), Houston, San Antonio, Waco.

Utah—*Logan, Salt Lake City.

Vermont—Burlington, Montpelier, Rutland, St. Johnsbury.

*Boards of Pension Examining Surgeons are located at all places mentioned in this list, except those marked thus *.

Virginia — *Charlottesville, *Lynchburg, Norfolk, Richmond, Roanoke, Staunton.

Washington—Bellingham, Port Townsend (C. H.), Pullman, Seattle, Spokane, Tacoma, Walla Walla.

West Virginia—Charleston, Fairmont, Parkersburg, Wheeling.

Wisconsin—Appleton, Ashland, Chippewa Falls, La Crosse, Madison, Marinette, Milwaukee, Wausau.

Wyoming—Cheyenne, *Laramie, Sheridan.

Tropical Medicine in the United States.—E. N. Tobey, writing in the *Journal of the American Medical Association* of April 3, 1909, pleads for the establishment of a course of tropical medicine in American medical schools. He reviews the objections: First, that the Government already has three schools; second, that the subject is of very little importance to general practitioners; third, that we have very little commerce with the tropics; fourth, that the subject is of vital importance only to Government agents abroad; fifth, that there is such a school in Manila, where tropical diseases may be studied; sixth, that the subject is better taught by the several departments whose fields it touches than by a special course; seventh, that there is but little clinical material for teaching purposes in such a place as Boston for instance. He answers these separately. The first objection was urged also in England, but in spite of this the London School of Tropical Medicine was established by the Government and has been utilized by American naval and military surgeons, as well as British officers who at first objected to it. Our officers evidently had to go abroad to obtain what they could not obtain here. The subject of tropical medicine is becoming annually more important on account of the return of discharged soldiers and sailors, missionaries, commercial agents, tourists, and others, who are as liable to return to the country as to the cities, and, in addition to this, the tropical types of malaria, dysentery, and even filariasis, have been known to originate within our own limits. Our commerce with the tropics is very great, amounting to hundreds of millions a year, and equal to more than half that of Great Britain, which controls one-fifth of the world. Our small army is constantly changing, and the treatment of the discharged soldiers has to be done at home. The southern part of the United States also is semitropical, and the treatment of the indigenous diseases must be done by civil practitioners at home. That there is a good laboratory and medical school at Manila does not meet the case. Manila is more than a month distant from us, and students should not be compelled to go so far. Tropical diseases are more frequent than is supposed in this country, and more will be reported when they are better recognized. At present only five medical schools here are giving special instruction in this department during term time, and much of this consists of a few optionally attended lectures. Is it not high time, Tobey asks, that we wake up and institute instruction in this important branch of medicine?

President Eliot on Football.—In the annual report of Harvard University for 1907-1908, the last to be written by President Eliot, this distinguished educator, himself, at the Psalmist's limit of endurable human life, still a notable example of physical as well as mental vigor, pays his parting compliments to football in the following words of no uncertain import (*Boston Medical and Surgical Journal*, April 1, 1909): "Although the game of football has been made more open and interesting by the new rules, and some of the foul play has been prevented by the neutral strip and other devices, the game still remains unfit for college uses, affords a demoralizing spectacle for the immense crowds which gather to witness the chief games, and still provides on a great scale the opportunity for that variety of gambling called betting. The betting evil is greatly increased by the practice of exhibiting the game in public halls in many American cities far remote from the scene of action. It is reasonable to expect that the barbarous stage of public opinion and college opinion concerning athletics, which in this country has been partly the result of inexperience in competitive sports and partly of the general predisposition to exaggeration in pleasures which characterizes Americans, will pass away before many years. Meantime the educated public may rejoice in the greater attention generally paid to school hygiene, preventive medicine, daily out-of-door exercise, and moderation in eating and drinking, with the great resulting improvement in the health and vigor of young men and women at the student age."

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending April 16, 1909:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
Alabama, Antaugua County	To Apr. 5	11	..
Pottsville	Feb. 7–Apr. 5	3	..
Montgomery	Mar. 26–Apr. 2	..	1
California, Los Angeles	Mar. 20–27	1	..
Sacramento	Mar. 20–27	1	..
San Francisco	Mar. 20–27	1	..
District of Columbia, Washington	Mar. 27–Apr. 3	1	..
Georgia, Mcaon	Mar. 28–Apr. 4	2	..
Illinois, Canton	Jan. 1–Mar. 1	50	..
Chicago	Mar. 27–Apr. 3	1	..
Danville	Mar. 28–Apr. 4	7	..
Fulton County, general	Jan. 1–Mar. 1	..	Present
Peoria	Mar. 27–Apr. 3	12	..
Indiana, Kokomo	Jan. 20–Mar. 7	14	3
Muncie	Mar. 27–Apr. 3	1	..
South Bend	Mar. 27–Apr. 3	1	..
Iowa, Cedar Rapids	Mar. 1–31	13	..
Kansas, Kansas City	Mar. 27–Apr. 3	1	..
Topeka	Mar. 20–27	15	..
Wichita	Mar. 27–Apr. 3	1	..
Kentucky, Berea	Feb. 1–Apr. 5	20	..
Covington	Mar. 27–Apr. 3	8	..
Louisiana, New Orleans	Mar. 27–Apr. 3	2	..
Minnesota, Minneapolis	Mar. 13–27	5	..
Missouri, St. Louis	Mar. 27–Apr. 3	2	..
New Jersey, Camden	Mar. 27–Apr. 3	3	..
Hightstown	Mar.	1	Imported
New Brunswick	Mar. 27–Apr. 3	3	..
Paterson	Mar. 6–Apr. 5	8	..
Plainfield	Mar. 29–Apr. 5	1	..
Woodbridge	Mar. 6	1	..
New York, New York	Mar. 27–Apr. 3	4	..
Ohio, Cincinnati	Mar. 19–Apr. 2	10	..
Cleveland	Mar. 26–Apr. 2	1	..
Tennessee, Knoxville	Mar. 28–Apr. 3	3	..
Texas, Corpus Christi	Apr. 2	..	Present
Fort Worth	Mar. 1–31	10	..
San Antonio	Mar. 27–Apr. 3	4	..
Wisconsin, La Crosse	Mar. 27–Apr. 3	2	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Feb. 20–27	5	..
SMALLPOX—FOREIGN			
Brazil, Bahia	Feb. 13–27	15	1
Pernambuco	Feb. 1–15	..	11
Canada, Halifax	Feb. 13–27	5	..
China, Hong Kong	Feb. 13–27	4	..
Shanghai	Feb. 28–Mar. 6	..	1
Tientsin	Feb. 20–27	1	..
Egypt, Alexandria	Feb. 18–25	..	1
Cairo	Feb. 18–25	27	17
France, Paris	Mar. 6–20	6	..
Great Britain, Bristol	Mar. 13–20	1	..
India, Bombay	Mar. 2–9	..	19
Calcutta	Feb. 20–27	..	332
Madras	Feb. 27–Mar. 5	..	1
Rangoon	Feb. 20–27	..	7
Indo-China, Saigon	Feb. 6–13	1	1
Italy, general	Mar. 13–21	14	..
Catania	Mar. 6–20	2	..
Genoa	Feb. 1–28	5	..
Naples	Mar. 14–21	2	..
Palermo	Feb. 28–Mar. 6	2	..
Japan, Formosa	Feb. 13–Mar. 13	9	..
Kobe	Mar. 6	1	1
Java, Batavia	Feb. 13–20	5	1
Malta	Feb. 13–20	..	1
Mexico, Guadalajara	Mar. 18–25	5	..
Monterey	Mar. 21–28	4	..
Veracruz	Mar. 20–27	1	1
Netherlands, Rotterdam	Mar. 20–27	..	1
New Foundland, St. Johns	Mar. 13–20	1	..
Russia, Moscow	Mar. 6–20	54	17
Odessa	Mar. 6–13	1	..
Riga	Mar. 6–20	6	..
St. Petersburg	Feb. 20–Mar. 6	23	..
Spain, Almeria	Feb. 1–28	..	2
Barcelona	Mar. 8–22	..	7
Valencia	Mar. 12–19	..	1
Straits Settlements, Singapore	Feb. 13–20	..	1
Uruguay, Montevideo	Jan. 1–31	..	1
YELLOW FEVER.			
Barbados, general	Mar. 22–27	3	..
Brazil, Bahia	Feb. 13–27	14	6
Para	Mar. 6–13	..	5
Pernambuco	Feb. 1–15	..	1
Ecuador, Guayaquil	Mar. 6–13	..	10
CHOLERA—INSULAR.			
Philippine Islands, Provinces	Feb. 20–27	8	34
CHOLERA—FOREIGN.			
India, Calcutta	Feb. 20–27	..	40
Madras	Feb. 27–Mar. 5	..	2
Rangoon	Feb. 20–27	..	7
Russia, Saratov	Mar. 21	1	..
St. Petersburg	Mar. 19–26	19	4
Straits Settlements, Penang	Feb. 20–27	1	..
Singapore	Feb. 13–27	3	..
PLAGUE.			
Brazil, Bahia	Feb. 13–27	6	2
Chile, Magillones	Mar. 10	..	Epidemic
China, Hongkong	Feb. 6–27	6	5
Ecuador, Guyaquil	Mar. 6–13	..	6
India, general	Feb. 20–27	4,717	3,750
Bombay	Mar. 2–9	..	197
Calcutta	Feb. 20–27	..	36
Rangoon	Feb. 20–27	..	17
Japan, Formosa	Jan. 23–Mar. 13	223	187
Kobe	Feb. 27–Mar. 6	..	1
Turkey, Jiddah	Mar. 15–21	16	16

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Original Articles.

A CATALYTIC THEORY OF INFECTION AND IMMUNITY.*

BY J. W. McLAUGHLIN, M.D.,

AUSTIN, TEXAS.

IT is now generally conceded that artificial or acquired immunity, resulting from an attack of the disease immunized against or from inoculations of the pathogenic agents of the disease, is a condition of the organism caused by specific antibodies in the serum or by immunizing tissue changes of the body.

It would seem evident, therefore, that a knowledge of the nature and action of pathogenic agents, of the synthesis and nature of specific antibodies, and of the character of the immunizing changes wrought in the tissues by pathogenic agents, is necessary to a lucid and rational knowledge of pathogenesis and immunization.

While many theories have been advanced from time to time, it must be admitted that we have no definite knowledge of the intimate nature of these subjects; and although toxins, in the broad sense of the term, are specific causes of disease, yet we know nothing of their chemical composition; if they possess a definite chemical structure it has not been defined nor has a revealing chemical test been described.

The failure of chemistry to determine the essential structure of toxins, together with the source and nature of the forms of energy, whose manifestations cause infectious diseases of many types, has led some observers to conclude that a toxin, in its essence, has no material existence—that it is a force, like magnetism, which may be more or less permanently attached to matter, but may be separated from matter without causing it injury. Some other observers regard the action of toxins as a vital phenomenon, whose nature lies beyond the limits which circumscribe science. Oppenheimer, in "Ferments and Their Action," says "Of the ways and means by which the *peculiar forms of energy* of ferments develop their activity we have not the slightest trustworthy idea." And that which he has said of ferments is equally true of toxins.

It seems, therefore, in the present state of knowledge, that the nature and action of pathogenic agents, the origin and nature of specific antibodies, and the character of immunizing changes that toxins produce in the tissues of the body in the process of its infection and immunization are not sufficiently definite to afford a sound basis on which to construct a rational and lucid theory of pathogenesis and immunization; and yet no subject, surely no medical subject, has received within the present decade greater consideration or more scientific investigation by persons equipped for the work. It seems not too much to expect that a physical problem, however abstruse, should yield a knowledge of its mysteries to investigations of this thoroughness and character when made by those properly equipped provided a knowledge is had of the principles of matter and energy that underlie and control the phenomena of the subject. Are the failures which have resulted due to insufficiency of our knowledge of the underlying principles?

In seeking the causes of chemical action we naturally go to chemistry for information, but our search finds nothing more definite than vague terms like "chemical forces," "chemical affinity" and the "internal forces of matter"—all of which are unknown. Chemistry is more occupied in describing how chemical changes occur, than why they occur. Mellor,[1] in the introduction to "Chemical Statics and Dynamics," says: "And this is the purpose of chemical science, to describe in the simplest possible manner the phenomena associated with matter in the act of changing. The word 'describe' has been selected with deliberation. The more important advances of modern sciences have been achieved by keeping the descriptive not the causal relations of phenomena constantly in view. In consequence 'why' is rapidly disappearing from our vocabulary. We do not inquire why oxygen unites with hydrogen, but we do seek for all the conditions under which the transformation is possible. The search for the first cause has been relinquished. 'How' is the direct object of attack." Our search for the fundamental principles of matter and energy must then be found, if at all, elsewhere than in chemistry.

Many years ago when trying to learn the nature of therapeutic energy, and later, in seeking the nature of pathogenesis and immunization, I was forced to conclude that the "internal forces of matter," frequently mentioned in current literature but not explained, consist in something more than heat energy developed by molecules in their movements of translation and mutual collisions; that standing back of molecules, and independent of the heat energy and its transformations, there are unknown forces—properties of matter, which determine chemical combinations. I was, therefore, led to seek an explanation of the internal forces of matter in a mental analysis of matter itself, and its motions, along the following lines of inquiry:

"Theoretical Chemistry," says Julius Thompson[2] in the introduction to "Thermo-Chemical Investigations," "is based upon the molecular theory, according to which all matter is made up of molecules, and these molecules of atoms. The physical state of bodies depends upon the arrangement and motions of the molecules; the other physical and chemical properties depend upon the kind and number of atoms in the molecules, upon their arrangement and relative motions." When examined more in detail, the propositions contained in the statement

*Read before the Texas Academy of Science, March 10, 1909.

quoted will show that atoms are chemical units which, according to the teachings of modern science, are made up of infinitely smaller energetic bodies whose dimensions do not exceed the ten-thousandth part of a hydrogen molecule.

They are not quiescent bodies, on the contrary, are in constant vibrations; each kind of atom moving in periods which distinguish it from other kinds of atoms. The science of Spectroscopy is based upon this fact. Professor Clerk Maxwell, in a contribution to the Encyclopedia Britannica, article, "Atoms," suggests that "Atoms exist of various kinds having their various periods of vibration either identical, or so nearly identical that our spectroscopes cannot distinguish them." "The same kind of atom, say of hydrogen, has the same set of periods of vibration, whether we procure the hydrogen from water, from coal, or from meteoric iron." Lord Kelvin, in his vortex hypothesis, not only attributes to each kind of atom distinctive motions, but holds that the motion of the atom may be the sole character which distinguishes it from other atoms.

A molecule is the smallest division of matter that retains the characteristic qualities and properties of the substance. Hence there are as many kinds of molecules as there are kinds of substances. Molecules are made up of atoms, usually of different kinds, vibrating in characteristic periods, and grouped in space (stereochemical configuration) in many ways. "The physical state of bodies depends upon the arrangement and motions of the molecules: the other physical and chemical properties depend upon the kind and number of atoms in the molecule, upon their arrangement and relative motion." But the picture is not yet complete—there remains to be added to molecular structure, that of molecular motions. The molecules of a mass are in active movements of translation—moving at random, or otherwise, hither and thither, colliding, perhaps breaking up into "ions," or atoms, which may recombine in various ways, perhaps again to separate and recombine and continue to separate and combine until an equilibrium of the reacting forces is finally reached in stable end products.

When to our knowledge of molecular structure is added that of molecular energy we will have before us the complete molecule as it is described in our text-books. But taking up the study at this point, where it seems to have been abandoned, two new features will be added, and when this is done it will become apparent that molecular energy is derived from molecular structure, and that changes of matter in chemical reactions result from the interaction of atomic and molecular forces in securing equilibrium in end products. The first feature to be added is the presence of the universal ether, surrounding atoms in the molecules, and accurately reproducing their vibrations as ether waves. The second feature is an adjustment of conflicting ether waves in the molecules by "interference" into waves of energy, whose periods coincide in crest and trough.

The mutual neutralization of the waves of light as seen in Newton's rings when the crest of one wave falls upon the trough of another, or the neutralization of two sound waves, one by the other, gives an illustration of this beautiful principle of nature, which Sir John Herschell says, "For beauty, simplicity and wide extent of application, has hardly its equal in the whole circle of science." Under the operations of this principle the ether waves produced in the molecules by vibrating atoms will be adjusted, and will coincide crest and trough. When this is accomplished, the sum of their impacts, recurring millions of times in a second, will make them waves of energy. Further than this, the set of adjusted waves will accurately represent and vary with the chemical and physical structure of the molecule; that is, with the number and kind of atoms it contains, stereochemical configuration or the arrangement of the atoms in space, and the operations of the principle of interference. The energy of a molecule is, therefore, *an exact reflex of its chemical and physical structure.*

The opinion that molecules are drawn together by chemical affinities is no longer held, and the teaching of modern chemistry is that collisions between molecules in their motions of translation are matters of accident, and that "internal forces of matter" alone determine what, if any, chemical union will take place between colliding molecules. This view seems in perfect agreement with the concept that the internal forces of matter arise from atomic and molecular ether waves, and when collisions bring molecules within the mutual spheres of their wave action, the principle of interference will determine what unions will occur.

But let us see under what conditions molecular energy as described becomes catalytic energy. The ether waves which surround all molecules and represent their chemical and physical structures are waves of potential energy, which becomes transformed into waves of dynamic energy when brought in contact with waves of other molecules they can influence or be influenced by. Molecular waves are equalized—neutralized—in stable compounds but this general rule cannot apply to the waves of the molecules which occupy the surface of the mass, since there are no opposing molecules to furnish opposing waves. Waves of the surface of a mass are, therefore, waves of potential energy, the form of which varies with molecular structure, and the intensity of which is directly proportional to extent of surface, and inversely proportional to size of mass. These waves are catalytic waves, and any substance usually a colloid—whose surface is greatly exaggerated in proportion to its mass—is a catalyst. Hence *a catalyst is not a definite chemical substance but a substance possessing a definite physical structure.*

I feel quite sure that whatever opinion of value this theory as a whole may receive will be determined largely by the estimate placed upon that part of the theory which attempts to explain the nature and forms of energy of catalytic agents. I am therefore sure of your indulgence while I seek to strengthen this part of my subject.

The following-named properties of a catalyst are designated "Articles of Faith," by Mellor, ibid because they are universally accepted as characteristic phenomena of catalysis; and when the unknown source of these phenomena is thoughtfully considered in its probable relation to the catalyst I feel almost sure you will see, as I do, that a catalyst constructed on the lines described will furnish a lucid and rational explanation of the why and wherefore of these "articles of faith."

The "articles of faith" described by Mellor are as follows: "A catalyst has the same chemical composition at the beginning as at the end of a reaction." "A small quantity of a catalytic agent is sufficient to effect the transformation of an indefinitely large quantity of the reacting substance."

"The phenomenon of catalysis is universal." "There is probably no kind of chemical reaction," says Ostwald, "which cannot be influenced catalytically, and there is no substance, element, or compound which cannot act as a catalyser." "The activity of a catalytic agent depends on its physical condition . . . as a general rule the finer the state of division the greater will be its chemical activity." "The function of a catalytic agent is to direct the transformation along one path in preference to another."

Bredig and von Bermak have demonstrated that ultramicroscopic pieces of platinum, torn loose by the electric current from platinum terminals immersed in distilled water, possess in a marked degree the properties of a ferment; and since the only difference between these ultramicroscopic pieces of the metal and larger pieces of the metal is the proportional relation of surface to mass, the acquirement of ferment properties by the ultramicroscopic pieces must be due to an enormously exaggerated surface in proportion to mass. Hence, conferring ferment action upon some of the metals by greatly increasing molecular surface in proportion to mass seems to indicate that ferment and catalytic energy are alike in their nature and origin; and that the Bredig phenomenon justifies placing ferments as catalytic agents—a classification that is everywhere accepted.

Are toxins entitled to be classified with ferments as catalytic agents? The statement has already been made that nothing is known of the essential composition of a toxin. If it has a definite chemical structure it has not been made known; and the nature and origin of the forms of energy, by the use of which pathogenic agents bring about the many types of infectious diseases, are absolutely unknown. So, when the striking similarity these features bear to those of ferments is considered in connection with other facts equally analogous which characterize ferments and toxins, the question whether toxins and pathogens shall be classed as catalytic agents may be answered in the affirmative.

Among the features common to ferment and pathogenic reactions the following are the most conspicuous: A small quantity of a catalytic agent is able to transform an indefinitely large quantity of the reacting substance. For example: One part of rennet—a ferment—can transform at least 4,000,000 parts of caseine (Oppenheimer); one part of invertase—a ferment—can transform 200,000 parts of cane sugar (O'Sullivan and Thompson); one unit of diphtheria toxin, it is claimed, can produce ten thousand units of anti-toxin, and this quantity may be largely increased by frequent bleedings of the horse. The enormous increase of smallpox virus, a toxic agent which develops in the pustules covering the body, affords another illustration where a small quantity of a pathogenic agent transforms an enormous quantity of the reacting substance.

Specificity of action and the production of specific antibodies are features which definitely characterize catalytic reactions whether the catalyst be a pathogen, toxin, ferment, or enzyme. The relation a specific pathogenic agent bears to the type of the disease it may produce, and the relation which the specific antibody produced in the serum by the infectious agent, bears to this agent, are examples of specific relations in pathogenic reactions. The structure relation a species of ferment bears to its substrate, and the relation the antibody produced in the reaction bears to the ferment are examples of specific relations in fermentation.

A concrete example of the specific relation in structure which a ferment bears to its substrate is furnished by the behavior of a ferment, say emulsin, toward two series of glucosides, say the α-methyl and the β-methyl series.[3] The glucosides of both series are chemical isomerides—that is, the molecules of the two series contain the same kind and the same number of atoms, yet emulsin will ferment one of the glucosides but does not affect the glucosides of the other series. Now, since the glucosides of the two series are identical in chemical make-up, the selective action of emulsin is not based on chemical affinity. And since the glucosides of the two series differ in stereochemical configuration—that is, in placing or grouping in space of the atoms in the molecules, it is claimed the selective action of the ferment is due to this difference in physical structure. And since, as shown, a form of molecular energy is an exact expression of the chemical and physical structure of the molecule, and transformation of matter requires an expenditure of energy, it becomes clearly apparent that the specific selective action of a ferment for the substrate is coincident in crest and trough of the waves periods of the two substances—ferment and substrate.

The development of a specific antibody in the serum of a normal animal, produced by introducing into the tissues (inoculating) a specific pathogen, toxin, ferment, enzyme, or an alien proteid, is a phenomenon whose truth is an accepted fact, but whose cause is not known. But since antibodies have not been produced in the serum of an animal by inoculations of ptomains, alkaloids, or any substance whose chemical composition is known,[4] may we not conclude that the transformation is not a simple chemical reaction in which the directing forces come from the changing substances, but is a catalytic reaction, in which the forces directing the transformation come mainly from the catalyst; a reaction in which a pathogen, toxin, enzyme, or alien proteid is the catalyst and a specific antibody is the end product.

A theory of specific antibodies which includes these features is in harmony with the action of a catalyst described, and will receive an intelligible interpretation when considered in connection with the "article of faith" that "The function of a catalyst is to direct the transformation along one path in preference to another."

Permit me to elucidate the transformation by presenting its supposed features from an energy point of view. The energy waves which direct the transformation in a chemical reaction come from the changing substances, and are again fixed—equalized in the final products; but the energy waves of a catalyst, which direct the transformation in a catalytic reaction, do not come from the changing substances, and are not wholly fixed—equalized—in the end products; a part remain waves of potential energy of the end products. The why and the wherefore of this may be seen when a catalytic reaction is observed from an energy viewpoint, and in the light of our concept of a catalyst.

The molecular waves of a catalyst are waves of potential energy which are transformed into waves of dynamic energy when brought in contact with molecular waves of other substances they can influence—increase, retard, or neutralize. When dissociation of a substrate by a catalyst has taken place, the dissociated elements will seek to recombine into end products, but are handicapped by the energy waves of the catalyst. It seems evident that,

of the combinations possible for the elements to enter into, none can take place under the timely impacts of the energy waves of the catalyzer whose wave periods coincide with these in crest and trough, since coincidence must cause dissociation. The less the wave periods of a possible end-product of the reaction coincide crest and trough with the catalytic agent, the less difficulty will be met in effecting a combination of the dissociated elements, and when the wave trough of the end-product corresponds with the wave crest of the catalyst, the chemical line of least resistance will have been reached. But since an end product of the dissociated elements of a catalytic reaction—a substance that has combined the elements along a line of chemical union of least resistance—that is a line of chemical union in which the energy waves of the catalytic agent and final product mutually neutralize each other—it becomes clearly apparent that the molecules of the end product are specific antibodies to the molecules of the catalyst.

If this argument is sound; and it is conceded that definite specific relations which exist between a pathogen and the disease it may cause are identical in nature to those that exist between a ferment and the substrate it can transform, it will necessarily follow that specific antibodies to a pathogenic agent are end products of a reaction in which a pathogen or toxin plays the rôle of catalyst. But this conclusion cannot be fully established until a substrate or substrates capable of satisfying the requirements of a multiplicity of species of pathogenic microorganisms, are found in the body tissues of the organism.

The fact that a substrate is not vulnerable to a pathogen or ferment except it coincides with it in crest and trough, requires that the body shall contain a vulnerable substrate for each species of microorganism to which it is susceptible, or that it contain a substance composed of molecular groups in great variety, all of which are alike in chemical compositions but differ, one group from another group, in stereochemical configuration—that is, in the relations which the atoms in a molecule are placed in space.

There is much evidence that the tissue juice of the body—its serum—is composed largely of free albumin molecules of many chemical isomerides, which possess in common the chemical structure of the albumin, but differ greatly in physical structure and, therefore, meet the required demands.

This conception of the structure of the free albumins of the tissue juices throws light on unknown problems of metabolism, as may be seen when we consider that the albumins compose the great bulk of the tissue of the body, and the various structures, as the many kinds of glands, the membranes, the muscle, the epithelium, the vessels, the brain and nerve, the skin, bones, and hair structures, all receive nourishment of the particular kind they require for the repair of waste and for functional uses from this common supply—the albumins of the tissue juices. It seems almost inconceivable that a homogeneous substance such as albumin can supply the particular forms of nourishment to structures so heterogeneous. We are, therefore, almost driven into the belief that the free albumin molecules of these fluids comprise many chemical isomerides.

But when it is established that the albumins contain groups of chemical isomerides in great variety the problem of tissue metabolism will be greatly simplified, since the physical structure of molecules which are chemically identical is sufficient to determine their vulnerability to transformation. This has been shown in the instance of emulsin and the glucosides. Hence, when it is known that tissue metabolism is a process of catalysis, the principle of interference will enable the molecules of each particular tissue to select from the albumins the particular groups of molecules they can utilize. And for the same reason, the albumins will furnish substrates for the many species of pathogenic microorganisms to which man is susceptible.

Experimental investigations, not long since carried on, conclusively show that the blood of an animal is characteristic of the species to which it belongs. For illustration, a proteid of one species of animal when inoculated into an animal of another species will develop a reaction in the serum of the animal treated, and a specific antibody will appear in its serum. This antibody (precipitin) is specific; for example, the albumin of a hen's egg, the blood of man, the kidney, or any other form of protein, say from a rabbit, inoculated into the tissues of an animal of another species will cause the development of a specific "precipitin" in the serum of the animal treated. And when the albumin of a hen's egg is added to the serum of the rabbit treated, the "precipitin" will combine with this albumin but will not combine with any form of albumin obtained from a different species. So with the blood of man or other form of protein inoculated into an alien animal, it will combine with a "precipitin" developed by it in the serum of this animal but with that of no other precipitin. The reaction is definitely specific since it will combine with the same kind of protein, from the same species, and with no other.

The strong resemblance which the phenomena of the reaction described bears to those of a catalytic reaction, forcibly suggests an identity of cause, and therefore indicates that the feature of specificity is due, in this case as it is in that of catalysis, to a corresponding relation in crest and trough of the energy waves of the proteid and substrate. This brings us back again, and furnishes additional evidence to that already mentioned, to the concept that the albumins contain many groups of chemical isomerides.

An acceptance of the propositions discussed leads unerringly to the conclusion that pathogenesis is a catalytic reaction in which a pathogen or toxin is the catalyst, a group of albumin molecules is the substrate, and a specific antibody is the end-product.

In this process the albumin molecules of the substrate are dissociated and transformed into a toxalbumin, and this *is the essential cause of the disease produced, the type of which is determined by the character of the toxalbumin, and the character of the toxalbumin is determined by the species of pathogen and the vulnerable substrate engaged in the reaction.*

When it is concluded that pathogenesis depends on the coaction of two factors—the pathogenic agent and its substrate, the absence of either of these will result in immunity. When, for example, there is a natural absence of the albumin molecules which comprise a substrate, the organism—say of man—will be naturally immune to the pathogenic agent of this substrate. And when a substrate has been destroyed by the pathogenic agent, either in a prior attack of the disease or by inoculations of this agent, the organism will be made artificially immune against further infection by the pathogenic agent. This agent is then non-pathogenic to the

organism, which may remain harmlessly in the tissues of the immune body.

The character of the immunizing changes wrought in the tissues by a pathogenic agent is now made clear, but it may be asked—what rôle do specific antibodies play in this scheme of immunity? It has been explained why an antibody is an end-product of a catalytic reaction, especially when the reacting bodies are colloids and the state of the end-product is molecular, and why the specific relation of antibody and catalyst is a relation of wave energy of opposite sign, in which the waves of the antibody neutralize the waves of the catalyst.

It may be seen, therefore, that an antibody—say an antigen to a pathogen, or an antitoxin to a toxin, combines with, neutralizes, and thus makes harmless, the pathogenic agent. But since such combinations are bodies which are foreign to the organism they are soon disposed of, and the immunity produced by them is transient in character. On the other hand; immunity produced by destruction of the substrate is lasting, and will remain until the substrate is restored.

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CEREBRAL LOBULES.

ANATOMY OF THE HOLMES NAUTILUS.

By WALLACE WOOD, M.D.,

NEW YORK.

AUTHOR OF "CEREBRAL SCIENCE" AND "A NEW METHOD IN BRAIN STUDY."

In the anatomy of the brain there is a science of fissures, a science of gyri, and a science of lobules. The lobules are centers of mind force, centers of feeling and imprint, æsthesic and mnemonic if extended, pathic and typic if intense.

In an article published in the Medical Record of June 2, 1906, I sought to prove that the eight marginal lobules were the heads of cerebral segments and that the human cerebrum was segmented like an annelid or a nautilus or like a vertebral column. This view has since received confirmation both from embryology and histology.

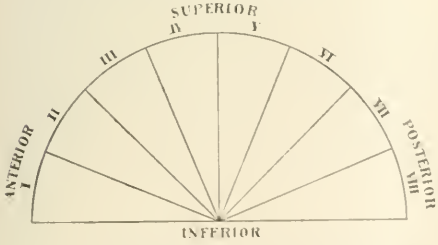

Fig. 1.—Brain schema making out the eight cerebral segments

Cerebral localization properly deals with centers. If the cerebral segments are one by one examined in detail it will be found that they lend themselves wonderfully well to the theory of sensory and motory centers and that these sensory and motory centers are definitely formed eminences or lobules, each with a function, and that they tend to be regular in order and to lie along definite lines. In this view a simple and practical method of mapping out the brain and reading these psychological centers or mind eminences is as follows:

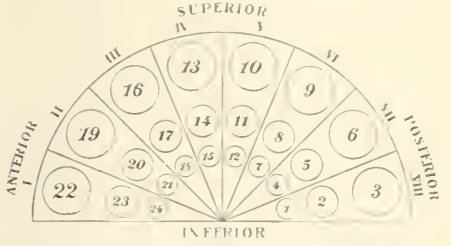

Fig. 2.—Schema for indicating the anatomy of the cerebral lobules and localizing the functional centers; 1, the under temporal lobule; 2, the tempero-occipital lobule; 3, the under occipital lobe; 4, the superior temporal lobule; 5, the angular gyrus; 6, the occipital lobe; 7, 8, 9, parts of the parietal segment; Segment V—10, 11, 12, the three lobules of the grand motor; 13, 14, 15, foot of the first, second and third frontal gyri, respectively; 16, 17, 18, heads of the three frontal gyri; 19, 20, 21, prefrontal; 22, 23, 24, subfrontal

On a sheet of paper mark out a half circle, or, better, a half oval. This represents the side of a head or cerebrum.

At the sides write the words "anterior," "posterior," "superior," "inferior," and divide the half oval into eight segments. Number the segments I to VIII, beginning at the front. In each of these cerebral segments draw three circles as indicating the mind centers, globules of feeling, memory, thought. These may be enumerated from posterior to anterior as follows: 1. The under temporal lobule; 2, the tempero-occipital lobule; and, 3, the under occipital lobe.

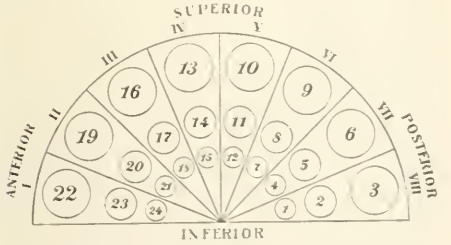

Fig. 3.—Schema for the localization of cerebral lobules as centers of mental force: VIII—1, 2, 3, Taste, Striving, Attachment; VII—4, 5, 6, Ear, "Memory," Eye; VI—7, 8, 9, Temper? Conscience? Personality; V—10, 11, 12, Power, Energy, Grasp; IV—13, 14 15 Gesture, Writing, Speech; III—16, 17, 18, Good Will, Imagination, Linguistics; II—19, 20, 21, Contemplation, Thought, Concentration; I—22, 23, 24, Calculation, Experiment, Observation.

The segment next will include the superior temporal lobule, the angular gyrus and the occipital lobe.

Your next segment higher covers the supramarginal lobule, the parietal lobule, and the quadrate.

You then arrive at the Rolando region, or grand central motor, with its superior, middle and inferior lobules. In front of the segment of motion lies the segment of expression. This consists of the foot or pedal of the first frontal gyrus, the foot or pedal of the second frontal gyrus, and the foot or pedal of the third frontal gyrus.

Anterior to this is another segment of three lobules. There are the head or cap of the first frontal gyrus, the head or cap of the second frontal gyrus, and the head or cap of the third frontal gyrus

In the prefrontal segment, finally, we see the racinc of the first frontal gyrus, the racine of the second frontal gyrus, the racine of the third frontal gyrus, and the gyrus rectus.

What are the functions of these twenty or more brain centers, these twenty-four cerebral emi-

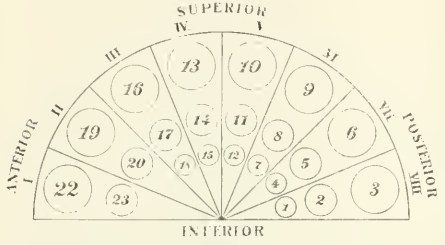

FIG. 4.—Schema for cerebral localization junctions of lobules indicated in Greek, as follows: VIII—1, 2, 3, Geustic, Athletic, Genetic; VII—4, 5, 6, Acoustic, Biblic, Optic; VI—7, 8, 9, Thymic, Stereognostic, Autopathic; V—10, 11, 12, Autocratic, Energetic, Philokerdic; IV—13, 14, 15, Pantomimic, Graphic, Phonetic; III—16, 17, 18, Prothymic, Phantasic, Philologic; II—19, 20, Philosophic, Theoretic; I—22, 23, Epistemic, Bouletic.

nences? Part of these are known, part are well known, part are guessed, suggested or surmised, and part are unknown.

Let us see. The under temporal lobe is the criterion of smell or taste, the temperooccipital lobe is a great vital association center. Is it the seat of courage and the will to live?

The under occipital lobe—is it the anthemion? is it the affectional center?

The superior temporal gyrus is the hearing center; the occipital lobe is the sight center; the angular gyrus is the center for written words; it is the cerebral book-worm?

The supramarginal lobule, is it the center that lays the ears back when the animal bites? Is it the lobule of animosity? Is it irritability?

The parietal and quadrate above this, form a great posterior association or cogitation center marked "stereognostic." This is the lobe of the knowledge of the hard and cold world and necessarily of the contra of that hard, cold world, namely, the self. The region is hydra-headed or many headed indeed. It is the lobe of "self and the world," self against the world.

The three lobules of the motor segment or sensory motor segment are power of the foot, power of the hand, power of the jaw.

There are the oppressor, the worker, and the gainer; or, again, they are the ruler, the fighter, and the possessor.

The lobules of the next segment are the feet of the first, second, and third frontal gyri, and these functions are gesture, writing, and motor speech.

The next, the true frontal segment, is forehead and eyes, and also covers the head of the third frontal gyrus.

From the study of the forehead of good horses and good cows in which the superior lobule is full, one might call it the lobule of faithful service. It might have a hundred other names. In the sheep it means commonality or sociability. Is it larger in women than men? In the dog it is good will. Below it is the lobule of frontal vision which can be nothing else than the eye of imagination, and below this the part of the talking gyrus, which can be nothing else than philologic or linguistic.

There remains the prefrontal region in which are believed to reside the most advanced and most concentrated powers of thought, science, and control.

By means of a little practice with the diagrams here presented the student of the science of man may read with facility and felicity any brain or the profile of any living head.

PERSONAL OBSERVATIONS UPON URETERAL CALCULI.*

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URETERAL calculus is a disease that has been added to the domain of surgery, practically only since the discovery of the Roentgen rays. The number of reported operations for this lesion previous to this period are very few, probably not more than half a dozen. The clinical manifestations of ureteral calculi were included under those of renal calculus; and it is interesting to observe that since the use of the *x*-rays, a large majority of clinically diagnosed renal calculi are really of ureteral situation. Although the number of reported cases of ureteral calculi have thus been vastly augmented in recent years, they are nevertheless anything but common incidences. I have been peculiarly fortunate in having seen an unusual number, and my experiences have been highly instructive. It is for this reason, as well as for its comparatively unappreciated importance that I have selected the subject of ureteral calculus as the theme for my discourse to you.

Surgical Anatomy.—The surgical anatomy of the ureter has been amply and beautifully described by Byron Robinson (*Annals of Surgery*. Vol. 36, page 850), and an excellent monograph upon this subject has appeared by Zondek ("Zur Chirurgie der Ureteren," Aug. Hirschwald, Berlin, 1905). I wish to recall merely one point in the anatomy of this organ that is of surgical importance.

In textbooks the ureter is described as being narrowed at three anatomical points, namely (1) at or about the junction of the ureter and the pelvis of the kidney; (2) at the vesical end, and (3) at the point where the ureter crosses the common iliac artery. Between these points the ureter is composed of spindle-shaped segments.

These points of constriction are of importance because they are the sites of predilection for the impaction of calculi. In addition to these three points, however, I am able to say, from my own experience, that there is probably a fourth point, hitherto to my knowledge, not sufficiently appreciated. In a considerable number of my cases, in fact in sixteen out of eighteen, I have found a calculus impacted at a point between the vesical end of the ureter and the point where it crosses the common iliac artery, perhaps a trifle nearer to the former. I have found this point of constriction of the ureter not to be due to any internal narrowing, but to a dense, sharp, fascial band (sometimes containing a small blood vessel) which passes horizontally inward from the lateral pelvic wall to the median line. It has been my experience that it is always necessary to divide this band of fascia, in order to mobilize the lowermost segment of the ureter. The constant presence of this band leads me to the belief that the impac-

*Read by invitation at a meeting of the Hartford (Conn.) Medical Society, December 28, 1908.

tion of calculi in this portion of the ureter is not wholly due to the slight change in direction which the ureter takes in this part of its course. As it occurs in the male and female sex as well, the broad ligament and uterine artery cannot be looked upon as factors in its production.

Symptomatology and Physical Signs.—The classical symptoms and signs of calculus in the upper uninary tract are well known and do not require repetition. I wish merely to emphasize a few points that I have found of service in diagnouis.

The symptoms of urinary calculus, as of cholelithiasis, depend largely upon whether the calculus is in the quiescent or migratory stage, and furthermore upon the presence or absence of infection. If the calculus is quiescent, the only symptoms and signs are a constant and fixed pain, with a point of tenderness, either in the back, in the costovertebral angle, or the front of the lateral abdominal wall, and the presence of blood in the urine in microscopic quantities. In the later stages we have added to these symptoms those of infection. I regard the presence of microscopic blood in the urine as a very important symptom of either renal or ureteral quiescent calculus; in fact, I cannot recall a case of renal or ureteral calculus in which red blood cells were not found on careful microscopical examination. If, on the other hand, the calculus is migrating, there arise all the classical symptoms of renal colic, and a greatly augmented hematuria. In the history of most cases, we find that the symptoms of the quiescent and migrating calculus alternate, but as a rule we also find that the periods of remission have a tendency to become shorter and shorter.

It is not commonly appreciated that a calculus in the ureter may give rise to symptoms referable to the bladder. This, however, occurs only when the calculus is situated very near the vesical end of the ureter. Even long before the calculus has become extruded partly or wholly into the bladder, the patient begins to complain of symptoms of vesical irritation, increased frequency of urination, tenesmus, etc. The appreciation of this point is of importance, because it not infrequently happens that these symptoms are mistaken as evidences that the calculus has passed into the bladder. I do not refer to the occasionally present, slightly increased frequency of urination, which is so often due to infection and an accompanying cystitis; but to a distinct vesical tenesmus, which, as already stated, is caused by a ureteral calculus approaching the bladder.

None of the symptoms that I have outlined above furnish us conclusive evidence in regard to either the presence or site of the impacted calculus. It might be thought that the determination of a point or points of tenderness upon the abdominal wall would indicate the site of the calculus. I have found, however, that this sign is often deceptive. It is a peculiar physiological phenomenon that when a ureter is the seat of a calculus, the tenderness is not limited to the site of the calculus, but to the entire extent of the ureter. I believe this generalized tenderness is due to a greater or less degree of associated inflammation of the mucous membrane, and to tension caused by a retardation in the urinary flow. I need hardly say that palpation furnishes us accurate knowledge of the site of the calculus, when it is in one region, namely, at the vesical end of the ureter in the female, when it can often be palpated *per vaginam*.

Cystoscopic inspection of the bladder is also of comparatively limited value in the diagnosis. Of course, if the calculus projects from the vesical end of the ureter, it will be readily visible; and if we note bloody urine passing from one or other ureter, we can be sure of the side upon which the calculus is present. In addition to this, if the calculus is in the lowermost part of the ureter, the ureteral orifice, instead of being slit-shaped, presents the so-called "golf hole" appearance.

The cystoscopic passing of the ureteral catheter affords us better knowledge than the previous two methods of physical examination. In the first place, it will find and indicate the point of an obstruction in the ureter; and in the second place, if the catheter is tipped with wax, the presence of scratch marks will furnish strong presumptive evidence that this obstruction is a calculus; but care must be taken to exclude accidental scratch marks caused by the cystoscope itself. I may say in passing that occasionally a ureteral catheter may pass easily, even if a calculus is present, especially if the calculus is small or of irregular shape; this occurred in one of my cases. After all, the most important and pathognomonic method of examination is the *x*-ray.

I regard an *x*-ray examination an absolute necessity in every case of ureteral calculus, and for the following reasons: 1. It indicates the presence or absence of a calculus. 2. It shows the situation of the calculus; this is important, because it indicates almost with mathematical precision the site of incision. 3. It shows the number of calculi; this is of importance, because it occasionally happens that there are two or more calculi in the ureter, and possibly at different levels. 4. It shows the presence or absence of an associated renal calculus; a knowledge of this will obviate the embarrassment of a second operation.

I need hardly emphasize the fact that the plate shall be made, and especially be interpreted, by a competent radiographist.

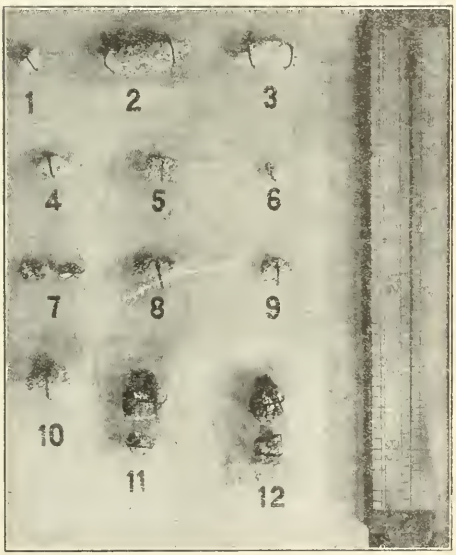
I am not unmindful of the occasional pitfalls which may arise in the interpretation of a given shadow, which may be found upon the plate in the course of the ureter, such as phleboliths, calcified glands, sesamoid bones, and foreign bodies in the intestinal tract; but I have no hesitancy in so stating my standpoint that, given a clear history of a urinary calculus and the presence of a shadow in the course of the ureter, the evidence is overwhelmingly in favor of calculus. If doubt exists whether a given shadow proceeds from the ureter or not, additional evidence may be obtained by passing a styletted ureteral catheter to the point of obstruction and again subjecting the patient to the *x*-rays. If the shadow is derived from something extraneous to the ureter, the shadow of the catheter will be found to lie to one or the other side of it. Nor am I unmindful of the difficulty which is occasionally met with, when dealing with uric acid calculi, which, as is well known, are less impervious to the *x*-rays, than calculi of other composition. Personally, I have found, however, that a calculus will always throw some kind of a shadow upon the plate, no matter what its composition (this is perhaps due to the fact that absolutely pure uric acid calculi, without any admixture, are extremely rare) provided necessary care is taken in the exposure.

Treatment.—It may be laid down as a self-evident axiom that no calculus should be permitted to stay indefinitely in the ureter; the eventual outcome must be an infection of the kidney with its inherent dangers. The only question still sub judice is, to determine at what period in the course of the dis-

ease surgical interference becomes necessary. Personally, I have made it a rule not to advise operation as soon as the diagnosis is made, but to observe the case for a short while, in order to allow natural forces full scope in the propulsion of the concrement. That this course was the proper procedure is proven by the following cases:

Case I. Wm. W., 63 years of age, consulted me Dec. 16, 1905, complaining of attacks of pain in the lumbar region and right side of the abdomen, with typical radiation to the testis and bladder; during the past four months there has been a more or less constant hematuria. The *x*-ray showed a small calculus in the pelvic portion of the ureter. One month later, after an unusually severe attack, he voided a calculus of the shape and size of a grain of wheat.

Case II. Sarah W., 30 years of age, consulted me Feb. 20, 1908, complaining of attacks of pain in the right side of the abdomen, which began about two years ago, and have recurred at increasingly frequent intervals, and were accompanied by bloody urine. *X*-ray revealed the presence of a ureteral



calculus, approximately one inch from its vesical end. With the next attack, one week later, the calculus was extruded into the bladder and was voided with the urine. (Fig. 1.)

Case III. S. F. This is the second calculus of Case VII, to which the reader is referred.

Case IV. Mrs. B. N., 40 years of age, consulted me in May, 1907, for symptoms pointing to a left-sided renal calculus. An *x*-ray plate revealed the presence of a large calculus in the pelvis of the right kidney, and also of a pea-sized calculus in the upper part of the left ureter. She was successfully operated for the calculus in the right kidney in July, 1907. Two weeks after her discharge from the hospital she passed the left-sided ureteral calculus, after an attack of very severe renal colic.

In addition to the above, I have observed perhaps a half-dozen small calculi, which were safely passed and voided after attacks of renal colic, but the proof of their ureteral impaction is lacking because no *x*-ray exposure was made.

It is often surprising to see what nature can do in the propulsion of ureteral concrements. One of the smallest calculi in my series, Case VIII, was absolutely impacted in the ureter, within one and one-half inches from the renal pelvis, causing such severe attacks that its removal became imperative; on the other hand, the largest calculus in my series (to be shortly described) was passed into the bladder, six weeks after I had first seen the patient, and after I had told him that it was impossible for a calculus of such size (as determined by the *x*-ray) to pass into the bladder.

Case V. Benj. A., 33 years of age, was referred to me in February, 1906, by Dr. Moskiewitz, with the following history: Patient has had two attacks of gonorrhea, twelve and fourteen years ago respectively, and has retained since then a slight mucopurulent urethral discharge. For the past year micturition has become more and more difficult, being painful and slow. In addition the patient complains of a constant pain in the back and left side of the abdomen. Urine is alkaline and loaded with pus cells. The urethra admits a No. 13 F. sound. Diagnosis, stricture of the urethra, and left-sided pyelitis and pyelonephritis.

Operation Feb. 12. Internal and external urethrotomy. On Feb. 21 patient had a very severe attack of left-sided renal colic; *x*-ray examination revealed the presence of a large ureteral calculus opposite the spine of the ischium. Patient was discharged Feb. 28, with instructions to return in three weeks for the removal of the ureteral calculus.

He was readmitted to the hospital April 30. Since his discharge he has had frequent attacks of renal colic, on an average every two or three days. Twelve days ago there was a very severe attack, which lasted forty hours. When the attack was over patient found that he could not void his urine, and had to be catheterized; thereafter he could urinate only when lying prone upon his back. A stone searcher and the cystoscope revealed the presence of a vesical calculus, while the *x*-ray showed that the previously seen ureteral calculus was now lying transversely in the bladder.

Operation May 2. Suprapubic cystotomy and removal of calculus. (Fig. 2). Discharged cured May 15.

It is perhaps superfluous to mention that the one drug indicated in an attack of renal colic is morphine in liberal doses. I have also, I believe, seen favorable results from hot applications.

I have had no personal experience with the methods of assisting nature to propel the concrement by injecting lubricants, such as sterilized oil or glycerin, through a ureteral catheter into the ureter, or even behind the calculus; but I mention it for the sake of completeness, and because occasional good results have been reported from it.

Calculous anuria, whether the anuria is reflex and caused by a unilateral impacted calculus, or by a bilateral impacted calculus, is an indication for immediate operation. At this point I wish to go on record that the so-called reflex anuria due to a calculus in one kidney is, in my opinion, a much-talked of, but exceedingly rare phenomenon, and that the vast majority of cases of complete anuria due to ureteral causes, are due to either bilateral obstruction or to obstruction in one functionating kidney, from either acquired or congenital causes. I have found but few authentic cases of so-called reflex anuria which are valid on careful analysis. Formerly I advocated and practiced as an emer-

gency measure the operation of bilateral nephrostomy in these cases; at present, however, I believe that where prompt facilities for the taking of an *x*-ray plate are had, as in every large hospital, the immediate operation of ureterolithotomy, single or bilateral, as the case may be, is far preferable.

Thus far it has been my good fortune to observe and operate four cases of anuria, of which the following was due to calculous ureteral obstruction:

Case VI. Morris L., 48 years of age, was admitted to Mount Sinai Hospital Nov. 25, 1903, with the following history: Five years ago patient had a typical and severe attack of right-sided renal colic; he also thinks that there existed at the time suppression of urine for a few days, but his recollection is not clear upon this point. Two years ago he was laid up for two weeks with an attack of lumbago (?). During the past year he has had occasional attacks of sharp pains, which he refers to the neck of the bladder, during which the urine was suppressed; after these attacks had passed away he found small calculi in the urine.

On Nov. 16, nine days ago, he was seized with a sudden, sharp, severe pain in the left side of the abdomen, which required the administration of large doses of morphine, but persisted in spite of it up to the time of admission. Urination continued normally until Nov. 22 (72 hours before admission), when complete suppression ensued and has persisted, except for a few drops of blood passed Nov. 23 (two days ago). Physical examination is negative, but is unreliable on account of extreme obesity. There is a urinous odor about the patient, and slight edema of the lower extremities is also present.

Nov. 25. Immediate operation; bilateral nephrostomy. No calculi were present in the kidneys, but an obstruction was found in the left ureter, about seven inches from the pelvis of the kidney, and one on the right side about six inches from the pelvis. The patient reacted surprisingly well from the operation, except for the discomfort of the urinous discharge, requiring frequent and bulky dressings. On Dec. 5 patient voided one and one-half ounces of urine spontaneously for the first time, and was up and about in the ward.

On Dec. 18, after a hitherto nonfebrile course, the temperature rose to 104.2° F., and this occurred every two or three days without any apparent cause. Therefore, on Dec. 29 a slightly curved glass tube was introduced into the right nephrostomy wound, and through this various sized bougies were introduced; all were obstructed at about six inches from the cutaneous incision; the ureter was irrigated by means of a small catheter, the fluid returning immediately, and being very foul in character. The same procedure was repeated on the left side, but on this side the bougie could be introduced to a much greater depth. Upon this examination it appeared probable that a ureteral obstruction existed on the left side at the vesical end of the ureter, and upon the right side approximately six or seven inches from the cutaneous incision. An *x*-ray plate taken was not satisfactory. Cystoscopy on Dec. 30, which was very difficult, the capacity of the bladder being only about two ounces, seemingly corroborated the above findings; the right ureteral opening was normal, but no urine escaped from it; upon the mouth of the left ureter there appeared to be a small whitish mass about the size of a pea, which was looked upon as an impacted calculus.

Operation Jan. 4, 1904. Ureteral guides were first introduced through the nephrostomy incisions as far as the obstructions permitted. Suprapubic cystotomy then performed, in order to remove the assumably impacted calculus from the mouth of the left ureter; none was found, however, but the suprapubic incision was utilized for the passing of ureteral catheters, both of which readily passed up an equal distance, about two inches. This was followed by an extraperitoneal ureterotomy upon the right side, removing the larger one of the two calculi (Fig. 3).

On Jan. 5 the patient voided twice voluntarily two and two and one-quarter ounces respectively. All incisions were firmly healed in fourteen days, therefore the final operation was performed on Jan. 18; this time consisting of an extraperitoneal ureterotomy on the left side, removing the smaller calculus (Fig. 4) from just below the linea arcuata. Patient was discharged cured, with all five incisions firmly healed on Feb. 10, voiding all urine through the natural channels.

The method of procedure for removal of a ureteral calculus depends primarily upon the exact point where the calculus is located. The various procedures possible suggest themselves readily, and I shall merely outline these methods in the briefest manner.

1. Calculi projecting through the vesical mouth of the ureter may be dislodged by manipulations with the ureteral catheter, through a cystoscope. This was possible in one patient of my series.

Case VII. Sam F., 34 years of age, consulted me in September, 1904; his chief complaints were right-sided abdominal pain, accompanied by hematuria; the latter had existed for three days, and was very profuse. On cystoscopic examination I saw with the greatest clearness the whitish calculus protruding from the swollen mouth of the right ureter, and dislodged it with the beak of the instrument. On emptying the bladder the calculus (Fig. 5) was also voided.

Two years later similar symptoms appeared, and this time the *x*-rays revealed the presence of a calculus in the pelvic portion of the right ureter; this was also passed by natural forces. (Fig. 6.)

In the female calculi may be dislodged by the finger within the urethra, or through a perineal boutonnière in the male. From the bladder they may be removed by any of the many well known methods.

2. Calculi situated in the intramural, that is that part of the ureter which lies within the wall of the bladder, usually require for delivery a preliminary suprapubic cystotomy. The mouth of the ureter can then be either dilated bluntly sufficiently to permit the extraction of the calculus, or if this is impossible the mouth of the ureter may be incised. This procedure is perfectly safe for a distance of one centimeter; beyond this, however, there is danger of injuring the peritoneum.

3. Calculi situated in the juxtavesical portion of the ureter have been removed by incision through the vagina, and once, also, with a fatal issue, through the rectum; removal by the sacral route has also been suggested; but I fail to see any advantage in these methods over the extraperitoneal method, which I shall shortly describe.

4. Calculi in or near the renal portion of the ureter can be best reached through one of the normal kidney incisions.

Case VIII.—Daniel D., 47 years of age, was referred to me in July, 1903, by Dr. S. Tandlich, with the following history: Patient has had a constant

pain in the back for the past fifteen or twenty years, which he has been in the habit of relieving with hot applications and diuretics. Twelve days ago he has had his first typical and very severe attack of renal colic; these attacks were repeated daily three or four times. The urine contained pus and red blood cells.

Operation, July 17. Nephrotomy followed by ureterotomy; two impacted calculi (Fig. 7) being extracted from the ureter, about two inches below its renal attachment. Patient was discharged cured August 11.

5. For calculi which are impacted in the pelvic portion of the ureter, and by this I mean that part of the ureter which extends from its intersection with the common iliac artery down to its vesical attachment, three methods of attack have been advocated. (1) By an intraperitoneal incision, (2) by an extraperitoneal incision, (3) by combined intra- and extraperitoneal incision.

Personally I believe that there is no question at all that the possibility of peritoneal infection by extravasated urine almost forces us to adopt the extraperitoneal method as the method of choice, even though this route is a trifle more difficult than the intraperitoneal method.

The procedure as I have used it is, briefly, the following: First of all I have adopted the plan to always take an *x*-ray upon the day of the operation, in order to determine first, whether the calculus is still present, and, secondly, whether or not the calculus has shifted its position. This safe guard sometimes obviates unnecessary embarrassment.

An incision about three inches long is then made upon the abdominal wall, the general direction being parallel with the fibers of the aponcurosis of the external oblique. The incision through the internal oblique and transversalis is made either at the outer border of the rectus, or a trifle more laterally through their fibers. The transversalis fascia is divided in the same direction. I have not found that division of the fibers of the muscles predisposes in any way to hernia; a firm and correct suture of the fibers is easily done, and the amount of drainage necessary can be reduced to a minimum. It is I am sure, hardly necessary to mention, that suitable care be exercised in conserving the integrity of all the nerves which are met with.

The peritoneum is now bluntly separated from the iliac fossa and retracted toward the median line, exposing in their order the common, external, and internal iliac, and spermatic arteries with their accompanying veins. Search is then made for the ureter. It is well to remember that in every instance the ureter is attached by fibrous bands to the peritoneum, and it is upon the peritoneum and not upon the posterior abdominal wall that the ureter will be found. The ureter can then be isolated either in an upward or downward direction, until the calculus is reached. If the calculus is at a great depth, an obstacle to further progress will be met with, in the previously described band running transversely inward; this can be readily overcome by nicking its sharp edge (occasionally a small vessel may have to be ligated). Attention should also be called to the fact that not infrequently dense adhesions are met with in the neighborhood of the calculus, on account of a coexisting periureteritis, which require some care in separation.

After the calculus has been reached, it is firmly grasped between two fingers, the ureter is incised and the calculus extracted. If it is situated at great depth, an attempt, successful in most instances, may be made to manipulate it to a higher level. This not only facilitates its removal, but also the subsequent closure of the ureteral incision. The incision in the ureter is then sutured; this is possible in most instances, but even if not, no harm will result, inasmuch as any resulting fistula always closes in due time. As suture material I have always used either fine iodine or chromicized catgut, passed so as not to include the mucosa. Prior to closing the ureter it is wise to pass a ureteral catheter both downward and upward, in order to convince one's self that the lumen is free.

Just a word regarding drainage. In my earlier cases I always used a cigarette drain, made of gauze and rubber tissue; but having abandoned these in our appendicitis work for a rubber tube drain, through which a strip of gauze has been pulled, I adopted this form of drain also for ureterotomy wounds. This was eminently successful, up to a recent case (Case XII) of bilateral ureteral calculus, in which the tubes caused a large slough in the walls of both external iliac arteries, with secondary hemorrhage, necessitating simultaneous ligation. Since this accident I have again had recourse to cigarette drains.

The peritoneum is permitted to fall back into place, and the wound is now sutured in layers.

The usual after treatment is carried out. Occasionally, when the ureteral suturing has not been sufficiently exact, the dressings may have a slight urinous odor, but, as a rule, not even this much occurs to mar a primary union. The drain is removed according to indications, and in most instances the patient leaves his bed on the tenth or twelfth day, and is discharged with a firm scar in two weeks.

I have operated by this method the following cases:

Case VI.—This has already been described when speaking of calculous anuria; a bilaterial ureterolithotomy was performed.

Case IX.—Julius R., 33 years of age, was admitted to Mount Sinai Hospital, June 3, 1906, with a history of frequent attacks of renal colic during the past eleven months. The urine contained red blood cells and pus cells. An *x*-ray plate showed a calculus near the vesical end of the right ureter. He refused operation at this time but returned again June 27, with the most severe attack yet, and was operated upon June 28. Lateral extraperitoneal ureterolithotomy, with removal of a calculus from the ureter about half an inch above its vesical end (Fig. 8).

Case X.—Louis B., 27 years of age, was admitted to Mount Sinai Hospital, Nov. 27, 1906, with a history of very severe and frequently repeated attacks of renal colic and hematuria. An *x*-ray examination revealed the presence of a calculus impacted in the left ureter about 4 cm. above its vesical end. Operation Nov. 30. Extraperitoneal ureterolithotomy, with the removal of a calculus (Fig. 9). Patient was discharged cured Dec. 16.

Case XI.—Samuel J., 24 years of age, was referred to me by Dr. Rosenbaum in Sept., 1908, with the following history: His illness began about four years ago with attacks of left lumbar pain. At first these attacks occurred at intervals of several months, but gradually they have increased in frequency, and began to radiate to the penis and testis; during the attacks there are always severe hemor-

rhages. Examination is negative, but for tenderness in the course of the left ureter. An *x*-ray plate showed a calculus in the left ureter about half an inch below the sacroiliac synchrondrosis. Operation Sept. 10, extraperitoneal ureterolithotomy with removal of a calculus about one and one-half inches from the bladder (Fig. 10).

Case XII.—Because of the unique interest of the case I have published it in full detail in the *Annals of Surgery*, December, 1908.

Samuel W., 36 years of age, was referred to me in March, 1907, by Dr. B. Lefkovics with the diagnosis of nephrolithiasis. An *x*-ray plate taken at the time revealed the presence of two calculi in the pelvic portion of each ureter, and a suspicious shadow in the region of the left kidney. Operation was advised, but the patient passed out of my observation, and when he again returned to me he stated that he was operated upon by Prof. Zuckerkandl, of Vienna, for the renal calculus; this operation, however, did not bring about any amelioration of his symptoms. Patient entered Mount Sinai Hospital and was operated upon July 20, 1908. The operation consisted of a bilateral extraperitoneal ureterolithotomy, removing two calculi (Fig. 11) from the pelvic portion of the right ureter, and two calculi (Fig. 12) from the left. Primary union ensued, but while dressing the patient July 27, a tremendous hemorrhage occurred upon removing the drainage tubes, necessitating simultaneous ligation of both external iliac arteries. In spite of the enormity of the accident, patient made an absolutely uneventful recovery, and was discharged cured September 4.

The foregoing is by no means a complete summary of the cases of ureteral calculi I have seen; I find in my records at least five more cases, in which the diagnosis of ureteral calculus was made and substantiated by the *x*-rays; but they either still carry their calculi or have been operated upon by other surgeons; they have therefore not been included in my statistics.

Prognosis.—Just a few words regarding the prognosis of impacted ureteral calculi. I do not believe I shall meet with much opposition when I state that calculi obstructing the ureter for any length of time will sooner or later be followed by an infection of either the pelvis or parenchyma of the kidney; and I need waste no time to explain what must be the consequences of this plan. On the other hand, the surgical removal of such calculi is followed by almost ideal results. The mortality in experienced hands is practically nil; the operation is comparatively easy of execution; the period of convalescence is rapid (not more than two weeks as a rule); the patient is immediately relieved of all distressing symptoms, and if the function of the kidneys has not been seriously interfered with by the disease, full return to health will be very probable; finally the danger of a subsequent hernia is so slight, that it does not even merit serious consideration.

Duration of Immunity After Injection of Anti-Diphtheretic Serum.—Sittler says that prophylactic immunization maintains a lasting result for a longer time (three to five weeks and more) when the immunized children do not come too often into contact with those suffering from the disease or convalescents; such precaution is necessary also on the ground of not making immunized persons carriers of the bacillus, and so spreading the infection. If immunized children be detained amongst those affected with diphtheria the immunity can only last a very short time (fourteen days).—*British Journal of Children's Diseases*

MASTOIDITIS FOLLOWED BY INFECTED SINUS THROMBOSIS IN A YOUNG PREGNANT PATIENT:

OPERATION; ABORTION; PULMONARY ABSCESS; CEREBRAL HERNIA; OTHER COMPLICATIONS; RECOVERY.*

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The serious complications following a chronic purulent otitis in a young pregnant patient have prompted me to report the following history, as being worthy of record.

L. O., single, 15 years of age, was admitted to the medical service of Lebanon Hospital in August, 1908, for observation. She complained of general weakness, frontal headache, and fever. The family physician had referred her to the hospital with a tentative diagnosis of typhoid fever. Her mother had died of pulmonary disease some years ago, and except for an attack of measles at the age of two years the patient had been in good health up to the present illness. Her father and younger sister were alive and in good health. She began to menstruate at the age of thirteen. This function had continued regularly up to four months ago, when it ceased.

The physical examination showed a large, well developed patient for her age, with nothing unusual in the thorax except a few sonorous râles heard over the chest, but not localized. A globular mass was felt in the abdomen, in the median line, extending to the umbilicus and simulating a five months' pregnant uterus. Other organs were found normal. Vaginal examination revealed an absence of the hymen, cervix soft and admitting a finger. Fundus of uterus extended to the umbilicus. Breasts were large, soft, and contained colostrum. A diagnosis of pregnancy was made, and though a temperature of 103° per rectum was recorded on admission, nothing further was found at this time to account for the fever. The urine was very carefully examined, and but for a very slight trace of albumin nothing abnormal was noted.

During the few days following her admission a number of chills appeared in regular intervals, followed by fever and sweats. The bedside report showed that the chills occurred morning and evening, and some lasted for several minutes. After one of these prolonged chills, the temperature reached 107.2°, and then gradually declined to normal until the appearance of another chill, when it again climbed five and six degrees. The temperature chart showed a decided septic wave. Blood examinations for malarial and other microorganisms, together with the Widal reaction, were negative. The differential blood count, however, gave a pronounced leucocytosis and a marked increase in the polynuclear cells. Nausea and vomiting were present, together with headache over the frontal region.

On August 5 the girl had a comfortable morning with no pain anywhere. Temperature normal, but had three chills in the afternoon, followed by a rise in temperature to 105°. The fever was followed by considerable sweating. After a tepid

*Patient exhibited at Otological Section, New York Academy of Medicine, November, 1908.

sponge bath, the temperature gradually subsided.

August 6 the patient complained of pain in the right iliac region, and this area was sensitive to pressure. A complete physical examination was again made by the house physician, and nothing abnormal was found. An inspection of the ears, however, revealed a foul-smelling discharge in the canal of the right ear. The mastoid tip was found sensitive to pressure. With the evidence of a chronic aural suppuration, the existence of which had not been mentioned in the history by the patient, the septic nature of the symptoms was appreciated.

On August 7 the patient came under my observation. The report over the 'phone stated that there was an increase in the tenderness of the mastoid process, with the appearance of slight edema at the tip. There was rigidity of the neck muscles on the right side, together with pain along the sternomastoid muscle on pressure. The aural discharge was profuse and foul-smelling, and showed streptococcus infection. Examination of the eyes revealed approaching choked disc. The morning temperature registered 102°, pulse 128, respiration 28.

With the above characteristic history a diagnosis of mastoiditis with septic sinus thrombosis was made, and the patient was prepared for operation. At two o'clock on the afternoon of the same day, I examined the girl for the first time and found conditions as above stated. Cerebration was active. The patient complained of severe frontal headache, which was aggravated on percussing the right parietal region with the finger. The swelling in the region of the mastoid was not marked, but tenderness over the emissary vein and along the neck was decided. No cord-like sensation could be felt. Examination of the ear showed a canal filled with foul-smelling pus, with a large perforation involving the inferior two-thirds of the membrane. The middle ear was filled with granulation tissue, with necrosis of the upper posterior bony wall. With the good ear closed, the voice was not heard distinctly. The patient's general appearance was septic. Temperature 106°, pulse 148, respiration 36.

The usual curvilinear mastoid incision was made from the mastoid tip to above the attachment of the auricle. After elevating and retracting the periosteum, the cortex was seen discolored at the suprameatal triangle. With the removal of a few chips of bone, a dark mass appeared in the wound. This proved to be the thrombosed sinus, close to the meatal wall. It occupied a very superficial position, extending superiorly for a distance of half an inch above the plane of the upper bony wall of the external auditory meatus before making its turn posteriorly. Foul-smelling pus was seen coming from under the sinus anteriorly. The external bony covering of the sinus was removed with the rongeur forceps from half an inch beyond the knee, to as near the bulb as possible. The presenting wall of the sinus was gangrenous in appearance, and a portion had sloughed. Through this opening the thrombus could be seen. The diseased wall of the sinus was cut away with scissors for nearly the entire length of the bone opening.

The upper portion of the infected clot was then removed with a dull wire curette until free bleeding occurred. This was checked with the usual iodoform tampon. Though a return current of blood followed the gentle removal of the thrombus in the bulb end of the sinus, it was not profuse, so we decided to ligate the internal jugular vein low in the neck, on account of the previous septic symptoms. The vein was ligated by Dr. Henry Roth, an attending surgeon of the hospital, who kindly assisted. Ligatures were applied just above the clavicle about an inch apart. The vein promptly filled with blood. After the neck wound had been cleansed it was sutured.

The mastoid wound was then thoroughly cleansed of diseased tissue, and a portion of the posterior canal wall was removed to a plane below the visceral wall of the sinus. Considerable bone posterior to the sinus was taken away with the rongeur and curette. The excessive granulation tissue from the middle ear was also ablated. After cleansing the canal and posterior wound with peroxide of hydrogen and saline solution, an iodoform gauze drain was placed in either end of the sinus opening, together with the usual packing in the bone wound and auditory canal.

August 8. The midnight temperature (eight hours after operation) had reached to 99°, pulse 112, respiration 26. By four o'clock A.M. it fell to 96.2°, pulse 86, respiration 24. It remained there for twelve hours, then gradually rose to 102°. During the next two days the patient felt quite comfortable.

On August 10 severe cramp-like abdominal pains set in during the early hours of the morning, and at four o'clock A.M. the patient was delivered of a five months' fetus. During the afternoon the temperature had reached 103°, and though the young girl had passed through a very trying ordeal, it was thought best to change the dressings without disturbing her position. The wound showed considerable suppuration, especially in the region of the bulb. The discharge was foul-smelling, of an ammoniacal odor. Peroxide of hydrogen was poured into the wound, followed by warm saline solution. This was repeated until effervescence stopped. Iodoform drains were replaced in both sinus openings. The neck wound seemed to be in good condition. Following the dressing, the temperature gradually subsided to 101°.

August 12. Some pain was experienced in the right side of the chest, especially on percussion near the sternum. Many moist râles were heard on this side in the axillary line. The mastoid wound looked somewhat cleaner above, but considerable purulent odoriferous discharge still present in lower sinus opening. Same treatment carried out.

August 13. The neck wound had become infected, and about two ounces of pus was evacuated from a pocket which led toward the sternum. The usual rubber tube drainage was employed. The temperature fluctuated between 103° and 104°. Paroxysms of cough appeared with some mucopurulent expectoration. No chills had been observed since the operation.

August 14. Mastoid and neck wounds progressing nicely. Cough very annoying. Expectoration is foul-smelling and of a distinctly purulent character. Moist râles heard in right chest. Diminished and distant breathing, and dullness over right base.

August 15. On attempting to assume a sitting posture in bed the patient had a severe paroxysm of cough, accompanied by an unusual quantity of dirty-looking malodorous pus expectoration. The coughing stopped as soon as the recumbent posi-

tion was resumed. The breath at this time was very fetid. A diagnosis of metastatic pulmonary abscess was made, though my medical associate was inclined to believe that an empyema of the right side had appeared. The sputum was examined microscopically, but only streptococci were found, and occasionally an elastic tissue fiber was seen, together with many pus cells, some red blood corpuscles, and numerous epithelial cells. We did not think it advisable, however, at this time to make an exploratory puncture of the chest, for fear of infecting the pleural cavity.

For the next five days the patient was as well as could be expected from existing conditions. The temperature remained around 104°, but the pulse was good in quality and regular.

August 20. The general appearance of the patient had improved materially. The anxious expression had disappeared and the young sufferer was beginning to take an interest in her surroundings. The neck wound was closing satisfactorily and the mastoid opening appeared to be progressing favorably, except for a bulging of the visceral wall of the sinus in its descending portion. This seemed to be due to intracranial pressure. As the temperature still registered around 103°, the possible existence of a subdural collection of pus was suggested, and the internal sinus wall in its most prominent portion was incised. Considerable clear fluid came away, together with what appeared to be some disintegrated brain tissue. Exploration through the incision failed to reach any pus cavity. Later on, however, a cerebral hernia about the size of a walnut developed through the opening of the sinus, without unpleasant consequences. Following this treatment, the temperature subsided somewhat, and though for three days there were fluctuations from 99° to 102.4°, it reached 101° on August 30, and gradually declined from that date until it reached normal, on September 17.

During the interim the mastoid wound was dressed daily for three weeks. Both ends of the sinus were cleansed with the peroxide and warm saline solution, and were drained with iodoform gauze until the parts assumed a healthy appearance and all odor had disappeared. A separate pad of gauze was placed over the cerebral hernia and gentle pressure was applied. At no time did this complication give any annoyance, except for its presence near a suppurating wound, and as the bony cavity filled in, the hernia gradually disappeared.

The neck wound was healed on August 23. There was still considerable cough with foul-smelling purulent expectoration. Physical examination found decided dullness at the right base of lung, with distinct bronchial and diminished breathing. A radiograph taken at this time showed an opacity of the right side, extending from the eighth rib to the base of the lung. The lymph nodes on both sides were enlarged, and the heart was displaced toward the left.

On September 8, the right chest was aspirated posteriorly in the tenth interspace, and about 2 c.c of clear serous fluid was obtained. This was examined for tubercle bacilli, but none were found.

September 15. The pulmonary symptoms began to improve and the sputa became less purulent. The area of dullness was diminishing.

September 20. Lungs gradually clearing. Temperature normal. Patient out of bed.

September 22. Severe toothache appeared. Right molar was found to be diseased, and the surrounding tissue much swollen. An alveolar abscess was incised, and a mouth-wash was employed. This local infection lasted for six days, without causing further elevation of temperature or other symptoms. On October 3 the patient was out of bed and going about the ward. Lungs almost clear.

October 11. Discharged from hospital with operative wounds healed, but ear still discharging. The treatment of the middle-ear disease was continued at my office. Considerable granulation tissue was removed at a number of sittings under cocaine anesthesia. Dry treatment was carried out, and the edges of the large perforation and all granular appearing areas in the tympanic cavity were touched with a liquified trichloracetic acid.

In about six weeks the ear was dry, with the drum almost healed over. Hearing for ordinary voice was very good. The young girl's general health had evidently recovered rapidly from her severe sepsis of two months' duration.

Fortunately I am able to report this unusual case as one cured by surgical intervention, though the latter was somewhat delayed waiting for indicative symptoms. The question of early detection of sinus involvement is an important one. The recent bacteriological observations and conclusions of Libman (*Archives of Otology*, Vol. XXXVII, No. 1, 1908) should be of material assistance in determining whether or not the sinus should be explored in cases of suggestive symptoms at the time of a mastoid operation, or when such symptoms appear after operation. In his remarks on the significance of blood cultures, he states that a positive blood culture indicates a general invasion; a positive streptococcus blood culture in his experience nearly always points to the presence of sinus thrombosis.

In a certain number of cases in which the aural symptoms are not of sufficient intensity to account for existing symptoms, the presence of bacteria in the blood may give the indication to open the mastoid and explore neighboring tissue. Four cases are cited in corroboration of the above statement, showing how valuable blood cultures are in aural surgery.

58 East Seventy-fifth Street.

THE CONSERVATIVE TREATMENT OF SOME TRAUMATIC INJURIES OF THE EXTREMITIES.*

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I PRESENT this subject for your consideration this evening with the hope that you will freely comment upon and criticise my remarks, and with the expectation of deriving a great deal of valuable information from the discussion which is to follow. In the limited time at my disposal, I naturally cannot refer to many varieties of traumatic injuries, and shall be compelled to confine myself to the citation of a few illustrative cases and make them the basis for the subsequent conclusions. These case histories may cause us to reflect upon the fact that

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perhaps occasionally a part of the human body is sacrificed unnecessarily; that possibly we not infrequently might avoid an amputation or other destructive operative procedure by carefully weighing in the scales of our judgment all the facts, and then augmenting the side of conservatism with a little extra pressure. I am afraid that many of us are at times inclined to hasten operative measures unduly and lean toward radicalism. However, the patient's life should always concern us most; and next in order, the injured part. I beg your indulgence for a few moments in which to briefly outline the case records.

Case I.—X. J., a well nourished and developed man, age 45, was admitted to the hospital on the morning of June 17, 1906. He had been working on a boat, and while making fast a hawser, the cleat had broken and his leg caught in a coil of rope. There was considerable shock on admission, but the patient rallied well and by late in the afternoon was in fairly good condition. There was a compound comminuted fracture of the tibia and fibula, the periosteum was extensively torn and stripped up, part of the tibialis anticus muscle ruptured, and the anterior tibial artery lacerated. In fact, the hemorrhage from the latter was so profuse that a tourniquet was found necessary to control it. The calf of the leg was apparently intact. The possibilities of recovery without amputation, as well as the dangers of infection, necrosis, and septicemia were fully explained to the patient. He elected a conservative operation and was immediately transferred to the operating room and anesthetized. The leg was shaved, thoroughly cleansed with green soap, and the wound freed of all visible foreign material and washed out with peroxide. The several lines of fracture were principally longitudinal, and five or six fairly large spicules which were entirely devoid of periosteum were removed. With an assistant holding the foot in proper position, the rent in the artery was carefully sutured, as much as possible of the periosteum was united, and the ruptured muscle fibers were brought together. The skin margins were approximated, and drainage was instituted. A heavy wet gauze dressing and two lateral splints were applied, and the whole placed in a fracture-box. Continuous irrigation was maintained by means of a suspended tin pail with several small holes in its bottom through which strips of linen had been forcibly pulled. By the end of the first week more contusion than was apparent in the beginning had manifested itself, and for eight or ten weeks there was an exposed bony surface an inch or two in diameter. At the end of this time the wound began looking healthy except for a small sinus on the outer side. This was dressed daily with balsam of Peru and glycerin, until the patient's discharge from the hospital, January 22, 1907. Two or three small spicules were extruded during the summer, after which the sinus closed. In the spring of 1908, less than two years after the accident, the patient reported that he had perfect confidence in the leg, and, except for a slight limp, it caused him no inconvenience whatever

Case II.—C. P. P., an exceptionally well nourished and developed negro, age 34, was admitted to the hospital October 28, 1906. His right elbow had been caught in an asphalt crusher, but he was conscious and reacted strongly on admission. The soft parts were extensively lacerated, the external condyle of the humerus completely torn off, the ulna fractured just below the coronoid process and again at the junction of the upper and middle thirds, and there was a comminuted fracture of the neck of the radius. The elbow joint was opened and exposed, and the wound was filled with dirt and grease. Fortunately the soft parts on the inner side had almost entirely escaped injury, so that the continuity of the brachial artery remained unbroken and the nutrition of the part was not interfered with to any great degree. Nevertheless, the patient was advised to consent to an amputation above the elbow joint, although he was informed that there was a chance of his recovering should he refuse it. It seemed exceedingly improbable that, with the entire large synovial membrane of the elbow joint exposed, septicemia could be averted. The patient, however, preferred to risk his life in an effort to save the arm. He had always enjoyed good health, had no bad habits, and had a cheerful disposition, all of which were points in his favor. The joint was accordingly carefully cleansed, and the external condyle of the humerus extracted with a pair of thumb forceps. A heavy wet dressing was applied to the whole arm from the shoulder to the fingers, bandaged to a straight splint, and a continuous irrigation of physiological saline solution, as in Case I, sustained for six weeks. The dressings were renewed daily and the temperature did not rise above 101° at any time. Drainage from the joint was copious, being favored by sprinkling the wet gauze with glycerin. After the continuous irrigation was discontinued, the external membrane which is found in direct approximation with an egg-shell was teased into small pieces under saline solution and placed upon the raw surfaces. Over this gauze spread with ichthyol ointment was applied, around which was wrapped the wet dressing. These dressings were changed every day, and about once a week the angle of the splint was slightly increased. The splint and dressings were continued until the patient left the hospital, April 15, 1907. Passive motion and massage were prescribed and the patient directed to persevere with them for a long time. In May, 1908, about eighteen months after the accident, he reported that he could use the arm surprisingly well; he could even feed a furnace with a shovel. There is a moderate amount of pronation and supination of the forearm, and about five degrees of motion at the elbow joint.

Case III.—Mr. X, age 60, while in a state of intoxication, had slipped from the steps of a moving train, and both feet had been run over, November 24, 1906. The patient was a chronic alcoholic, and in poor general health. For this reason, although the injury did not extend above the ankle joint on either foot, his family was advised to permit an amputation at the knee. This was absolutely refused, and we were compelled to do a double Pirogoff operation. Fairly good stumps were obtained and all went well for ten days; at the end of which time dry gangrene appeared on both sides. Immediate amputation higher up was once more strongly urged upon the patient's wife and friends, but was again rejected. Potassium permanganate dressings were applied constantly to the gangrenous areas and all our resources were drawn upon in an effort to improve the patient's general condition. Although he lived much longer than was expected, he demonstrated little improvement at any time, and finally died April 14, 1907, of hypostatic pneumonia.

Case IV.—Mr. Y., age 18, presented himself at the clinic, December 28, 1908. His right index

finger had been caught in some machinery and the terminal phalanx was almost completely severed. The soft parts were severely lacerated, the bone crushed, and generously intermingled with dirt and grease. The only rational procedure in this instance seemed to be to complete the amputation, which could easily have been done with a pair of scissors. But in spite of all arguments, the patient's consent could not be obtained. Consequently, the site of injury was cleansed and the foreign material removed as well as could be, tincture of iodine was liberally applied, and the finger was bandaged with a wet dressing to a splint. The gauze was changed and iodine injected every second day for two weeks and I was astonished to see that the severed end had united and appeared healthy. Except for the loss of the nail and a bad scar, this patient has a whole finger.

It would be a waste of time for me to reiterate all the well-known rules and principles to be observed in deciding whether to amputate or not when a limb has been seriously injured. I prefer simply to direct your attention to and emphasize the salient points illustrated in the foregoing cases which would incline one to adopt a conservative attitude after such experiences.

The essential prerequisites for a conservative method of treatment are: a good constitution, age under sixty, the integrity of at least a third of the circumference of the limb preserved, adequate blood supply to the site of injury and the part beyond, and a good nurse. Contributing factors are: perfect asepsis and antisepsis to the great est attainable degree, immediate restoration of the injured structures to their normal relations as far as possible, free drainage, and constant wet dressings. In the two latter lie our only hopes that the patient will not die of septicemia.

I have long advocated the use of glycerin in conjunction with wet dressings. It will be found a very valuable aid in keeping the gauze moist, and its powerful hygroscopic properties promote drainage and hasten sloughing.

The several sections of the membrane from the egg-shell, as applied to Case II served almost as well as skin grafts. At each dressing two or three little islands from the previous one would be found adherent. These proved to be an excellent foundation for the ultimate process of epithelial regeneration.

Undoubtedly, had we been permitted to amputate both legs in Case III at the knee in the first place, the likelihood of the patient's recovery would have been much greater. I felt that it was a mistake to leave the entire knee joint interposed between the site of injury and the body; the patient was advanced in age, alcoholic, and in poor health, so that gangrene seemed almost a certainty. I cited this case to demonstrate that I fully appreciate that there are many instances in which only a radical operation will afford the patient any chances whatever. Alcohol is the worst enemy of conservatism.

I have no comments to make on Case IV, except to remark that it is but another example of the efficacy of iodine as an antiseptic and an aid to healing processes.

Good nursing is of the utmost importance in the after treatment of these cases, and I take this opportunity to thank Mr. Chas. W. Moore, the nurse in charge of all the hospital cases I have mentioned for his efficient and faithful attention to them.

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FURTHER RESEARCH REGARDING THE PHOSPHATIC INDEX OR THE PULSE OF THE NERVOUS SYSTEM.*

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It is not the writer's intention to change in any way the views expressed in the Medical Record of May 9, 1908. The opinion there expressed is maintained, as far as importance is concerned, but a more careful description may be of value in clearing up some points, at that time only vaguely referred to. In this connection it will be necessary to repeat a few paragraphs taken from that article:

"The mixture should change to a milky character at once, varying in degree as to the amount of phosphates present, etc. The phosphates should sink according to their specific gravity, as compared to that of the urine. That is, if small, light, and immature, they fall slowly, even at times remaining almost stationary, giving a general turbidity to the whole fluid. The size, weight, and appearance of the crystals are important factors to be considered. At times they fall to what may be considered a normal index, but in appearance the precipitate is fluffy, light, and easily movable upon agitation. Here they must be considered deficient, although they reach the normal index. Phosphates precipitated by an alkaline solution are fern-shape, when normal, about 5/8 of an inch in diameter (using 1/2 inch objective), but they vary greatly as to size and shape, at times being less than 1/8 of an inch, and having practically no formation."

Before attempting to analyze the above, it may be said that the phosphatic index, together with the size, shape, and appearance of the crystals, is analogous to a blood count with a hemoglobin estimation as made with the blood scale and the appearance of the corpuscles on the microscopical field. A comparison may be made as follows: The index, the amount in 20 c. c. of urine from a 24-hour sample (or the urine passed between 7 and 11 o'clock in the morning) will answer to the number of blood cells per cubic millimeter. The size, shape, and appearance of the crystals indicate the amount of nuclein and lecithin which they contain, the same as the blood scale shows the amount of hemoglobin present. Such being the fact, it at once must be clear that to take the phosphatic index and study the crystals carefully is as important as a blood count. In fact, in the writer's opinion it is more so, for the reason that disease is prolonged and recovery postponed more often on account of neurotic conditions than of blood changes.

Furthermore, blood examinations necessitate an expensive apparatus and most careful technique, whereas the reverse is true of the phosphatic index. Upon the addition of the alkaline solution (8 c. c. to 20 c. c. of urine), the mixture, if normal, should change to a milky character at once; the precipitate rapidly sinking, in ten minutes, the time allowed for an estimation, should appear in a semi-solid mass in the bottom of the tube, displacing three c.c. of the fluid. This phenomenon is liable to great variations, depending upon the size, weight, and number of crystals present. To be of aid in the diagnosis, prognosis, and treatment of disease, one must know why these crystals are small, light,

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and diminished or increased in number. Briefly stated, the phosphates found in the urine are derived from the food, and their presence in the urine is influenced greatly by certain foods and drugs. Thus, there is a marked increase on an animal diet, and drugs like phosphorus, strychnine, and lecithin (which should be considered a food) increase them greatly, providing assimilation is normal. The urinary phosphates depend upon the decomposition of nuclein and lecithin, a class of bodies derived from the brain, nerves, amniotic fluid, yolk of eggs, spermatozoa, and certain vegetable substances. In other words, nuclein and lecithin are the food, the life of every nervovital cell, and the phosphatic crystals will show the amount present. That lecithin and nuclein exist in the nerve cell in reserve is shown when a person in a pronounced state of nerve excitement, lasting days or weeks, does not take food to speak of, yet the phosphates in the urine are greatly increased. Let the condition continue for some time, and it will be found that the crystals decrease in size, become light in weight, and may even go so far as to be practically amorphous.

In such a condition there may be no organic disease present, yet a person may have to take to his bed through extreme exhaustion. We are all aware what position the nervous system takes in disease, how the calm and robust withstand infections, etc., or rapidly recover, whereas it is exactly the reverse in the markedly neurotic. Generally speaking, in the first instance we find a normal index, crystals normal in size, weight, and appearance. This is easily explained by one fact, that there has been a normal demand upon the reserve. Individuals of this class seem to be in a way immune to disease, and when attacked by inflammation, etc., recover quickly, because, by reason of the nerve tone in the tissue, resolution is hastened. On the other hand, the low index with small, light, and at times imperfectly formed crystals, shows that nerve tone is diminished; there is practically no control of the vasomotor system.

A few brief remarks upon three or four cases will more clearly define the subject under consideration:

E. H. K. æt. 24. Symptoms complained of, urinating every 15 minutes to 3 hours during day and 3 to 5 times at night. No organic condition present; never venereal disease. Urinary examination 1010, acid minus, no albumin, sugar, casts, pus, or crystals; phosphatic index 4/5 too low, crystals badly formed.

Diagnosis: Polyuria, due to no control of vasomotor system, caused by nerve cell starvation.

Treatment: Eight raw eggs daily, phosphorus, strychnine, and cannabis indica. Result, in eight weeks: Urination perfect; index and crystals practically normal.

D. A. æt. 18. For six or seven years urinating every half to one hour daily and four to six times at night. No organic or venereal disease. Urine 1028: acid plus, no casts, pus, sugar, albumin, or crystals. Phosphatic index 1¾ times above normal, crystals normal, but small.

Treatment: Avoid all excesses, work, study, and athletics. Bromide of gold and arsenic three times daily. Result in two months: Normal urination; index and crystals normal.

J. H. Severe pain in shoulders and hip; no history of rheumatism. Urinary examination 1016, acid minus, no albumin, sugar, casts, or crystals. Index, 3/5 too low, no formation of crystals. Diagnosis, neuritis, due to nerve cell starvation.

Treatment: Raw eggs, phosphorus, and strychnine. There was no pain after forty-eight hours, and it never returned. Later examination showed index and crystals practically normal.

Mrs. P. æt. 27. Severe pain in the left ovarian region; prostration so marked she could scarcely attend to household duties. According to a previous examination by gynecologist, the left ovary was tied down by adhesion, and removal advised as only relief.

Urinary examination 1018, acid plus, no albumin, casts, or sugar, and only a few pus cells from the vulva. Phosphatic index one too high; crystals small but well formed.

Treatment: Bromide of gold and arsenic. In three weeks no pain, strength fully returned and feeling perfectly well. There has been no pain in the ovarian region in three years.

40 North Pearl Street.

HINTS ON FLUOROSCOPY AND RADIOGRAPHY.

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To make a satisfactory fluoroscopic examination, a steady current, with a medium tube, is desirable. Too great a quantity of current will break down the vacuum in the tube. It is desirable for the best work that a room painted dead black should be used. The light should be turned off for from 3 to 10 minutes to allow the eye to adjust itself to the conditions before the current is turned into the tube, the patient previously having been placed before the tube in such a position that the rays will focus upon the point we desire to examine. No patient should be subjected to more than five minutes' exposure to the tube at one session, and, if possible, the individual idiosyncrasy of the patient to the ray should be established beforehand. It is quite possible to produce a severe burn in a susceptible person with a much shorter exposure.

Many conditions yield us clearer knowledge by means of fluoroscopy than by means of radiography. The size and condition of the heart, aneurysms, consolidations and cavities in the lungs, position of the diaphragm, the size of the liver, strictures of the esophagus, the size of the stomach, the movements of the intestines, the condition of the sinuses of the head—all can be determined with greater accuracy by this means. The use of subnitrate of bismuth, mixed with some food, such as apple sauce, to make a good bolus, is essential in determining stricture or diverticula of the esophagus, size and movement of the stomach and of the intestines. This is fed to the patient in teaspoonful doses after the eye has accustomed itself to and made out the condition as accurately as possible.

As will readily be understood, upon the position of the patient in front of the screen depends the clearness and position of the image. We start with the patient standing directly in front of the tube, and turn him from side to side gradually. By this means we determine the relative size and position of the shadows. It is well to remember that fluoroscopy and radiography is a study in the relative

value of shadows, and that it requires special training in order to arrive at definite conclusions. It is often necessary to make several sittings in a difficult case to determine accurately the meaning of the shadows presented to us.

Elaborate and special apparatus has been devised as an aid to fluoroscopy. It is, however, very expensive, and unless the student desires to go into this work very exhaustively, unnecessary.

Points on Radiography.—The art of radiography is probably the most difficult thing with which we have to deal in our study of the *x*-ray, and is almost impossible to acquire by means of didactic teaching, practical experience in the art being essential to arrive at any sort of success.

Two methods are in use in taking radiographs. One consists of relatively short exposures with a very high tube and a large quantity of current, the second relatively long exposures with a small quantity of current. The first will give sharper outlines to our shadows. The second will show better the varying textures of our tissues.

The conditions confronting us with patient, tube, the machine for exciting the electric current, and the plate, are all such varying factors, that to give any definite rule is almost an impossibility. We shall endeavor, however, to place the student in a position where he can figure out for himself the varying relation between these factors, and so arrive, with some practice, at his own conclusion.

For the production of a radiograph, either the static machine or the coil can be used.

As it is essential that the quantity of current behind the tube shall be considerable, it is necessary, except in taking pictures where only slight penetration is required, to use either a large static machine, *i. e.* one in which the quantity behind the discharge is considerable, or else the coil. A small static machine will give very satisfactory results in taking pictures of children and of extremities. Where we have our choice, however, a twelve or fifteen inch Rhomkoff coil is best for our purpose. With this, granting that our other factors are normal, pictures can be taken of any part of the body, after a certain amount of experience, which will reflect credit upon the operator.

The Interrupters.—When the coil is used, provided a small quantity of current only is required, as in extremities, either a mechanical or an electrolytic interrupter (either the Wehnault or Caldwell) can be used. For taking difficult pictures, the Wehnault interruper, with from fifteen to twenty-five ampères in the primary, is best for our purpose.

The Tube.—In the selection of a tube for radiographic work, we must look carefully to the focus. Unless our rays impinge upon the center of the anode, our picture will be blurred. This can be determined by the use of the fluoroscope, which should give not only good penetration, but absolute accuracy of definition. A high tube is best for our purpose. Indeed, it is essential to our success when deep pictures, such as hips, shoulders and stone in the kidney, are desired. The best focal distance for our tube is from fifteen to eighteen inches.

Regulation of the Tube.—It is essential to the success of a photograph that our self-regulating apparatus be accurately used. This can be determined by watching the ameter in the primary and observing the color in our tube. A careful manipulation of this apparatus will often prevent the breaking down of the vacuum in the tube.

When the vacuum begins to break, which will be noticed by the purpling of the color in the tube and also by a lower pitch in the sing of the spark gaps, the current should be instantly turned off. If this is not done, our vacuum will soon break down, making our tube useless. It should also be remembered that, after the vacuum begins to break, the tube is useless for further radiographic work at that sitting.

The Plates.—There are a number of makes of plates suitable for radiographic work. Most operators have an individual preference, but the essentials of a good plate are its freshness and its quickness. When it is possible, it is wise for the operator to buy the plates in small quantities and place them in the envelopes himself in a dark room. These plates are very sensitive to light, and should be placed in a thick lead-lined box, if they are carried through the sunlight, even, although wrapped in their outer envelopes, before being developed.

It goes without saying that the plates should not be exposed to the influence of the *x*-ray at any time except during the progress of the picture. However, operators often fail to realize the extent of the influence of the *x*-ray. I have personally had plates light-struck when placed in a heavy wooden box, separated from the tube by a wall, and twenty feet distant from the tube. When a picture is to be taken, the tube should be tried out, the patient placed in position, the focus determined, and then the plate brought in and placed in position. A detail worth observing is to place a coin in the upper right-hand corner of the plate. This will help us in determining the position of objects shown on the plate and often save us a good many puzzled moments.

The Patient.—Children are good radiographic subjects on account of the ease of penetration. In passing, we wish to call attention to the fact that the epiphyses of the various bones unite at varying periods in a child's life, some being delayed almost to maturity. We have frequently seen a fracture diagnosed by a good man, when the picture showed only the epiphysis united to the shaft by cartilage, the lesser density of the cartilage making it appear as though there were a separation. Children require relatively short exposures.

If we will keep in mind the law—the *x*-ray penetrates all substances with a velocity proportional to their density—and remember that fat is penetrated most readily, connective tissue next readily, and then, in order, cartilage, muscle, bone, blood, and, last of all, stone and metallic foreign bodies, we shall be able to determine, with our other factors normal, the proper exposure required in taking photographs of the different types of adults that come under our observation. Example: A fat man will be an easier subject for us than a muscular man of the same size. The muscles, containing much blood, tend to inhibit the rays. If we wish to make a photograph of a foreign body, a longer exposure, to differentiate properly, will be in order.

Radiographs of Fractures and Foreign Bodies.—We should never endeavor to diagnose a fracture or locate a foreign body by means of one radiograph. A little thought will show us how inaccurate will be a conclusion arrived at in this manner. Two or more photographs, in varying positions, should be taken, and the angle of incidence arrived at. This will give us the true location or position of the fracture or foreign body, gallstones, kidney stones, differentiation of bone lesions, etc.

For those who are more expert in radiography,

somewhat elaborate apparatus has been devised, by means of which steroscopic radiographs can be made. By following out the suggestions named above, however, accurate enough work for the average man can be done without resort to this procedure.

Personal Idiosyncrasy.—We must bear in mind that the susceptibility of subjects to the *x*-ray varies greatly. Using large amperage, as we do in these cases, and with a high tube, serious burns may often result from relatively short exposures. This fact should be constantly in our mind. The patient should be warned, that, while it is not probable, it is quite possible that a burn of considerable severity may result, especially if the radiograph is that of a deep part, and the operator should properly protect himself, by a written release, if possible, from the patient. It has not been our misfortune, in several years, to burn a patient, but too great care cannot be exercised.

Diaphragms and Compressional Apparatus.—When our radiograph embodies some deep-seated structure, such as the kidney, or when it is desirable to limit the chest or abdominal expansion, various forms of compressional apparatus, to which are attached the tube, have been invented. It is hardly possible to take good radiographs in these locations without some such aid.

Ferrotype Sheets.—These are sheets of thin, japanned iron, are commonly used, and can be obtained through any photographer. These are placed upon the table, the plate being placed upon them. Their object is to prevent the radiation of the rays, and so give us a clearer outline to our picture. They are a very desirable aid to good work.

Development of *X*-Ray Plates.—The developer used with skiagraphs varies with the exposure and character of picture taken. All *x*-ray plates of deep structures should be rocked continuously. If they are laid in the bath without rocking, a mottling of the plate may result. This rocking must be continued in some cases, even for twenty minutes or half an hour in the case of a slow developer, or where the exposure has not been properly timed. Attention to detail in development is nearly half the battle in obtaining good results.

Length of Exposure.—It is impossible to formulate a rule which will help us very much as to the length of time required to take radiographs. As will be seen, it depends upon too many factors; the quantity of current we are using, condition of the tube and of the plates, and the size and density of our patient. The larger the quantity of current, the higher the tube, and the less the density of our patient, the shorter will be the exposure. With our factors reversed, the exposure becomes much longer. Only individual experience will determine the ratio.

A note of warning should be sounded relative to the protection of the operator in taking radiographs. We must remember that here all our factors of harm are at their highest potential. The operator should stand behind a heavy lead-lined screen, or by an arrangement of switches, at a considerable distance from the tube, or, better still, in another room, with a lead-glass window through which he can observe the conditions. Evidences of disregard of this warning are constantly being brought to our attention, in the number of x-ray workers who are incapacitated by burns, atrophic skin, and neurasthenia, to say nothing of sterility and cancer, as the result of their carelessness.

137 West Sixty-ninth Street.

Vaginal Hemorrhage and Milky Secretion from the Mammæ in an Infant.—One case is reported by T. W. Dewar, who says that simultaneous occurrence of bloodless labor in the mother and of hemorrhagic vaginal discharge and milky secretion from both mammæ in the infant perhaps justifies report. Of course, no connection between the two is suggested. Labor set in in the mother at 2 P.M., and terminated at 10:30 P.M. A quarter of an hour after the placenta came away, the membranes intact, of a glistening pearly color. Neither before nor after birth, nor after expulsion of the placenta, was there any bleeding. Some hours after the lochia appeared and continued in amount and character in conformity with ordinary experience, the patient making a perfect recovery. It was her second child, a female, and weighed 6¼ pounds. Her first confinement was of the normal type. As regards the infant, a discharge of blood and mucus came from the vagina on the third day and lasted until the seventh. On the twelfth day the mammæ became hard, swollen, and tender, and the skin over both had an erythematous blush. From both a milky secretion exuded, and continued for three weeks. The left enlarged first, preceding the right by twenty-four hours. The excretion was aided morning and evening by gentle pressure and massage, and the tumefaction subdued without trouble. The child was not upset by it in any way.—*British Medical Journal.*

Phlebitis of the Leg After Laparotomy.—E. Mériel describes the signal-symptoms of phlebitis after laparotomy for tumors etc. as a rise of the pulse frequency that is not accompanied by a corresponding rise of temperature. The phlebitis begins about fifteen days after the operation when convalescence is beginning to be established. But this pulse has shown itself for some days, and perhaps from the day after the operation. It increases progressively in frequency without being small, as it is in peritonitis, and with it comes no typical rise of temperature for some time. Then there is a chill and a rise of temperature to 38.5° or 40°, with rise and fall each day, and then a return to apyrexia. This pulse depends on the obstruction produced by thromboses of the pelvic veins combined with a weak heart. Pain begins before the leg swells due to pressure on the veins by the connective tissue rings through which they pass. Embolism may result in sudden death like a clap of thunder out of a clear sky. The etiology consists of injuries to the veins of the pelvis or diseased conditions of these organs at or before the operation or changes in the blood which make it coagulate more easily than normal. Phlebitis never occurs in a normal vein.—*Gazette des Hôpitaux.*

Contribution to the Surgery of the Kidney.—Alessandri establishes the necessity of determining the function of the kidneys separately by separating the urine of the two organs in the bladder. To be absolutely certain of examining the urine of one kidney alone it is necessary to catheterize the two ureters. When this procedure is dangerous, as in cases of acute suppuration or tuberculosis, he prefers to catheterize the pathological kidney, using large sounds, so as to avoid the filtration of the urine about the catheter. Cryoscopy of the urine is as important as of the blood, in order to determine the actual condition of the kidneys. Cryoscopy of the blood appears to the author not to be of as much importance as has been represented. The author describes an interesting case of operation for interstitial nephritis in a patient who was anuric for eighteen days.—*La Riforma Medica.*

Syphilitic Fever.—Angelo Ceconi discusses the symptoms and diagnosis of syphilitic fever. The fever of tertiary syphilis occurs as it does in the secondary manifestations. It may be slight with a slight rise of temperature in the afternoon perhaps continuing into the night the rises being variable and changeable or the temperature may remain constantly elevated with an intermittent or remittent type and initial chills and sweating. It generally continues for weeks or months and is only affected by the action of mixed or iodide treatment under which it falls and disappears in a few days. It is not peculiar to any special tertiary lesion being found with localizations of the syphilitic virus in the nervous system, bones, articulations, serous membranes and lungs. It is observed frequently with liver lesions. It can be diagnosticated from typhoid and malaria only by careful serum tests and microscopic examinations of the blood. The spleen is enlarged in all three conditions. It is accompanied by headache and malaise, with some disturbance of the stomach. It occurs many years after the primary infection. Women seem to be more subject to it than men. It may continue for a long period without injuring the general health or decreasing the weight.—*La Riforma Medica.*

MEDICAL RECORD.

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OPIUM SMOKING AND ITS PREVENTION AND CURE.

A STRONG anti-opium smoking movement is going on at the present time in the Far East, the home of the opium habit, and some reports containing the results of investigations on the subject have been published already. Before, however, referring to these, it may be mentioned as an interesting and somewhat curious fact that although the custom of smoking opium is most prevalent in Far Eastern countries and is generally regarded as originating in Asia, such is really not the case. It has been recently stated on good authority, that the practice of smoking the drug was introduced actually from Europe into Asia, where, needless to say, it has taken root and flourished exceedingly.

In 1907, a British commission, consisting of six members, was appointed to inquire into the consumption of opium in the Straits Settlements—a British possession— and in the Federated Malay States, which occupy the southern part of the Malay peninsula between the islands of Sumatra and Borneo. The report is most voluminous and it can be stated that the localities from which information was gained are most favorable to the gathering of instructive and accurate knowledge, as the inhabitants, especially those of the Federated States, are most addicted to the habit. A large proportion of the inhabitants of the Straits Settlements and of the Federated Malay States are Chinamen, and probably the custom of opium smoking in these places originated with the immigration of Chinese. The commissioners are of the opinion that the main reason for taking to the habit of smoking opium is the expression among the Chinese of the universal tendency of human nature to some form of narcotic indulgence.

With regard to the evils arising from the use of opium, the great majority of medical witnesses who gave evidence before the Commission expressed the view that opium smoking in moderation is relatively harmless and that even if the indulgence be carried to excess, there is no organic change in the body, but the disturbances are purely functional bad effects, such as constipation, disorders of the digestive organs, with emaciation and loss of energy. In the words of the report, "It appears, therefore, that in the opinion of those remarkably well qualified to judge opium smoking has little or no effect on the duration of life. That the evils arising from the use of opium are usually the subject of exaggeration and that the tendency of philanthropists to give undue prominence to bad cases and to generalize from the observation of them is undoubtedly a great factor in attributing to the use of opium more widely extended evils than really exist." In short, the expression, "evils of opium smoking," is applicable only to the case of "opium sots."

Opium smoking in Asia may be fairly compared to alcohol drinking in Europe and in other temperate and cold climates. And the evidence of medical witnesses before the Commission referred to above, bears a striking similarity to the evidence of many medical witnesses on the alcohol question. Despite the assertions of a large number of medical men of great scientific reputation that alcohol used under any conditions is useless and that generally its employment is harmful in the extreme, there are yet, perhaps, quite as large a number of physicians who hold that alcohol has its uses and that its evil effects are not nearly so great as its opponents attempt to prove. At any rate, Dr. Reid and others have argued very plausibly that a race which has been accustomed to the use of alcohol for generations acquires immunity to it, in a greater or less degree. This argument is also employed with respect to the consumption of opium by Far Eastern peoples, that they in a like manner have acquired a certain degree of immunity to the drug. The contention in both instances is true, but, of course, does not prove that the inhabitants of Europe and America would not be the better physically, mentally, and morally if alcohol were not drunk nor that the denizens of Asia would not benefit in mind, body, and soul if opium were placed beyond their reach.

At least, there is one point of agreement that abuse of either alcohol or opium is harmful and that any steps which tend to the restriction of the sale of these narcotics would be for the public good. Further, as it has been demonstrated conclusively that opium is very harmful to white persons, the importation of the drug into countries peopled by such should be carefully supervised. In this country, for example, where the opium habit is stated to be fairly prevalent in certain cities among members of the white race, all needful precautions should be taken. The importation of the drug, except for medicinal use, has now been forbidden, and it only remains to ensure the enforcement of the law.

As to the cure of the habit, the Commission did not appear to be very hopeful, for the report says: "The idea that stoppage of smoking in all ordinary cases in any way endangers life is exploded by the experience gained in cases of compulsory abstention in the prisons. Acute diarrhea has been noticed to be the result in some cases of compulsory deprivation, but on the whole there appears to be no ground for saying that in the instance of moderate smokers physical inconvenience more than purely ephemeral discomfort follows the cessation of the use of opium. We consider that in the cases

of smoking to excess cure by voluntary effort is a practical impossibility, and that subservience to opium in these somewhat isolated instances is to all intents and purposes final, but we think that with the requisite desire to break from its use the voluntary relinquishment of the opium habit is in the majority of cases possible."

The report touched upon in this article does not advance matters so far as our knowledge concerning the effects of opium on human beings is concerned. In many respects, it is crude and disappointing. The materials for an illuminating exposition of the opium question in the Far East seem to have been at hand, but were not taken advantage of. Especially from the scientific point of view is the report barren. The physicians examined declared for the most part that opium smoking in moderation was not injurious, but made no definite statements with regard to what constituted moderation or excess. There surely must be those who, while they cannot be denominated as "opium sots," yet smoke more than is good for them and who show more or less marked physiological effects. When a full report is published of the International Opium Commission, which began its session on February 1 under the presidency of Bishop Brent, it is to be anticipated and hoped that our knowledge of the subject from its physiological and scientific aspects will be greatly amplified.

CARBOLIC ACID GANGRENE.

Two observers writing from cities so remote from each other as St. Louis and Philadelphia have reported simultaneously five cases of gangrene following the use of carbolic acid as a surgical dressing. J. A. Kelly in the February number of *Annals of Surgery* reports a woman, aged 27, who applied a carbolic solution of unknown strength to a punctured wound of the finger. The dressing remained in place only five hours when intense pain brought about its removal. The finger was found to be dead and blackened from gangrene. The patient neglected advice of immediate amputation, but later consented to have the finger removed at the metatarsophalangeal joint. In the *St. Louis Medical Review*, also for February, W. E. Leighton cites four cases of carbolic acid gangrene of fingers and toes. He considers that two factors are productive of this untoward result of the use of carbolic acid: the skin becomes hardened and contracted by the application and hence produces mechanical constriction after the manner of a very tight bandage; or an artery, already sclerotic, in the affected digit offers poor resistance against local necrosis.

The faith possessed by the laity in carbolic acid as a disinfectant and germicide leads them very frequently into error. In the first place there are many drugs equally or more powerful as antiseptics which do not have the local anesthetic effect or disagreeable odor of phenol. This anesthetic effect of phenol is one of its greatest dangers, for it is likely that when pain following its use does begin in adjacent tissue, irreparable damage has already been done. However, the layman with an injured member, upon visiting a nearby drug store, either demands a carbolic solution, or, as quite often happens, is supplied with the drug by the pharmacist who speaks only of its poisonous constitutional effect and neglects to warn the patient concerning its local action.

There is, then, sufficient reason for limiting the sale of this drug to physicians exclusively, and for not allowing it to be dispensed to almost anyone who is willing to sign the "poison book." Most surgeons of experience have seen cases of carbolic gangrene caused either by the patient's ignorance, or, in a few cases, by failure on the part of the physician who first saw the case to remember what may happen. Moreover, it is not the strong but the weak percentages of the drug that may do damage. A finger has been lost through the use of a 10 per cent. carbolic ointment applied to an open wound, and a like result has followed the application of solutions 1 in 60 and 1 in 100 strength respectively. In most hospitals, especially in the dispensary service, carbolic acid is used chiefly for the sterilization of instruments which are washed in 95 per cent. alcohol and sterile water before use. Certainly in the light of past experience it is far safer to apply lead and opium, or alum acetate, or bichloride of mercury of suitable strength than to take chances with a drug so powerful in its local action as is phenol.

SCARLET FEVER.

Scarlet fever is a disease that appears annually in more or less severe epidemics, and therefore one with which every practitioner not a specialist should be familiar. Nevertheless, there is among physicians a lamentable unfamiliarity with some of the details of diagnosis and treatment. Many cases show a false membrane resembling that of diphtheria on the tonsils and pharynx, and in these cases a diagnosis of diphtheria complicating scarlatina is made. If a culture is made from such a throat it will often be found that there are no Klebs-Loeffler bacilli, but that the membranes contain streptococci. Since the true agent in the causation of scarlet fever has not been as yet isolated, we cannot say whether or not it is present in the membrane, but we must suppose it to be there, and may say that the streptococcus is an almost constant accompaniment of scarlet fever.

In the *Gazette des Hôpitaux* for February 13 and 20, 1909, L. Babonneix and M. Brelot give a careful study of the various forms of angina found in scarlet fever. The ordinary sore throat of pure scarlet fever is a slight affair, but it is often complicated with a severe mixed infection and swelling of the lymphatic glands. This may become pseudomembranous, ulcerative, or even gangrenous, and may appear at any stage of the disease, even during convalescence. The severity of the general symptoms is greatly increased by any one of these severe anginas, and some of them are rapidly fatal, with immense swellings of the neck. The gangrenous forms and true Klebs-Loeffler diphtheria com-

plicating scarlet fever are confined to hospitals, where the little patients, coming from bad surroundings, are exposed to the infection of diphtheria. True diphtheria is found generally in the convalescent stage only. Recognizing these facts, cleansing the nose and throat frequently with a disinfecting solution becomes of great importance both to the patient and to those around him.

Sudden death may occur at any period of scarlet fever in children or adults without any apparent cause. This is well brought out by A. Gouget and Dechaux, in the *Presse Médicale* of February 24, 1909. It may come very early, before diagnosis is possible or the rash has appeared, being preceded by convulsions; or it may come heralded by no unfavorable symptom except a thready, rapid pulse. It is quite frequent in the nephritic period of the disease. Autopsy seldom gives light in any of these cases on the cause of death. It seems to result from an overwhelming nerve poisoning.

P. Gallois, writing in the *Bulletin Médical* of February 20, 1909, calls scarlet fever an ordinary angina with a secondary eruption. The angina becomes serious only when it is complicated by streptococcus infection. The eruption is not important. Hence prophylactic measures should accompany every angina, whether accompanied by eruption or not. Isolation becomes unnecessary after the patient has recovered from his angina, and keeping him isolated until desquamation is complete, Gallois maintains, is not only useless, but oppressive, since this desquamation is not the carrier of the disease, but the secretions from the throat are the dangerous part of it. Whether this be the true view or no, if we are to detect desquamation as long as it exists, we must not fail to examine the feet of the patient before pronouncing him clean, since the process of desquamation continues on the soles of the feet long after the body is free from scales.

The Increase of Antitrypsin in the Blood.

It has been known for a long time that the blood of healthy animals, including man, possesses feeble antitryptic properties. Recently, Brieger and Trevinq have utilized this fact in the study of the blood of patients suffering from malignant disease and from other conditions leading to cachexia, and have discovered the important fact that the amount of antitrypsin in the blood is very much increased in these conditions. Indeed, the reaction was so frequently obtained in cachexia of malignant disease, that these authors thought of the possibility of using this fact in the differential diagnosis of such disease. Other publications soon showed, however, that the application of such a diagnostic measure was very limited, the increase in antitrypsin being, perhaps, specific for cachexia, but not necessarily for malignant disease. Thus Braunstein, writing in the *Deutsche medizinische Wochenschrift* for April 1, 1909, reports increase in antitrypsin in 25 per cent. of cases of cachexia, caused by nonmalignant disease. On the other hand, in cases of carcinoma the increase in antitrypsin was noted in over 91 per cent. of cases, so that a certain diagnostic value is certainly possessed by this reaction. Braunstein has occupied himself with the nature of the causes which lead to the increase of antitryptic properties of the blood, and has studied the reaction in animals in whom a cachectic condition was produced by the administration of phloridzin and phosphorus. The blood of such animals showed distinct increase in antitrypsin, and as the cachexia produced by these substances is due to a greatly increased destruction of proteids, Braunstein concludes that the reaction in cachectic human beings is likewise caused by the same disturbance of metabolism. He concludes that the increase in antitrypsin is no more specific for malignant disease than the presence of lactic acid in the gastric contents; normal amounts, however, speak strongly against the existence of such disease, a fact which may prove of value in differentiating benign from malignant tumors.

News of the Week.

Health Report of the Canal Zone.—The report of Dr. William C. Gorgas, chief sanitary officer, for the month of February, 1909, calls attention to the fact that the death rate among employees for that month, 10.98, is lower than that for any February since the work on the isthmus was begun. In 1906, the rate for the month of February was 43 per thousand; in 1907, 25.62; in 1908, 12.72. The same decrease for the month is noted in the death rate for the total population, the figures being, 1906, 38.09 per thousand; 1907, 36.07; 1908, 21.40; and 1909, 18.59. There was also a large decrease in the amount of sickness among the employees during February as compared with January. During the latter month the average sick among the employees every day was 1,116 men; during February this average was reduced to 951. During January, 1,258 cases of malaria among employees were admitted to the hospitals; during February, only 852. No case of yellow fever, plague, or smallpox occurred on the isthmus during the month.

United States Pharmacopeial Convention.—In accordance with the provisions of the by-laws of the convention, the president, Dr. Horatio C. Wood, has invited the several bodies, entitled under the constitution to representation, to appoint delegates to the First Decennial meeting of the Ninth Decennial Convention for the Revision of the Pharmacopeia of the United States of America, to be held in Washington, on May 10, 1909. Notification of the appointment of delegates, accompanied by the necessary certification of eligibility, should be forwarded as soon as possible to the Secretary of the Board of Trustees, Dr. Murray G. Motter, 1841 Summit Place, Washington, D. C. Incorporated medical colleges and medical schools connected with incorporated universities or colleges; incorporated colleges of pharmacy; incorporated State Medical Associations and Pharmaceutical Associations; the American Medical Association; the American Pharmaceutical Association; and the American Chemical Society, all are entitled to representation at the convention.

The University and Bellevue Hospital Medical College.—Mr. Andrew Carnegie has given $75,000 to enlarge the Carnegie Medical Laboratory of this college, the gift being in honor of the successful work in bacteriology and pathology in the laboratory during the last twenty-five years. Announcement is made also of a gift of $2,000 by the widow and

daughters of Dr. Glover C. Arnold to establish the Glover C. Arnold surgery prize, the annual income of the fund to be awarded each year to the member of the graduating class of the University and Bellevue Hospital Medical College who shall stand the highest in surgery.

The Neurological Institute of New York, a hospital and clinic for the treatment of nervous and mental diseases, was incorporated by order of the Supreme Court on April 21. The incorporators include Dr. Joseph Collins, Dr. Joseph Frankel, Otto H. Kahn, Adrian Iselin, Jr., Richard Watson Gilder, and others. The prospectus of the institute sets forth that "the real reason why such forms of supernaturalism as Christian Science, New Thought, the Emmanuel Movement, and others, have obtained such a hold on the people of this country and such a popularity in this and neighboring communities is due more largely to the fact that physicians are untrained in the recognition of so-called functional and nervous metal diseases, and unaccustomed to the proper and successful treatment of them, than to all other causes combined."

Appointments at the Rockefeller Institute.—At a meeting of the Board of Directors of the Rockefeller Institute for Medical Research, held on April 10, the following promotions and appointments were made: *Associate Members*, John Auer (Physiology), Hideyo Noguchi (Pathology), Alexis Carrel (Surgery); *Associate*, George W. Heimrod (Chemistry); *Assistants*, Martha Wallstein (Pathology), Richard V. Lamar (Pathology), A. O. Shaklee (Physiology), Gustave M. Meyer (Chemistry); *Fellows*, M. T. Burrows (Pathology), Paul F. Clark (Bacteriology).

Death Rate High.—Largely because of the prevalence of pneumonia, the death rate in New York for the week ending April 17, was higher than that for the corresponding week of last year, the figures being 19.48 as compared to 18.21. The deaths from pneumonia numbered 359, the total number of deaths for the week being 1,705, or 161 more than the same week in 1908.

Cattle Quarantine Removed.—Secretary Wilson on April 20 issued an order removing completely the quarantine which he proclaimed last November on account of the prevalence of the foot and mouth disease among cattle. It has been determined that the disease does not now exist in the United States. It is estimated that about $1,000,000 was spent in eradicating the disease, of which more than half was paid out by the Federal Government.

Fire in Hospital.—A fire which started in the boiler room of the Peekskill Hospital, on the morning of April 21, compelled the removal of the twenty-three patients in the institution to the nurses' home and the isolation pavilion near by. Under the direction of the superintendent, the nurses accomplished the transfer quietly and without accident.

Rockaway Park Sanitarium.—The directors of the Rockaway Park Sanitarium for Hebrew Children announce that their buildings have been enlarged so as to permit of the addition of sixty beds, making a total number of 475 beds. It is estimated that between 25,000 and 30,000 children will during the coming summer have the benefits of the all-day outings on the water and a short stay at the sanitarium.

The American Gynecological Society held its annual dinner, on April 22, at the Waldorf-Astoria, New York. The dinner commemorated the first operation of ovariotomy performed by Dr. Ephraim McDowell of Dansville, Ky.

Asylum Plan Changed.—Because of the opposition among the residents of the neighborhood to the location of the Long Island State Hospital for the Insane at Greenvale, the State Commission in Lunacy has abandoned that site, and will attempt to obtain land near Hicksville, it is understood.

The New York Institution for the Blind has purchased a site for its new buildings in Bronxville. About fifty-one acres have been acquired, and the present quarters at Ninth avenue and Thirty-fourth street will be abandoned and the property sold as soon as the new home is ready.

Compulsory Vaccination.—At a recent meeting of the Chicago Medical Society, compulsory vaccination was favored as being in keeping with the present advanced position of preventive medicine. The resolutions were introduced by Dr. William L. Baum in support of a bill making vaccination compulsory that is pending before the Legislature.

Chicago Milk.—Commissioner of Health, Dr. William A. Evans, Chicago, recently asserted before the City Club, that the work accomplished in Chicago in the last six months to protect the city's milk supply was greater than had ever been done in any other city in the same length of time. Chicago gets milk from twelve thousand farms in four States. The conditions on these farms are known, and if one desires he may find out under just what conditions the milk the people are using is produced.

The Federation of Labor and Tuberculosis.—The Illinois State Federation of Labor has decided to begin an active fight, with a view to stamping out tuberculosis. Literature, which deals with occupational diseases, and more especially with tuberculosis, giving full information with regard to the symptoms of the disease, and the work that is being done for its eradication, will be distributed by the Federation among 500,000 members of the union.

Tuberculosis Camp.—The Lowell General Hospital will open its tuberculosis camp for its fourth season, on May 3. The camp has accommodations for twelve men and sixteen women. It will remain open throughout the summer.

American Medical Editors' Association.—The coming meeting of this association, which will be held at the Marlborough-Blenheim, Atlantic City, will celebrate the fortieth anniversary, and a good program has been prepared for the occasion. It is expected that delegates from the foreign medical press will be present, and it is hoped that every medical editor will make an effort to be present at the meetings.

The Ohio State Medical Association.—In response to the invitation of the Academy of Medicine of Cincinnati, the Ohio State Medical Association will meet in that city on May 5, 6, and 7. On the evening of the first day a smoker will be held, and on the evening of the second the annual banquet. The headquarters for the meetings will be at the Hotel Sinton.

The Iowa State Medical Society will hold its annual meeting in Dubuque on May 19, 20, and 21. On the preceding day the State Society of Medical Women will meet.

The Southwest Missouri Medical Society will meet in Springfield, on May 6 and 7, under the presidency of Dr. W. P. Patterson.

The Belknap County (N. H.) Medical Society held its annual meeting on April 12 and elected the following officers for the ensuing year: *President*, Dr. E. P. Hodgden; *Vice-President*, Dr. F. B. Easton; *Secretary and Treasurer*, Dr. A. H. Harriman; *Executive Committee*, Dr. A. W. Abbott, Dr. W. H. True and Dr. E. F. Houghton of Tilton; *Counsellors*, Dr. G. H. Saltmarsh, Dr. J. G. Quinby and Dr. John Huckins of Ashland.

The Florida Medical Association, at its annual meeting in Pensacola on April 8, elected the following officers: *President*, Dr. H. E. Palmer of Tallahassee; *Vice-Presidents*, Dr. C. P. Rogers of Jacksonville and Dr. W. S. Bird of Tampa.

The Windham County (Conn.) Medical Society held its one hundred and sixteenth annual meeting on April 15, at Putnam. The following were elected officers for the ensuing year: *President*, John Weldon, Willimantic; *Vice-President*, George M. Burroughs, Danielson; *Secretary and Treasurer*, James L. Gardner, Central Village; *Counselor*, J. B. Kent, Putnam; *Delegates to State Convention*, C. C. Gildersleeve, Woodstock; R. C. White, Willimantic.

The Tennessee State Medical Society met at Nashville on April 14. Officers for the ensuing year were elected as follows: *President*, Dr. Jere L. Crook of Jackson; *Vice-Presidents*, from East Tennessee, Dr. C. H. Davis of Knoxville; from West Tennessee, Dr. O. Dulaney of Dyersburg; from Middle Tennessee, Dr. T. J. Coble of Shelbyville; *Secretary*, Dr. George H. Price of Davidson County; *Delegate to the American Medical Association*, Dr. L. A. Garbrough of Covington.

The Fairfield County (Conn.) Medical Association, at its one hundred and seventeenth annual meeting, on April 13, at Norwalk, elected the following officers: *President*, Dr. Samuel Pierson, Stamford; *Vice-President*, H. E. Smythe, M.D., of Bridgeport; *Secretary*, Frank W. Stevens, M.D., Bridgeport; *Treasurer*, James Douglass Gold of Bridgeport; *Counselor*, S. M. Garlick, M.D., of Bridgeport; *Censors*, William S. Randell, M.D., Edward M. Smith, M.D., and D. C. Brown, M.D.

Obituary Notes.—Dr. Frank W. Draper, for twenty-eight years medical examiner of Suffolk County, Mass., and for thirty-five years on the staff of the Harvard Medical School, died of pneumonia, at his home in Brookline on April 19, aged 66 years. Dr. Draper was graduated from Brown University in 1862, and from the Harvard Medical School in 1869. During the Civil War he enlisted as a private in the 35th Massachusetts Volunteer Infantry, and was later promoted to a captaincy. He was at various times visiting physician to the Boston City Hospital, editor of the Massachusetts Registration Reports, assistant editor of the *Boston Medical and Surgical Journal*, and lecturer on forensic medicine, assistant professor, and, at the time of his death, professor of legal medicine in the Harvard Medical School. He was a member of the Massachusetts Medical Society, of which he was president for 1900-1902, the American Public Health Association, and the American Statistical Association, and a fellow of the American Association of Arts and Sciences. He was the author of a well known text-book on legal medicine.

Dr. John E. W. Sanderson of New York died at his home of heart disease on April 10. He was a graduate of Amherst College and of the College of Physicians and Surgeons, New York, from which he received his medical degree in 1886. Dr. Sanderson was at one time on the staffs of St. Mary's and the Eastern District Hospitals of Brooklyn.

Dr. Charles E. Lancaster of Brunswick, Me., died on April 5, following injuries which he received when thrown from his carriage about three weeks ago. Dr. Lancaster was born in 1862, and was graduated from Bowdoin Medical College in 1888.

Dr. Charles Appleton Packard of Bath, Me., died at his home on April 6, aged 80 years. Dr. Packard was graduated from Bowdoin Medical College in 1856. He was a member of the Maine Medical Society and of the Bath Medical Society, and for twenty years was physician to the Military and Naval Orphan Asylum.

Dr. J. P. Bone of Arlington, Tenn., died at his home, on April 11, after a short illness, aged 78 years. Dr. Bone was graduated from the Louisville Medical College in 1860.

Dr. A. D. Scruggs of Knoxville, Tenn., died at his home, after a long illness, on April 9, aged 67 years. He was graduated from the Jefferson Medical College at Philadelphia in 1867.

Dr. John C. Dwyer of Ansonia, Conn., died at his home, on April 13, of valvular disease of the heart, aged 31 years. Dr. Dwyer was graduated from the College of Physicians and Surgeons of Baltimore, Md., in 1900, and for a time served as resident physician at the Maryland Lying-In Hospital.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

TREATMENT OF SCHOOL CHILDREN'S DISEASES—GRADUATED LABOR IN PHTHISIS—SLEEPING SICKNESS EXPEDITIONS—ROYAL COLLEGE OF PHYSICIANS AND CAIUS COLLEGE—ROYAL COLLEGE OF SURGEONS AND MIDWIVES' BOARD—OBITUARY.

London, April 9, 1909.

The London County Council has of late been a good deal exercised as to medical inspection of the school children, and further as to the question of treatment. The Education Committee has seemed at times to have no consideration as to the cost of anything proposed and the ratepayers are being roused to opposition The Prime Minister has refused an application for help from the Imperial Exchequer toward the cost of school clinics or other mode of treating school children's diseases. The Finance Committee accordingly reports in presence of such proposals that the medical treatment, like the feeding of the children, is optional, not compulsory, on the Council, and that the Council should itself settle the general question. A subsidiary question is whether the Council should be empowered to recover the cost from parents. The burden of the education rate is rising and appears certain to continue to rise in face of automatic increase in teachers' salaries, provision of meals, medical inspection, and other expenses to which the Council is committed. Moreover, demands are being raised for further expenditure in all directions. The teachers, having been trained at the public expense and given an occupation above what they could otherwise have reached, are asking for higher wages, superannuation, and less work. Like the daughters of the horse-leech, they cry continually "more, more." With regard to the way in which medical treatment could be provided, I have in a former letter referred to the question of school clinics or the utilization of hospitals and dispensaries. I may add that some of the Councilors think that benefit societies would perhaps work with them. The chairman of the Education Committee urged the Council to lead the van by taking in hand first of all diseases which hindered the children's progress, such as ringworm, defects of sight, and ear discharges. But he

was considerate enough to say that he would not at present propose to impose on the rates the enormous cost of dealing with defective teeth. Evidently he hopes to do so if he can get the power to make the parents repay. But experience should teach him that the recovery of such cost is practically hopeless. It was urged that the expense incurred by inspection would be wasted unless followed up by treatment. Obviously it is time to call a halt in the course of taking up all the responsibilities of parents and there is a movement in favor of doing this and further of enforcing on parents their primary duties to their offspring. But how? As to medical treatment, the most popular plan seems to be to concentrate the work in a few medical officers and indirectly ruin the rest of the profession. And the mass of the profession is apathetic, just as it was when it suffered an inferior order, the midwives, to absorb much of its income and is now crying out at the loss. This outcry it met by the meeting of an association last week to promote the training of more midwives, when the chairman declared their movement would benefit rather than militate against the pecuniary interests of medical practitioners!

To return to the Council, I should add that after a prolonged discussion at the adjourned meeting on Tuesday the question was referred back to the Education Committee to report as to the estimated cost of treating the diseases referred to (ring-worm and affections of the ears, eyes, teeth, etc.), as to the degree to which they affect the educational efficiency of the schools, and as to the steps to be taken to enable the local school authorities to recover the cost of treatment from parents who are in a position to pay for it.

Unusual interest attaches to the annual meeting of the Royal National Hospital for Consumption at Ventnor, which was held in London on Tuesday. The Earl of Roseberry presided and in receiving the report referred to the just claim of the hospital to a substantial share of the King's Hospital Fund, but as his Lordship is one of the managing council he could not say much about that, but in the capacity of president of this hospital, which received patients from every part of England and some from London, he did think they had a claim on that fund and he hoped it might be possible for the case to be reconsidered. He then referred to the trial which had been made in the hospital of the graduated labor treatment, which had been applied to some fifty patients and with most satisfactory results, both as regarded their strength and their moral cheerfulness. The system involved a residence somewhat more prolonged than that of the other patients, but the results had been so satisfactory that its continuance was justified. Lord Roseberry then pointed out this was a curative institution and as such deserved help from the nation as a whole, and he asked those great railway companies and firms employing a large number of men who constantly sought admission to consider whether it would not be more in accordance with their dignity and duty if they became regular subscribers to a hospital which thus benefited them.

Dr. Robertson then gave some account of the experiment in the treatment by graduated labor. The work of the scheme began, he said, by keeping three test patients from five to seven months. Including these men, there had been discharged from the hospital 37 men and 19 women who were selected for a prolonged course of treatment. Of these, 40 left in full working capacity, 10 in partial working capacity, and all were still at work, living their ordinary life. Six patients proved unsuitable or did not do well. Of the 56 patients, 18 had no definite physical signs of disease in their chests when they left, and many of the others showed striking improvement in that respect. He claimed for the treatment that patients were able to return to the work in which they had been previously employed and so to maintain themselves. Experience had shown that to limit the time of treatment was disastrous. Patients who had benefited in the hospital under older plans of treatment had often broken down again immediately after leaving. They had simply benefited by the fresh air, rest, and good diet, but on resuming their physical work were unfitted for it.

Dr. Robertson spoiled the effect of his speech by suggesting that the Local Government Board might undertake, not only the treatment of consumptives, but the maintenance of their wives and families—a proposal so far ahead of the most ardent Socialist that the audience evidently regarded it as absurd. It certainly gives cloak to the contemptuous sneer of some that "medical enthusiasts are never practical." The chairman, in replying to a vote of thanks, remarked that he would not care to face the responsibility of supporting the families of invalids as well as the cost of armaments.

The eighteenth expedition of the Liverpool Tropical School, sent to Central Africa to investigate sleeping sickness, have just returned, after a sojourn of about two years, during which they covered about 9,000 miles on foot, principally in Nyassaland and Northeastern Rhodesia. They report that in high latitudes the health of Europeans is usually good if proper precautions be taken to avoid malaria, dysentery, and tick fever. The tsetse fly has a very wide distribution and renders a large part of the territory practically useless. On the other hand, the glossina is much more circumscribed. They found it on the Luapula River, on Lakes Merwer and Takanyika, and some of their affluents, but did not meet with it in Nyassaland. Cases of sleeping sickness were found near these lakes and the report states that the Chartered Company's officials are vigorously working against the fly. In reference to distribution, I may cite an interesting report of Captain Ensor to the Sudan Sleeping Sickness Commission. He says *Glossina palpalis* and *Glossina morsitans* appear to occupy different spheres and never encroach on each other's hunting grounds. *G. palpalis* is named by the Arabs "Diban el Marad en Noom," which means the fly of the sleeping sickness, while *G. morsitans* is called "Diban el Marad el Bohim," or the fly of the cattle disease. *G. palpalis*, which is generally credited as the chief if not only carrier of human trypanosomes, is much less persistent than *G. morsitans*, which is such a greedy blood-sucker that it will follow a man into the area of *G. palpalis*, but will then almost immediately leave him to the regular occupants of that area.

At a meeting of Fellows of the Royal College of Physicians on Monday Sir Richard Douglas Powell was reelected president for the ensuing year. It was announced that next year will be the 400th anniversary of the birth of Dr. Caius, who in his time was president of the college. On the proposal of Dr. Payne it was resolved to cooperate with Caius College, Cambridge, in reprinting the works of Dr. Caius to commemorate the occasion.

The president delivered his annual address, in which he referred to the events of the year and gave obituary notes of ten Fellows who had died during that time, and of whose deaths I informed you as they occurred.

At the quarterly meeting of the Council of the Royal College of Surgeons Dr. R. T. Leiper of the London School of Tropical Medicine was appointed to revise and renovate the collection of entozoa in the Hunterian Museum.

The Jacksonian prize was awarded to Mr. Lockhart Mummery for his essay on diseases of the colon removable by operation, and the subject for the next prize was fixed as tuberculous disease of the urinary bladder and male genital organs. The annual report of the representative on the Midwives' Board, Dr. Ward Cousins, was presented, which stated that the deaths in childbirth had not diminished since the Act came into operation (April, 1903); that no guarantee exists for paying medical practitioners called in to assist midwives in difficult cases, and that consequently there is serious trouble in all parts of the country. It is hoped, when the whole details have been submitted to the committee appointed by the Government to inquire into the matter, the defects will be removed.

The death has occurred of Lt.-Col. A. O. Geoghegan, M.D., late of the R. A. M. C. Educated in Dublin and at Queen's College, Galway, he graduated at the Royal University, M.D. 1878 and M.Ch. the next year. He entered the Army Medical Service in 1880, and served in the Nile expedition in 1898, receiving the Egyptian as well as the Khedive's medal. He retired in 1907.

Death has also removed Dr. Thomas Crawford Hayes from the consulting staff of King's College Hospital. Educated at Trinity College, Dublin, he took the M.A. there with the gold medal. He came to King's and qualified L.S.A. in 1870. He took M.R.C.P. in 1872 and was elected to the Fellowship in 1889, having in the meantime become professor of obstetrics and gynecology in the college and physician accoucheur to the hospital. He had served as physician to the General Lying-in Hospital and as examiner in midwifery on the Conjoint Board.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

CALCULUS OF THE KIDNEY AND URETER—SOLUBLE SILVER—TREATMENT OF OBESITY—TREATMENT OF SYPHILIS—TINCTURE OF IODINE FOR SKIN DISINFECTION.

PARIS, April 15, 1909.

At a meeting of the Society of Internal Medicine, Doyen presented an interesting case of calculus of the kidney and right ureter. The diagnosis was confirmed both by radiography, which showed the presence of two calculi, one in the pelvis of the kidney and one in the ureter, and by direct exploration made by himself. By means of his direct-vision cystoscope he was able to catheterize the right ureter, which allowed it to be seen that there was insufficient function of the right kidney, while the left kidney excreted a large amount of urine, very rich in extractives. Nephroureterectomy was practised with a very long lumbar incision, which permitted the removal of the two calculi, one from the pelvis and one which obstructed the ureter. The patient made a complete recovery. The extirpated kidney had very little parenchymal tissue remaining; there was a typical pyonephrosis from calculi.

Netter read a paper on the use of colloidal silver in therapeutics. After giving empirical facts, the results of the work of Credé and Halstedt, he stated that the cases in which he had obtained the most remarkable results were those of puerperal infection, subacute otitis, pyemia following furuncles, ulcerative endocarditis, and severe dysentery. In the last-named disease the remedy was given internally and in enemata. In severe cases intravenous injections are necessary. The author considers this method absolutely without danger.

Marcel Labbé read an interesting paper on the treatment of obesity. He believes that there is only one method of treatment: we must decrease the alimentary income and increase the expenditure of energy. Obesity may be produced in two ways: by the increase of ingesta, obesity of great eaters; by diminution of expenditure, the obesity of the sedentary life. The reduction of the alimentary régime is difficult to obtain when the patient cannot be made to change his habits. This is what causes the success of mineral springs, such as Brides and Marienbad, where the patient is submitted to a rigorous alimentary discipline. Among the foods that must be reduced and even suppressed are, first of all, the fats, bread, pastries, and sweets; salt ought also to be lessened as much as possible. The number of meals matters little; it is better to eat little and often, so as to calm the pangs of hunger, than much and infrequently. One of the most frequent of lay methods is to stop drinking. This is an important error, which may even become dangerous, for if the absence of water in the organism seems to lessen the weight by simple dehydration of the tissues, this produces troubles which may be very prejudicial to the work of the kidneys. In reduction by means of exercise, the latter should be dosed like a medicine; walking is especially to be recommended, whether on level ground or up-hill. It has a double advantage, for while it lessens the fat, it increases the muscular tissue through active function. The treatment of obesity by medicine should be absolutely given up, for it is injurious. The thyroid body, the use of which in obesity has been lauded, is extremely dangerous; taken in small doses it has no effect at all, absorbed in large doses it is a poison, and some cases of death are to be imputed to it; its action is very prejudicial because it acts not upon the fats, but upon the muscles, destroying the latter and respecting the former.

Leredde presented a communication on the treatment of syphilis. Intensive mercurial treatment should be defined precisely taking account of the amount of mercury introduced into the organism. The maximum dose is 0.03 (gr. ½) per day, and this can be borne by only a few individuals. The dose of 0.02 (gr. 1/3) per day is borne by almost all vigorous adults. This constitutes the minimum dose for intensive treatment. Leredde states that not all the mercurial salts have the same amount of mercury in them; for example, the biniodide contains 44 per cent. and the bichloride 73 per cent. The intensive treatment should be used: (1) At the beginning of the disease, with the roseola; (2) in case of cutaneous or mucous syphilis, visible externally, and not curable by the ordinary treatment; (3) in visceral and nervous syphilis, tabes and general paralysis; (4) when a diagnosis must be established.

At a late meeting of the Surgical Society the topic of study was disinfection of the skin by tincture of iodine. Walther, to prove the value of this treatment of disinfection of the skin, has had fragments from incisions into the skin examined microscopically. It was shown by these experiments that the iodine had penetrated deeply into the thickness of the epidermis and superficial portions of the derma. Before applying the tincture of iodine he always covers the skin with a compress soaked in ether in order to increase the penetration of the iodine. He believes that less than five minutes after the application of the iodine the skin asepsis is nearly complete, but it requires a certain time for the microbes to be destroyed; still, after ten minutes the sterilization of the skin is always perfect. The previous soaping of the skin interferes with impregnation of the skin by the tincture of iodine. When the iodine is applied alone it penetrates into the deeper parts of the skin and exercises a marked influence on the microbes contained therein. Guinard said that tincture of iodine had been employed for many years by surgeons, but that it was questionable whether a simple application of this substance would give real security from the point of view of asepsis. Pierre Delbet and Quenu had made use of tincture of iodine after washing the skin with soap, ether, and alcohol. Rouchard, Routier, and Réclus believed that the application of tincture of iodine directly on the skin, without any previous preparation, effected an economy of time which should be taken into consideration, and might be of service. Routier operated in this way in a case of extrauterine pregnancy which had ruptured, in which a simple painting of iodine on the skin enabled him to gain time, and allowed him to omit scrubbing the abdomen, which would certainly have increased the liability to hemorrhage.

CIVILIAN PHYSICIANS VS. ARMY SURGEONS IN MILITARY CASES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Among the many difficulties the army surgeon has to encounter (and I imagine the same applies to our brothers of the navy) one of the most annoying is the ease with which civilian physicians are induced to give opinions in rebuttal of the official-professional opinion of the military surgeon. This takes the form of certificates, either to the effect that an applicant for admission to the service, or an officer, or enlisted man found physically imperfect by the medical officer, and rejected on that account, is perfectly sound in every respect; or that an officer, reported well enough to do his duty, is, in the civilian physician's opinion, a physical wreck.

These opinions are so freely given, and, as a rule, so neatly fit the wishes of the applicant for the civilian physician's examination and opinion, that they no longer have any official value at all in deciding these cases, and are entirely overlooked, no matter how distinguished a name is subscribed to them. Let me give an illustration: An applicant for appointment to West Point has been found physically disqualified, by reason of defective vision; this rejected applicant secures the services of an obliging friend of about the same age, whose vision is known to be perfect. This substitute reports to some well-known ophthalmologist, giving the name of the rejected applicant, and is given by the civilian oculist a clean bill of health. This paper is passed over to the rejected candidate and, armed with it, some political friend demands the reversal of the medical officer's opinion, and another cripple is added to the army list. Or per contra, an officer, already in the service, sees ahead of him an examination for promotion, which he knows he cannot pass. His only hope is to be retired. Army surgeons examine him, find nothing wrong, and so report. He gets a leave, applies to some prominent neurologist, gives details of a long list of purely subjective symptoms, the neurologist believes him, and he is given a certificate to the effect that he suffers from "neurasthenia." I know of one such case, where the opinion given was from a very distinguished authority, but he was, when the matter was explained to him, perfectly willing to admit that his diagnosis was made entirely on the officer's own statements, under the supposition that an officer would not tell him what was not true. I am sorry to say that there is a small proportion of officers who will not hesitate to deceive a physician under these circumstances. To compel this man to undergo his examination was a very difficult and tedious matter. He failed, as was to be expected, and was wholly retired, but that carelessly given opinion made an enormous amount of trouble for the surgeons on the promotion board. It almost seems that many civilian phy-

sicians will give any opinion they are paid to give, and decide cases entirely according to the applicant's wishes.

The medical officer in these cases has a double duty to perform. He must see that the applicant for admission, or the officer or enlisted man already in the service, gets justice, but he must also protect the Government against fraud, and do his best to keep the retired and the pension lists from being crowded with healthy men. He stands, too, as a barrier against the admission into the service of men physically unfit for it. Unfortunately officers of the line who are members of these promotion and retiring boards, and who have a vote in deciding the outcome, seeing a certificate from an authority so well known that even the laity recognizes his name, are liable to give undue weight to these opinions, which may have been given after examination of a healthy impersonator in one case or an afflicted one in another.

It is very rare indeed that one of these applicants for an opinion gets one that he does not want, *i.e.* if he wants to get in he is pronounced sound; if he wants to get out he is certified to be a physical wreck. I have personally had a refreshing experience of an honest civilian doctor, who, when applied to by an officer whom I had reported fit for duty, examined him very carefully, pronounced him "in robust health fit for duty in any climate" (this officer was particularly anxious not to go to the Philippines), demanded and secured fifty dollars for his opinion. But this case was so rare that it stands almost alone. Certainly it is the only one in my experience (and I have been in the service twenty-eight years) where a civilian physician gave an opinion at variance with the wishes of the applicant for physical examination.

The medical officer in these cases is absolutely disinterested. His tendency is to give the man examined the benefit of any doubt there may be in the case, but he is also, if he does his duty, fully aware of his obligation to the Government that employs him. His experience as an examiner of recruits and his knowledge of what is required of officers and men fit him better than the average civilian doctor to decide whether a man is or is not fit for active military duty.

The civilian physician, on the other hand, is naturally ignorant of the motives that may actuate an applicant for examination, knows nothing of the duties required of him, and ought to be very chary of expressing an opinion under the circumstances. The rule is the other way, and in nine cases out of ten the civilian physician, without hesitation, gives opinions entirely at variance with those expressed officially by the medical officer, trained and experienced in dealing with such cases, and making his statement under oath. Besides this, while the medical officer can establish without difficulty the identity of the man examined, the civil surgeon has no such assurance.

W. H. Arthur,
Lieutenant-Colonel, Medical Corps, U. S. Army.

A WORD FOR THE OUTCAST.

To the Editor of the Medical Record:

Sir:—It would appear, judging from the action of some municipal health officers and medical boards, from the general disinclination of the public press to express any doubt as to the wisdom or necessity of the complete segregation of the leper, and from the barbaric and inhuman treatment to which he is frequently subjected, that the feebly contagious character of leprosy is practically unrecognized here. In Europe, Asia, and Africa generally segregation is not compulsory, and no law interferes with the personal liberty of the sufferer from the disease. In good hygienic and sanitary conditions it is proven to be unnecessary, in endemic centers practically impossible, and as a prophylactic measure ineffectual, as shown in the Hawaiian experience. In Norway complete segregation of the lepers has never been enforced either before or since the Segregation Act of 1885. In Bergen, at the writer's visit before 1885, the lepers entered the hospitals and asylums as they pleased; and in the milder forms of the disease were permitted to work and freely visit and vend their wares in the open market and upon the streets. Tourists often visited the hospitals as one of the sights of the town. As late as 1889, four years after the passage of the so-called Segregation Act, a correspondent of the *Lancet* reports the same practice as existing, and to-day, on their way to the asylums at Bergen, Throndhjem, and Molde, lepers are permitted to mix freely with the other passengers upon the coastwise steamers.

In the Indian United Provinces within the last twenty years there has been a marked decline of the disease, and the *Times of India* remarks that "in India at any rate, probably in the wide world, no man acquainted with the literature or practice of leprosy, would for a moment hold that contagiousness, etymologically interpreted, can be set down as a predicable character." Dr. Hansen, in answer to an inquiry by the Leprosy Committee in London, "If the disease had ever spread among the population of Bergen, or the attendants in its leper asylums," replied that for many years there had not been an instance of a Bergen student becoming affected, nor during the whole period of their existence had there been any case among the nurses, or servants, or staff of the asylums, with the single exception of one washerwoman.

This agrees with the recorded experience of Captain Hunter in India, Dr. Max Sandreczki, for twenty-five years in the hospital at Jerusalem; Sir William Kynsey in Ceylon, and many others, including Dr. Danielssen of Bergen, Dr. Dixon, medical superintendent of Robben Island; the Superior Council of Health in Mexico, and Surgeon-General C. R. Francis in Calcutta. The minority, those who consider leprosy slightly contagious, is prominently represented by Dr. Hansen of Bergen, the Leprosy Commission of India, Dr. Philip R. Waughop, ex-Hawaiian Government Physician, and Dr. E. Baelz of Tokio, Japan, who believes it feebly contagious, but who has never observed a single case of transmission of the disease. Dr. Hansen informed the London Committee that he had spent ten months in a tour in the United States, chiefly in Minnesota and Dakota, and that he had been able to obtain no evidence of contagion in that country, and there appeared to be something in the conditions of life there which prevented the disease from spreading in that way.

A digest of the literature of leprosy will classify the disease as infectious, and mildly contagious, especially in its tubercular form, its virulence being largely modified or negatived by proper care, food, and good hygienic, sanitary, climatic, and physical conditions, as indicated by its general disappearance wherever these conditions are generally observed. It will indicate leprosy as permanently endemic only where these conditions are not maintained. That segregation in the endemic centers is extremely difficult and of little value in the prevention of the disease, but a source of comfort and a means of support to the impecunious sufferers. That while in certain extreme cases limited segregation is advisable and agreeable to the afflicted, to apply it indiscriminately is, as expressed in the report of the committee of the Medical Society of the County of New York, "arbitrary and unjustifiable."

Under the conditions outlined in the literature of the disease and of its treatment in the endemic centers, the conclusion that our treatment of its unfortunate subjects is based on ignorance or indifference regarding its true character seems perfectly justified.

G. R. S.

Washington, D. C.

THE TARNIER FORCEPS.

To the Editor of the Medical Record:

Sir:—Your issue of April 3 contains a review of Dr. Joseph Brown Cooke's "Manual of Obstetrical Technique." Referring to Dr. Cooke's recommendation that the young practitioner be provided with the Tarnier forceps, your reviewer says that such advice is "of doubtful value, the experience of many being that it is a highly dangerous instrument in the hands of any but the most experienced." This is a remarkable statement. The special difficulties of the axis-traction instrument are very slight and are readily understood and overcome by any man who is fit to be entrusted with the care of a woman in labor. Instead of being more dangerous than the old-fashioned instrument, it is far safer, both for mother and child. Rotation takes place without the aid of art, traction is made in the right direction and with a minimum of force, there is less compression of the fetal head, and less traumatism of the maternal tissues. Instead of being more difficult, the operation is much easier, as those who have

given up the old method for the new can testify. If anyone should be taught the use of the axis-traction forceps it is the beginner, for if a man begins wrong he is not apt to change his methods later. My own convictions are the result of an extended and careful trial of the instrument, but if authorities are asked for there are so many that time and space would fail to cite them. In Paris, in Edinburgh, in Dublin at the Rotunda Hospital, in our own country at Johns Hopkins, and now in Berlin, where racial prejudice so long proved an obstacle, the Tarnier forceps has conquered its way and a knowledge of its use is considered an essential part of the equipment of the senior student and house surgeon. Not long ago a physician of this city, of large experience with the older instrument, had a case which he failed to deliver, and asked a colleague to come to his assistance prepared to perform craniotomy. The latter, upon his arrival, delivered with the Tarnier forceps and without especial difficulty a dead fetus. A case like this carries a warning so plain and so impressive that comment is idle. If Dr. Cooke can persuade our younger practitioners, and, for that matter, our older ones, to familiarize themselves with the modern method of forceps delivery, he will render a great service to them and to their patients.

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Progress of Medical Science.

Boston Medical and Surgical Journal, April 15, 1909.

Treatment of Fibrinous and Serofibrinous Pleuritis.—F. S. Lord first considers pleurisy in its relations to tuberculosis. From animal experimentation with serous exudates in pleurisy and the after histories of cases of pleurisy, he comes to the conclusion that at least three-fourths of the primary cases with effusion are tuberculous. Out of every ten cases of primary fibrinous or serofibrinous pleurisy, at least three or four develop pulmonary or other tuberculosis within an average period of from four to six years. All of these cases should be treated as if they were tuberculosis until the contrary is proven. Outside of maintaining the general health at as high a level as possible, the usual measures of catharsis, diuresis, diaphoresis, and the thirst cure for pleuritic effusions are practically useless. A reduction in the amount of sodium chloride injected may be considered, but as yet it has not been demonstrated to be of great value for the removal of inflammatory fluids. In regard to tapping, we may so do in (1) large serofibrinous effusions, (2) those with pressure symptoms within a given time, and (3) double effusions. Small and medium effusions do not need immediate removal. For removal of the fluid commendation is given to the airtight trochar in connection with the familiar bottle aspirator. In primary and uncomplicated pleurisy with effusion, in young subjects with symptoms of one, two or three weeks' duration, the evacuation of fluid which flows in response to slight negative pressure may apparently be safely continued until the first moment of cough, pain or dyspnœa-pressure or other discomfort. In cases of longer duration, however, or in those with complicating cardiac, pulmonary or mediastinal disease, and in patients past middle life, the first operation may well be regarded as an experiment, in which, to be sure, unfortunate accidents are extremely uncommon, and not wholly avoidable. They are less likely to occur if only a small amount of fluid is slowly withdrawn without forcible aspiration.

Therapeutic Value of Rattlesnake Venom in Pulmonary Consumption, Acute and Chronic Bronchitis, Etc., and in Some Well-Recognized Neuroses.—This preliminary paper of T. J. Mays summarizes the histories of thirty-two cases. The name of the remedy is crotalin, and is the dried yellow residue of evaporated venom and is soluble in water and glycerin. Hypodermic dose ranges from 1-100 to 1-200 grain, once or twice a week. The author claims that the improvement in his patients was certainly due to the crotalin, but a review of the histories given renders it advisable to accept this conclusion with the customary allowance.

New York Medical Journal, April 17, 1909.

The Surgical Treatment of Epilepsy.—W. B. Case says that there is no question as to the propriety of operating on certain cases of epilepsy, but his own results have been so encouraging that he feels that they justify further trial in cases of idiopathic or obscure origin even when of long standing. Every case of epilepsy should be carefully examined for source of peripheral irritation, and especially for faulty digestion or intestinal diseases. If no peripheral irritation can be found, he says these cases should be operated on for the following reasons: (1) Because they are otherwise absolutely hopeless, unable to enjoy life, and a nuisance, or even a menace to those who have to care for them, for they frequently develop attacks of homicidal mania; (2) because some, even of the worst cases, may be cured. And it is impossible to foretell which can, and which cannot, be cured. (3) Because those patients not cured are usually benefited temporarily to a sufficient extent to make them glad they had the operation. (4) Because there is so little danger in the operation. All his patients recovered from the operation, and all that he knows of personally have recovered. (5) The lack of pain and discomfort following operations upon the brain. He adds the following observations as to the technique of the operation and gives the tabulated results of his own cases. A large osteoplastic flap should be made over the region to which the focal symptoms point, or if there are none, the flap may be made so as to expose the Rolandic area on either side. This can be rapidly done with a good de Vilbiss craniotome, but not with one that has been bent or twisted out of shape. It gives plenty of room for examining nearly the whole hemisphere, and for tying such bleeding points as are bound to occur. A large crucial, or triangular incision should be made in the dura, and a careful examination made for pachymeningitis, depressed bone, new growths, or any other suspected lesion. Any offending body should be removed. No harm results from removal of a large amount of thickened dura when there is an osteoplastic flap to cover the wound, but this would be dangerous where much bone had been removed with the trephine or rongeurs, as cerebral hernia would be likely to follow. Edema should be drained by the careful introduction of grooved directors into the brain substance. In some cases serum flows in streams, and the translucent brain may be seen to shrink and become opaque in a few moments. Several directors may be introduced at once. Of course, no lateral movement tearing the brain should ever be made. Exploring needles are useless. A soft rubber drain may be put just through the dura and brought out through one of the small trephine holes. Sometimes gauze packing may be used in the same way to prevent oozing; but remember that gauze does not drain. The author thinks it possible that his good results were due to the large opening, and wide inspection of the brain, and that the absence of bad results, particularly cerebral hernia, may have been due to the replacing of the bone flap.

The Importance of Cerebral Lesions Complicating Suppurative Otitis.—S. MacCuen Smith enumerates the symptoms of diagnostic value and says that there still exists great difficulty in localizing the exact site of the head lesion. From the fact that a large majority of abscess formations involving the interior of the skull enter through carious erosion of the tegmen tympani or tegmen antri, we should always carefully examine these regions during the course of a mastoid operation. In about one-half of such cases the dura is noticeably diseased, and will be found firmly adherent to the brain, these adhesions frequently acting as a barrier against the further development of a localized meningitis. Not long since we looked for abscess of the brain complicating the chronic form of suppurative otitis media almost exclusively, but in recent years our observations have taught us that the acute type is also productive of many such cases, thus clearly demonstrating the value of prophylaxis as furnished by early operative intervention. The author gives a hearty endorsement of Whiting's encephaloscope. He considers it usually unadvisable to irrigate acute abscess cavities, but in chronic cases in which the pus is thick and foul-smelling, such a measure is useful. In regard to the question of the advisability of a counter opening one and one-quarter inches above the middle of the external auditory canal, he says that he has never found this necessary as in all his uncomplicated cases of temporosphenoidal abscess, those that have been given ample drainage through the middle ear have recovered. In the absence of sufficient evidence of disease either of the tegmen antri or tegmen tympani to warrant intervention in this locality, the usual operation through the squamous portion of the temporal bone should be performed.

Longevity and Rejuvenescence.—J. I. Nascher says that the decline due to old age is not a retrogression of development. Not a single organ or function reverts to an infantile or youthful type. Instead, there is a change in the character or composition of an organ which impairs its action or causes abnormal action gradually more pronounced. The change is not sudden but very gradual, and

the author traces the course of events in the various bodily systems. He notes the present-day tendency to shorten the period of development and increase the mental and physical capacities, pass over the period of maturity with indifference and endeavor to lengthen the period of decline. We ignore the mode of living of those who lead a natural existence terminating in a natural death. Instead of shortening the period of development we should endeavor to lengthen it. Mental and physical tasks should not be carried to the point of fatigue. We should give more attention to the amount of sleep required at the various periods of life. But as long as men of modern life do not feel harm, they will not believe in its existence. Rejuvenescence depends primarily upon increased mental activity, and this in turn stimulates physical activity and vigor. Definite recommendations by the author are a young wife, change of scene and residence, and a complete change in the mode of living. Phosphorus is the only drug which produces a lasting mental stimulation without a depressing reaction. Rejuvenescence in the aged is, however, only a temporary condition. Increased physical activity stimulates the anabolic processes and unless the catabolic processes can be stimulated as well, the individual hastens the inevitable end. The best form of exercise is walking up a moderate incline with frequent rests.

Long Life and Hot Climates.—W. F. Robinson, who lives in Florida, says that the average successful business man who forms the habit at the age of 50 or therabouts, of spending three months of each winter in the South, thus avoiding the Northern winter, will almost certainly prolong his life for ten years, and as well greatly increase the enjoyment of his later days. The most trying of all times in Northern climates is the early spring. It is trying to the system, which has become reduced by the rigors of winter and equally so to one which has become relaxed by a visit to the South. The month of April is especially trying so that Northern visitors to the South should not return before May 1. The author has lived in both sections of the country, and his paper records the result of the effects of the change in his own system.

Journal of the American Medical Association, April 17, 1909.

Sewage and Tidal Waters.—G. A. Soper describes the problems that have to be met by sanitary engineers in the disposal of sewage in rivers, harbors and tidal waters. The necessity of this has become apparent within the past sixty years, and now of the twenty-six cities of Europe and America which have populations of over 500,000, about one-half purify their sewage or follow some carefully devised plan for disposing of it. The self-purification of a harbor for assimilating sewage without offense, varies according to its shape and the tidal currents that flow to and from the ocean. When sewage is discharged on a rising tide it is not only apt to be carried toward the land but also to be deposited on the shores, and this is particularly true in long and narrow harbors. There should be, therefore, a net seaward discharge and the utilization of outgoing currents and whatever aids the seeward carriage and aids diffusion would seem advisable. Diffusion is at the very heart of the question of utilizing the digestive power of a harbor for sewage. There is no insuperable difficulty in the purification of sewage, except the cost. This for a very large city would be enormous, but, fortunately, it is not always necessary to purify all the sewage produced in cities bordering on tidal harbors—it may sometimes be enough to purify the discharge of some of the principal sewers, and even then the highest degree of purification may not be needed in every case, but only enough to make the sewage harmless when finally discharged into the tidal waters. Contrary to general belief, it seems impossible to recover the manurial ingredients of the sewage in such a way as to reduce the cost of handling it, and the bacterial processes that have been perfected do not aim to recover the fertilizing matters. It is true that sewage irrigation has been utilized in some large cities, notably Paris and Berlin, but this requires great areas of land and is profitable when the suitable land is cheap or the sewage is useful for the water it contains. Screening, settling and grease removing are extensively practised in Germany when sewage is emptied into rivers which are not used for drinking purposes; the cost is comparatively small and the esthetic advantage is large. Sewage purifies itself through aëration by a process of slow combustion. Where this does not happen offensive smells are produced, but these do not themselves convey infection, and there is not much evidence that a large amount of sickness is produced by simple harbor pollution.

Delirium Tremens.—T. W. Ranson summarizes his conclusions from his study of 500 cases of delirium tremens in Cook County Hospital as follows: "(1) In incipient cases the patients respond readily to treatment with chloral, ergot, bromids and whiskey, the drugs being mentioned in the order of their value; (2) delirious patients are very resistant to treatment. In the cases studied, the administration of the sedative drugs increased the mortality. This was most evident when scopolamin was used, that drug increasing the mortality 13 per cent. These unsatisfactory results with the sedative drugs were due to the large doses used. It will be shown that small quantities, for example, from 15 to 30 grains of chloral in twenty-four hours, may be given with good results, but that when larger quantities are given the death rate increases with the amount of sedative administered. (3) The only drug which reduced the mortality was ergot. By its use the death rate was decreased 21.6 per cent. (4) When whiskey was given the mortality was increased 1.8 per cent." These cases constituted the admissions to the hospital for this condition between June, 1905, and August, 1908. They were classified, according to their peculiarities and the treatment employed, by means of a system of library cards. It is noted in addition to the statements embodied in the conclusions that when whiskey was used it seemed to have some decided value in incipient cases, lowering the percentage of patients becoming delirious by 20.2 per cent. But in the cases with delirium the mortality was raised 1.8 per cent. Stomachics were used extensively, but were not taken account of in these statistics, and generally drugs are not of such value that other therapeutic measures can be neglected, and this is especially true for the wildly delirious patients, for whom much more can be done by nursing than by drugs. Ranson emphasizes the importance of proper methods of restraint, frequent giving of liquids, and the use of sedative baths. In the incipient cases, drugs are useful, but in cases of delirium care must be taken not to overdose the patient. In case of failing heart action or passage from delirium to stupor and coma, heart stimulants should be given hypodermically.

The Blood After Splenectomy.—J. Myers reports the results of systematic blood examinations in a case of splenectomy in a boy eleven years of age, who suffered a stellate rupture of the organ from a fall from a tree. The operation by Dr. Vander Veer was a success and the recovery seemed complete, the boy a year later being apparently normal in all respects. The blood findings are tabulated and show a very remarkable variability in the red blood cell count, and the hemoglobin content normal or above normal, with no signs of even a moderate anemia. The leucocyte count was persistently above normal with a marked predominance of the lymphocytes. There is, however, a marked lack of neutrophile polynuclear cells which only dominated during an intracurrent gastric disturbance, showing that the ordinary relations between inflammation and polynuclear hyperleucocytosis are still striving to exist. Myers says: "That the removal of the spleen, which in embryologic life manufactures lymphocytes, gives a stimulus to the lymphatic apparatus of the body and thus causes a hyperlymphocytosis, is probable; that this stimulus is very great is evidenced by the lack of neutrophilic polynuclear hyperleucocytosis where we should naturally expect it; that it is lasting is evidenced by the relative and absolute hyperlymphocytosis seen late, after splenectomy."

Paralytic Ileus.—C. H. McKenna reports two cases of paralytic ileus in which the patients were operated on successfully by laparotomy and opening a loop of the intestine and irrigation. The conditions calling for these measures are the extreme ones in which all other methods have failed and when death is apparently imminent, as in paralytic ileus following operation or accompanying typhoid fever; injuries to and diseased conditions of the spinal column producing intestinal paralysis; and extreme abdominal distension accompanying suppurative peritonitis. He found in these cases that very little gas escapes when the bowel is incised. Consequently stress is laid on the introduction of long tubes into the intestines, since the irrigation solution, by entering the bowel at considerable distance from the opening, mechanically forces the gas and fecal matter to escape, besides acting as a stimulant to peristalsis.

Stream Pollution.—M. L. Price and W. R. Stokes remark that the pollution of streams by distillery waste is a comparatively recent problem since the concentration of the distilleries, due to changes in the trade, in the neighborhood of cities and in thickly settled communities has given rise to nuisances varying in extent according to the process employed and the size of the stream receiving the waste. The legal principles involved are fairly settled, but their application to this particular question is

somewhat new. In the specific case referred to in this paper, the pollution of the Patapsco River, it was necessary to show the pollution and its cause, and the latter is of interest on account of the fungus to which it was found to be due. The species which caused an almost intolerable odor from the water of the river a short distance below the distillery and killed a large number of the fish, was found to be *Leptomitus lacteus*, an alga belonging to the *Saprolegniæ*, which is described and illustrated. When cultivated *in vitro* it quickly disappeared, which the authors attribute to its exhaustion of its own nutriment as well as to autointoxication by its own products. The cause of the death of the fishes was not ascertained by the examinations made. The article is illustrated.

The Loncet, April 10, 1909.

The Etiology of Acne Vulgaris and Its Treatment by Vaccines.—A. Fleming refers to the various microorganisms found in the pustules of acne and dwells especially on the bottle bacillus, so called from its shape. It presents an appearance very much like yeast. It occurs in the more superficial part of the comedo, and is found constantly in dry seborrhoeic conditions of the scalp. The bacillus is a pus-producing organism as it is constantly present in the pus, is frequently the only organism there, can be recovered from the pus in pure culture and if inoculated into the skin of susceptible individuals produces a pustular folliculitis while examination of the pus shows no other organism present. Inoculated into animals, it produces a local abscess from which the bacillus is recovered in pure culture. The serum of patients affected with acne agglutinates the bacillus in some cases. The opsonic index of patients to the acne bacillus varies considerably from normal. Large doses of a vaccine derived from the acne bacillus have induced a marked negative phase characterized by the appearance of fresh pustules from which the bacillus has been recovered in pure culture. A vaccine from this organism has a marked beneficial effect on the condition. When a patient has a marked high opsonic index to the bacillus, his condition improves, but when the opsonic index is low, fresh pustules appear. The paper closes with details of several clinical cases.

Physiological and Therapeutical Properties of the Serum of Milk (Lacto-Serum).—R. Blondel says that lacto-serum, which is obtained by a special process of filtration, behaves as regards its saline constituents like a fluid in which are dissolved common salt, milk sugar, and phosphates of the alkalies and alkaline earths. As regards its ferments it has a resemblance to extracts of animal organs and to animal serums. It contains also several oxydases. Injected into animals the serum causes a slight rise of temperature, increase in the polynuclear leucocytes and an excretion of uric acid. There is a special effect, viz., a notable lowering of the blood-pressure in the capillaries and arteries. The author has given lacto-serum in puerperal infections with sometimes benefit and sometimes not, in post-operative peritonitis without effect, in typhoid fever with indefinite results, in pneumonia with distinctly successful results, and in the hypertension of arteriosclerosis. In this last condition the effects have been constant and beneficial. All the usual symptoms have been quieted or removed. The daily dose by injection has been 10 c.c. and it has been repeated in 24 hours until the blood-pressure becomes normal. Then the injections are given at greater intervals for a month. They are made into the thigh muscles or gluteal regions, or under the skin of the flanks. Usually there is no pain, and in the author's hands no abscesses have occurred in over a thousand injections. Full directions for the preparation of the lacto-serum are given.

Treatment of Graves's Disease with the Milk of Thyroidless Goats.—W. Edmunds summarizes results obtained in 15 cases. In general, these were satisfactory and encouraging. The author notes that as the anti-body in the milk must be derived from the blood serum, it would seem to be better to administer the dried serum and corpuscles from a thyroidless animal. But there is one point in favor of the milk. Ordinary cow's milk must contain a certain amount of thyroid secretion, therefore, we have either to give this or cut ourselves off from a valuable article of diet for invalids. The use of milk from thyroidless animals relieves us from this dilemma. The amount of thyroid secretion can also be reduced by removal of part of the patient's thyroid. Mortality in this operation has been great in the past, but is less under the conditions of modern surgery. Operation should not be delayed until the patient has become weakened by disease. Even assuming the success of surgery, we still need in this malady a medical therapy for those cases too mild to call for operation, for those too ill for it, or for those who decline to have it done; also for those cases operated on with but partial success. Of the author's 15 cases, 13 distinctly improved.

British Medical Journal, April 10, 1909.

The Nerve Sheath in the Causation and Treatment of Neuralgia.—R. M. Simon says that the connective tissue which forms a nerve sheath is continuous externally with the connective tissue outside it, and from its inner surface fine trabeculæ of connective tissue extend to form a protective covering between and around the myelin and axis cylinders of the nerve elements. Blood-vessels are carried in all these structures of connective tissue, and the author believes that it is upon the congestion of all these vessels that the pain depends. There is no lymph space between the sheath and the nerve elements proper, and for this very reason any material overfulness of the vessels of the sheath or a very slight edema around them or exudation into the lymph spaces in the interstices of the sheath will of necessity cause an amount of pain out of all proportion to the pain which would be caused by an equal or vastly greater effusion outside and around the sheath itself. Acting on the theory thus advanced, the author advises stretching of the nerve inside the sheath, cutting down upon the trunk in order to do this. In some instances acupuncture, which undoubtedly relieves some cases, probably so does by setting free the fluid accumulated between the nerve sheath and myelin of the nerve. The nerve sheath should be opened and all internal adhesions separated. Two illustrative cases are given.

Aural Vertigo.—A general description of this condition is given by W. S. Syme, who says that the name proposed by Ménière years ago has been extended to cover various clinical states which are very diverse. The three cardinal symptoms of Ménière's disease are sudden deafness, loud subjective noises, and severe vertigo, and this complex should alone be called after the discoverer of the malady in question, except for the fact it is bad policy to name diseases except on a pathological basis. The author, therefore, uses the name aural vertigo. He goes in full into the anatomy and physiology of the internal ear and then takes up the questions of pathology and diagnosis. Then follow paragraphs on course and treatment. In vertigo occurring in nonsuppurative disease of the middle ear, in which the vertigo has shown itself much later than the tinnitus and the deafness, it has seemed to the author that the treatment of the aural condition was more likely to lead to the improvement or disappearance of the vertigo. The best drug is quinine. On the ground that vertigo is due to anemia of the labyrinth, amyl nitrite has been suggested. The bromides and iodides are often useful, and pilocarpine, especially in patients in whom the aural condition is dependent on congenital or tertiary syphilis. Repeated lumbar puncture has helped some patients. All excitement should be avoided, and the bowels kept open. During an acute attack the patient should lie down and apply ice to the head. When all measures fail and life is intolerable, the static portion of the labyrinth may be destroyed by operation, or it may be possible, as Balance has suggested, to divide the vestibular nerve (as distinct from the auditory) before it enters the internal auditory meatus.

Lead Poisoning in Childhood.—A. J. Turner, who practices in Queensland, notes the fact that lead poisoning is endemic in his territory, and follows Gibson in attributing it to the lead paint of the buildings in that locality. Exposed to the hot sun of summer, the paint rapidly withers and becomes reduced to a powdery condition. This is particularly noticeable on veranda railings. These verandas are favorite playing places for the children whose moist hands become covered with the poison as they clasp the railings. Thence it gets to the mouth, especially in children who suck their fingers or bite their nails. This explains why the malady is common in town children but not in the country where the buildings are rarely painted, why it is more common in summer, and why it frequently picks out only one child in a family, the victim being the finger-sucker or nail-biter. The author does not deny, of course, the occurrence of cases from other sources. He recommends that other substances than lead should be used in painting places children use as playgrounds. The bad habits in the children as referred to must be corrected. It is useless to remove a child to the hospital and then after it is cured send it back to bad surroundings. Lead paint is dangerous only when it is fresh and sticky or dry and powdery. In regard to breaking up the habit of biting the nails, the author says that the best way is to put straight splints over the elbows. This may seem harsh treatment, but milder measures generally fail

Etiology of Oxaluria.—R. W. Burkitt of Eastern Bengal notes the occurrence of oxaluria among the Manipuris, who differ from the other races of the same general district in that they eat only vegetables and fruit. They suffer from gravel, always of the calcium oxalate variety, and their urines when fresh contain no other crystal. They present the usual symptoms of renal gravel and soon recover on urotropin and potassium citrate. Examination of the soil and drinking water of the locality shows a great deficiency of lime salts. It is necessary in order to keep in health for both men and animals to take calcium chloride in their diet. Other races living in the same locality who eat flesh as well as vegetables do not suffer, providing that they add lime to their food.

Unna's Method of Treating Leg Ulcers.—H. Barr adds charcoal to the familiar paste, using 18 parts to 6 of zinc oxide, 6 of boric acid, 16 of gelatine, 20 of glycerine and 50 of water. The gelatine and a portion of the glycerine are soaked in water for 12 hours. The remainder is mixed in to make a paste. Then all is heated on a water bath with stirring. The final product is poured into a shallow vessel. The ulcer is cleaned with boric acid fomentations and red lotion used if it is sluggish. At first the paste is left on for a week; later when healing well it can be left on for a fortnight. The waxy nature of the bandage used prevents it adhering and tearing off the epithelium. A carbolic (resin) bandage is wound tightly round the leg covering the ulcer and going a little above and below. The paste is painted well over the site of the ulcer and if much discharge is feared it may be dabbed with cotton-wool. An ordinary bandage is then wound round all, while a small piece of carbolic bandage cut to size lies on the bed of the ulcer.

Berliner klinische Wochenschrift, March 29, 1909.

Cancer Statistics.—Orth publishes the cancer statistics of the Charité Hospital in Berlin, comparing his figures with those of Virchow. The number of deaths from cancer in this hospital shows a gradual increase from 4.9 per cent. in the year 1875 to 12.2 per cent. in 1908. As the pathological diagnosis of cancer has not been very much changed in these years, the increase in incidence of the disease must be admitted. Cancers of stomach and of uterus are still the most frequent forms of the disease so far as site is concerned. That clinical diagnoses are inaccurate in this respect is shown by the fact that cancer of the liver is given in English reports as comprising 14 per cent. of deaths from this disease; Orth's figures on the other hand show but two cases of primary liver cancer during five years. Women are more frequently the subjects of cancer because of the frequency with which the uterus is attacked by the disease. The fact that cancer of the male genital organs is very rare speaks strongly against the contagiousness of the malignant disease. In addition to increase of cancer mortality Orth's figures show likewise that the cancer age must now be placed at much lower figures than formerly, the disease being now much more frequent in comparatively young individuals than can be concluded from older figures.

Münchener medizinische Wochenschrift, March 30, 1909.

Coxa Vara After Reduction of Congenital Dislocation of the Hip.—Joachimstal says that recent literature contains many instances of complications which arose after bloodless reductions of congenital hip dislocations. One very important complication is the appearance of coxa vara. This has occurred four times in 150 cases treated by the author, the *x*-ray pictures taken before the reduction showing quite normal inclination of the neck of the femur, which must have gradually approached a right angle. All cases occurred in young infants who after recovering good function at the hip joint after a reduction of the dislocation showed recurrence of the limp, though the dislocation did not recur. The explanation of this complication is difficult because of the perfectly normal position of the neck before the operation. It may be due to a congenital weakness of the femur at this site, which shows itself as soon as the reduction of the dislocation allows the weight of the body to fall upon this part of the bone. It is also possible that the trauma of the operation may act as a predisposing cause to the occurrence of a coxa vara, especially as the long fixation of the hip in a splint weakens the bone still further. The fact that such complication may occur should lead to as short a duration of immobilizing the limb as possible. Moreover, *x*-ray examinations should be made from time to time, so that the tendency to the development of the deformity may be discovered as early as possible, and proper measures taken to prevent it.

Anesthesia of the Eardrum.—Tiefenthal uses the following procedure to procure anesthesia in paracentesis of the tympanic membrane. He introduces four drops of 20 per cent. solution of cocaine, to which one drop of 1:1000 solution of adrenalin hydrochloride has been added into the external meatus and allows this mixture to remain in contact with the eardrum for fifteen minutes. This leads to partial anesthesia of the drum. Then two to four drops of a mixture prepared by adding two drops of 1:1000 adrenalin solution to 5 or 10 per cent. solution of cocaine hydrochloride are introduced into the middle ear by means of a syringe the needle of which is made to pierce the partly anesthetized drum. Usually the needle is introduced through the lowermost part of the membrane so as to avoid any injury to the structures of the middle ear. In a few seconds there results an intense anemia of the eardrum accompanied by perfect anesthesia. Paracentesis of the membrane may then be performed without pain and without bleeding.

Deutsche medizinische Wochenschrift, April 1, 1909.

Prostatectomy.—Cahn reports forty cases of suprapubic prostatectomy performed by Israel. The age of the patients was from fifty to eighty years and their chief complaint consisted in the disturbance of urination, which led to prolonged use of the catheter. Most of the patients were infected so far as the bladder was concerned, and all retained a considerable amount of residual urine. Thirty per cent. of them had vesical calculi in addition. The following conditions were looked upon as indicating an operation: the failure of the catheter to remove all residual urine, repeated attacks of pyelitis, the occurrence of hematuria or much pain during catheterization, and spontaneous hematuria. Bad general condition and very much impaired nutrition were looked upon as contra-indications to operative interference; diabetes must be considered a serious complication acting as a relative contra-indication one of Israel's diabetic patients dying of coma after the operation. Infection of the bladder was not considered as a contraindication, though in several instances the operation had to be performed in two stages, the bladder being first drained and the infection diminished in extent or completely cured. Old age was not considered as forbidding an operation, for a number of aged patients were greatly relieved by the surgical treatment. Before the operation the cystitis was treated by regular catheterization, by bladder irrigations, and in certain cases by a preliminary drainage of the bladder through an artificial fistula. Suprapubic enucleation was the only operation performed, lobar anesthesia being used in recent years. Post-operative complications consisted in hemorrhages and in inflammation of the testicles or of the epidydimis. In no case was there a fatal outcome caused by these conditions. Of the forty patients six died after the operation, one of uremia, one of diabetic coma, two of pulmonary embolism, one of pneumonia, and one of general peritonitis. Ninety-four per cent. of the surviving patients were discharged cured, two patients only continuing to suffer from incontinence or from cystitis. The pathological findings lead Cahn to conclude that the hypertrophy is due to a true neoplasm originating in the glandular epithelium of the organ. The picture was that of a papillary adenomata, which quite explained the possibility of recurrence of the tumor or the frequent transformation into a malignant epithelial new growth. Inflammatory conditions have nothing to do with the origin of a prostatic hypertrophy.

Tracheobronchial Adenopathies in Their Relation to Chronic Pulmonary Tuberculosis in Children.—Charles Leroux shows that the frequency of enlargement of the bronchial glands is great in nursing infants and young children, while in children from twelve to fifteen years of age tuberculosis of the pulmonary apex is more frequent. The author says that in nearly all cases of enlargement of the bronchial glands a diagnosis is possible if looked for in the right way. Radioscopy is of great value in recognizing these glandular enlargements. The physical signs are rough respiration at the apex of the lung without increased vibration or bronchophony. As soon as bronchophony or increased vibration can be recognized there is probably involvement of the apex. The source of the tuberculosis is rarely from the intestine. It arrives much more frequently by the lymphatics from the nasopharynx or the skin reaching the cervical or subclavicular glands. Or it may come from a pleurisy or pneumonia that has left a good soil for the development of the germs. This is one of the most curable forms of tuberculosis although if uncured it may end in pulmonary meningeal or peripheral tuberculosis. It is necessary to remove these children from their unhygienic surroundings and place them in the country or at the seaside for a considerable period, since a short sojourn does not give a permanent cure.—*Annales de Médecine et de Chirurgie Infantiles.*

Book Reviews.

Atlas of Clinical Surgery. With Special Reference to Diagnosis and Treatment for Practitioners and Students. By Dr. Philip Bockenheimer, Professor of Surgery in the University of Berlin. English Adaptation by C. F. Marshall, M.D., F.R.C.S., Late Assistant Surgeon to the Hospital for Diseases of the Skin, London. With 150 Colored Figures from Models, by F. Kolbow, in the Pathoplastic Institute of Berlin. Three Volumes. New York: Rebman Co., 1908.

The three volumes included under the above title are noteworthy for the magnificent collection of plates which they contain. These plates are photographic reproductions in color of models made by Kolbow, the well-known plastic modeler of Berlin, and are taken from cases seen at the von Bergmann clinic. Not all surgical diseases can, however, be pictured in this way, and the "Atlas" therefore has its limitations, as may be readily seen from a glance at the table of contents. The first volume is largely devoted to neoplasms and examples of nearly all are presented, which are evident by inspection. Interspersed are representations of phymosis, balanitis, fistulæ, etc. The second volume is taken up with the infections and their complications. The third is a continuation of the same topic, with a number of minor subjects. No attempt is made to classify this material.

The text which accompanies these plates is not particularly noteworthy, the only feature being the differential diagnosis, which is graphically illustrated by the pictures. It comprises largely the teachings of the von Bergmann school, and all the cases were under the author's observation. The translation is very clear and concise. If one inquires more closely into the actual value of a publication of this kind, of which many have appeared in recent years, the answer may be somewhat difficult to state. Their relatively high cost places them beyond the reach of the average medical student, for whom it is stated that they are intended, and the practitioner is in need of more extensive information of the topics presented.

Arteriosclerosis. Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. By Louis M. Warfield, A.B., M.D., Instructor in Medicine, Washington University Medical Department; Physician to the Protestant Hospital; Adjunct Attending Physician to the Martha Parsons Hospital for Children, St. Louis, Mo.; Formerly Medical House Officer at the Johns Hopkins Hospital, Baltimore, Md.; Member St. Louis Medical Society, Missouri State Medical Society, and American Medical Association, etc. With an Introduction by W. S. Thayer, M.D., Professor of Clinical Medicine, Johns Hopkins University. Eight Original Illustrations. St. Louis, Mo.: C. V. Mosby, 1908.

The subject of arteriosclerosis, although often discussed in text books and journals, is as yet sufficiently misunderstood to warrant the appearance of such a monograph as the one before us. The writer treats of it as a disease rather than as a complication or symptom group, and gives much evidence in favor of his viewpoint. His subject has been divided in the classical way—anatomy, physiology, pathology, etiology, symptoms, diagnosis, prognosis, prevention, and treatment. A great deal of stress is laid upon hygiene, diet, rest, exercise, good habits, etc. Balneotherapy is recommended, although the author sees too much danger in a hot bath due to the increased heart's action, forgetting that its effect is much like that of amyl nitrite in causing acceleration of the pulse, but with the saving grace of a fall in arterial pressure. Throughout the work the writer shows a broad knowledge of his subject, decries drugging, and recommends that the patient be treated rather than the disease.

Leitfaden der Hygiene, für Studierende, Ärzte, Architecten, Ingenieure, und Verwaltungsbeamte. Von Dr Aug. Gärtner, o.o. Professor der Hygiene und Direktor des hygienischen Institutes der Universität Jena. Mit 190 Abbildungen. Fünfte, vermehrte und verbesserte Auflage. Berlin: Verlag von S. Karger, 1909.

Dr. Gärtner's book on hygiene is one of the most popular text books in Germany. The present edition is much larger in size in comparison with preceding issues, the recent developments in the art and science of the subject, and especially in the field of prevention of infectious diseases, having called for a thorough revision of the book and many additions to the text. The subjects considered consist in the study of the relations of atmosphere, water, and the earth's surface to public health and to the health of the individual; the foodstuffs used by mankind; the construction, the ventilation, and the heating of houses; clothing; sewerage systems; school hygiene, industrial hygiene, and the causation and prevention of infectious diseases. The curricula of American medical colleges give but little time to the all important subject of hygiene, and careful reading of a book such as Dr. Gartner's will go far in filling the gaps in the average physician's knowledge of the subject.

Friedberger and Fröhner's Veterinary Pathology. Authorized Translation, Translated by M. H. Hayes, F.R.C.V.S. With Notes on Bacteriology by Prof. R. Tanner Hewlett, M.D., F.R.C.P., M.R.C.S., D.P.H. In two volumes. Sixth edition, revised and enlarged. London: Hurst & Blackett, Ltd. Chicago: W. T. Keener & Co., 1908.

This is the authorized translation of the sixth edition of Friedberger and Fröhner's standard work on Veterinary Pathology. In this edition the division of the volumes and chapters conforms to that of the original German text. The first volume contains chapters on: Diseases of the organs of digestion; diseases of the esophagus; diseases of the stomach; diseases of the liver; diseases of the peritoneum; diseases of the spleen; diseases of the urinary organs; diseases of the sexual organs; diseases of the heart and larger blood vessels; skin diseases; diseases of the locomotory organs; trichinosis in swine; "measles" of domestic animals; Miescher's tubes or Rainey's corpuscles; diseases of the nervous system; diseases of the spinal cord and of its membranes; diseases of the peripheral nerves; neuroses without known anatomical basis, and an appendix to diseases of the nervous system. In the second volume are chapters dealing with: Diseases of the respiratory system; diseases of the accessory cavities of the nose; diseases of the larynx; diseases of the trachea and bronchi; diseases of the lungs; diseases of the pleura; chronic constitutional disease, and infective or infectious diseases. At the end of the volume are Hewlett's notes on bacteriology, which are admirable; and an index to the two volumes. In case another edition is issued it would be well to insert a table of contents in the second volume.

Saunders's Pocket Medical Formulary. With an Appendix. Containing Posological Table; Formulæ and Doses for Hypodermic Medication; Poisons and Their Antidotes; Diameters of the Female Pelvis and Fetal Head; Obstetrical Table; Diet List for Various Diseases; Materials and Drugs Used in Antiseptic Surgery; Treatment of Asphyxia from Drowning; Surgical Remembrancer; Tables of Incompatibles; Eruptive Fevers; Weights and Measures, etc. By William M. Powell, M.D., Author of "Essentials of Diseases of Children," Member of the Philadelphia Pathological Society, etc. Ninth edition, thoroughly revised, enlarged, and adapted to the eighth revision (1905) of the U. S. Pharmacopeia. Philadelphia and London: W. B. Saunders, 1909.

There are probably about a couple of thousand prescriptions in this volume, enough, and more than enough, to satisfy or bewilder the most ardent seeker after this kind of knowledge. Several blank pages are interspersed throughout the book, so that even more prescriptions can be added; and the volume concludes with about sixty pages of miscellaneous information, useful to the physician. Many of the prescriptions have well-known names appended to them, but some (*e. g.* the first one under orchitis) are hardly to be dispensed by the average druggist.

The Arteries of the Gastrointestinal Tract. With Inosculation Circle. Anatomy and Physiology, with Application of Treatment. By Byron Robinson, B.S., M.D., Chicago, Ill.; Professor of Gynecology and Diseases of the Abdominal Viscera in Chicago College of Medicine and Surgery, etc. Chicago: E. H. Colgrove.

In this volume are described (1) the concentric gastric circles, (2) the ileocolic circle, (3) the enterocolic circle, (4) the gastroenterocolic circle, (5) the pancreatic circle, and (6) the ileocolic arches. The following views are advocated, viz., Blood cures disease; a cell lives in water; a cell functionates in a fluid medium; the apparatus for executing visceral hyperemia is the "inosculation circle"; the object of the "inosculation circle" is to engorge, to congest its peripheral viscus, and to transport blood volume from one viscus to another. It is needless to say that the book represents solid original work on the part of the author, for this is characteristic of all that he publishes. Much of this volume has already appeared in several medical journals, hence some repetitions occur, as each section was completed independently and separately.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held March 18, 1909.

DR. JOHN A. WYETH IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Orthopedic Surgery and was devoted to the question, "What Shall We Do with Our Cripples?"

Methods of the Widener Industrial Training School for Crippled Children.—Dr. DE FOREST WILLARD of Philadelphia said that, according to the estimate of Rosenfeld, one-sixth of the inhabitants of Germany were more or less crippled and that if this great number could be made self-sustaining it would mean an annual gain to the German Empire of $30,000,000 annually. If the Academy of Medicine could induce the Commissioner of Census to secure statistics as to the number of cripples in this country in 1910 it would be of great advantage. Such statistics would not contain the actual number, as many did not wish to class themselves as cripples. Weakened physically and handicapped as this class of unfortunates was, they were prone to become discouraged and even degenerate, though they might be well equipped mentally. Simply to place these crippled children in institutions offered no stimulation to their pride and no promise for the future. As many had active brains, in spite of their physical defects, they could be trained to earn a fair living. Many cases formerly regarded as hopeless were now capable of being improved by surgical methods, mechanical appliances, or common sense hygienic treatment. Since Stromeyer invoked tenotomy some eighty years ago to assist in the rectification of these deformities, there had been a steady advance until at the present time with tenotomies, myotomies, forcible corrections, osteotomies, transplantations of tendons and nerves, excisions, arthrodoses, etc., results could be achieved in a few weeks that formerly would have been regarded as miracles. Dr. Willard said that forty years ago he had determined to secure, if possible, first, a hospital where cripples could be either cured or greatly benefited by surgical, mechanical, and hygienic measures; secondly, to secure a fund for supplying these patients with the apparatus which was essential to their locomotion; thirdly, to educate and train each cripple along lines best suited to his physical deformities, mental condition, and powers of support; fourthly, to endeavor to educate medical students in the diagnosis and treatment of these cases and to open the eyes of surgeons to the fact that, while these patients were helpless, they were by no means hopeless; that it was a sin to pass carelessly over them simply because time, care, and patience were required for their relief. The hospital and funds had been secured, and he had endeavored to do his part in teaching what could be done in the way of curing and assisting these cases. About ten years ago he had presented the needs of this class of unfortunates to Mr. P. A. B. Widener, a philanthropist of Philadelphia, and as a result the Widener Memorial School was founded for the mental and manual training of crippled children. This school had been in operation but three years, and only children under ten years of age were admitted, so that, as yet, all the inmates were too young to have put into effect the methods which they hoped to develop within the next ten years. Mr. Widener had purchased thirty acres of land in the outskirts of the city, which presented a most attractive and elegant appearance as regarded grounds and buildings. Mr. Widener had expended $1,000,000 and had endowed the institution with $3,000,000. Here they endeavored to supplement the work of the hospitals, to strengthen and renew the weak ones and to educate them in habits of industry, order, cleanliness, self-respect and self-reliance and to apply such mental, moral, and religious training as would render them true, honorable, and useful citizens. Parents were expected to sign an indenture binding the child over to the trustees until it should reach its majority; in this way they were able to keep the children long enough to secure good results. Feeble-minded children were not eligible. In order to be admitted the child had to be a cripple, but improvable. There was a central hospital building, with every modern facility for the treatment of this class of cases. There were cottages for boys and girls, holding twenty. Each cottage was presided over by a house mother, who was expected to provide all the surroundings of a well-regulated home. There was also an educational, an industrial, an administrative, and an isolation building. Children were detained in the isolation building for three weeks after their admission to avoid the possibility of their conveying infectious disease. Then they were transferred to the hospital building, where they received such treatment as the case demanded. Much time was spent in the open air. There was an outdoor gymnasium and a broad playground. Glass-covered pavilions furnished winter playgrounds, which were always dry and free from snow. The children were constantly under the supervision of the resident physician and a trained nurse. As soon as the physical condition of the patient permitted, he was advanced to a cottage under the direct care of the house mother. At the proper age the children were sent to school, where the grades corresponded to those in the public schools. A few who showed unusual aptitude would be given a higher education. Those who showed unusual ability in vocal or instrumental music would receive a musical training that would enable them to earn a livelihood thereby. At a certain time manual training was begun, and the time devoted to it was gradually increased each year until an occupation or trade should be selected and mastered. The choice of a trade would be determined by the desire and inclination of the pupil and by his physical and mental ability. They endeavored to select such occupations as would employ the pupil's greatest earning capacity and were compatible with his taste and ability. As the oldest pupils were but fourteen years of age, the advanced grades of the manual training had not yet been established, but trades might be selected from the following: Farming, floriculture, care of poultry and stock, dairying, carpentry, woodwork, leatherwork, making of shoes, braces, crutches, tailoring, dressmaking, millinery, printing, cooking, housekeeping, and laundering. At the present time there were 91 children in the institution, and there were accommodations for 120. Already so much progress had been observed in the physical, mental, and moral development of the children that the founder and those in charge felt encouraged to continue the work, believing that the ultimate results would amply repay them for the great effort and cost of the undertaking.

The Opportunities for the Employment of Cripples.—Mr. W. FRANK PARSONS, Superintendent of the Charity Organization Society, said that it had long been an accepted truth that the best way to help others was to help them to help themselves. There was no provision in the city of New York for the industrial training of crippled adults, and what training there was for children had been but recently provided and was woefully inadequate. There had been but little effort to supply suitable employment and thus to save to self-support and self-respect those who were unfitted to engage on equal terms in the struggle for existence. The result had been a great waste of character and of charitable funds. Public begging had been for ages condoned as a recognized means of livelihood for cripples; many others were dependent upon relatives who could be partially or wholly self-supporting. It

was not easy to find employment for a cripple who was not trained relative to his disability. During one period of fifteen months there were 1,863 arrests of confirmed mendicants under the direction of the Charity Organization Society. Of these, 701 were physically defective and 447, or 24 per cent., of the entire number were crippled. This was vastly higher than the percentage of cripples in the general population. These figures illustrated the result of lack of industrial opportunity which must be encountered by each crippled person who was equipped with nothing but limited physical strength and limited bodily capacity. The mendicant cripples constituted but a small proportion of the cripples who were not self-supporting, and a smaller proportion of the entire number of cripples in the community.

The first organized effort to give the necessary attention to the opportunities for employment for cripples was the establishment of the Special Employment Bureau for the Handicapped, by the Charity Organization Society. This bureau registered cripples and persons handicapped in other ways and attempted to find employment for them suited to their mental and physical condition. Nearly all who received the services of this bureau were dependent upon others for support. During the fiscal year ending September 30, 1908, applications from 264 cripples were received. Of this number, 57 had been disabled by accident or loss of health, due to the nature of their previous employment. Two hundred and seven had become incapacitated through causes not connected with their previous employment. The total number of applications registered during this year was 1,217, and of these 477 were placed in steady employment at wages averaging $6.98 a week. Temporary work was found for 234, making a total of 711 handicapped persons who were helped during a year of great industrial depression. In the group of cripples, in addition to those handicapped by major operations, were included those having disabled limbs due to paralysis, old fractures, blood poisoning, tuberculous joint lesions, necrosis, rheumatism, and the loss of fingers. Two hundred and twenty-three persons so disabled applied for work during the year, and 57 were placed in steady employment at wages ranging from $3 to $24 a week, and averaging $7. Services of the kind rendered by this bureau, while they might increase in scope and efficiency, would never solve the problem of employment for the crippled. The bureau only tended to lighten the load of relief work which the community must carry. Its work was preventive in that it was the means of placing persons who were impaired in health in employment favorable to the arrest or cure of their diseases. The work was also educational in that it brought to the attention of employers persons who were able to do faithful and valuable work, and it awakened a feeling of responsibility on the part of employers toward their weaker brothers. It showed the number of individuals in the community who were objects of charity, and it demonstrated that cripples, even though handicapped, were often capable of employment, and that great economic waste could be avoided. The experience gained in the bureau had made very evident the necessity for three lines of special effort and study in connection with this subject. First, a study of the dangerous trades and the consequences of such employment on the health and capacity of those so employed. This should result in effectual measures to prevent the manufacture of cripples at the present appalling rate. Secondly, a study of all kinds of employment, and especially of factory work, to discover the particular places available for the employment of persons suffering disability of every kind and degree. Thirdly, the need of adequate and suitable specialized education and industrial training for crippled children starting life under the heavy handicap of ill-health and physical disability. The Special Employment Bureau had undertaken the second line of investigation. Such efforts as this were only remedial; the radical treatment of the problem lay in the universal opportunity for suitable education for crippled children. The best available census showed that there were 2,700 cripples of school age, and this estimate was incomplete. Some estimates placed the number as high as 7,000. In all schools and classes for such children there were registered 932 pupils. This indicated that there were at least 1,500 children in New York who were unable, because of physical disability, to attend the public schools and who were without educational advantages. The solution of the problem would require the devoted attention and cooperation of teachers, physicians and surgeons. There would be no lack of public support for the training of cripples that showed satisfactory results. The greatest danger was the inability to make efficient use of the means so rapidly becoming available. The difficulty would be in finding suitable teachers, those who could be both teacher and nurse, and who had that passion for public service which would lead them to know the children not only in school, but in their homes. Special school room equipment must be provided and a new curriculum devised for the crippled child.

The Care of the Injured and Crippled in Germany.—Dr. CHARLES H. JAEGER said that during the past twenty years 1,500,000,000 marks ($375,000,000) had been paid to sick, injured, and disabled workmen in Germany. This had been done under the compulsory insurance laws. Such laws had been adopted by nearly all European countries. The insurance covered sickness, accident, invalidity, and old age. The employee paid two-thirds of the premium and the employer one-third. All persons regularly employed in factories, mines, or railways, etc., had to be insured, while those intermittently employed were exempt. For example, if a workman received $6 per week, he paid $0.12 per week in assessments, and in case of sickness received $3 per week, besides medical attendance and medicines. The funeral indemnity in case of death was at least $20. Accident insurance was first instituted in 1884 and was confined chiefly to industrial enterprises, but had been since extended. This insurance was at the cost of the employers wholly. In general, all employees and overseers with salaries less than $750 per annum had to be insured. Compensation had to be paid, even though the negligence was on the part of the employee. Old age and invalidity insurance was enacted in 1889, and was made compulsory in the case of workmen over the age of sixteen years. This insurance fund was formed by equal contributions from the employer and employee. The German sick benefit association had sought to improve the hygienic conditions of employment and had provided lectures, relief stations, clinics, etc. An effort in cases of accident had been made to reduce the period of convalescence by means of mechanotherapeutics, massage, and the other methods known to surgery. The merits of the German workingman's insurance were that it included practically everybody needing insurance; it afforded the workingman the most comprehensive provision, not only in money, but in free medical aid, free medicines, and board in institutions. After an accident or death it offered the surest and cheapest system of compensation, avoiding expensive and tedious litigation. Out of the funds of the country after a liberal payment of indemnities, $100,000,000 had been applied to the erection of model workingmen's houses, sanatoriums, hospitals, and health resorts. In round numbers, eleven and one-half million of people were insured against sickness, eighteen million against accident, and fourteen million against invalidity and old age. In this country the number of industrial accidents was appalling. Dr. Josiah Strong estimated that 550,000 were killed annually in the army of labor. This was 50 per cent. more than all killed in the Russo-Japanese war. In this country

the burden entailed by industrial accidents was borne entirely by the worker. Even if he recovered from an accident he might be incapacitated and have to accept lower wages. In case of accident, compensation had to be paid, even though the negligence was on the part of the workman, unless the accident was caused purposely. The compensation began 13 weeks after the accident, the sick fund or employer being responsible meanwhile. There were no legal expenses or delay. The employer's accident insurance corporation paid out the money through the nearest post office. The cost of administration in the compulsory insurance was only 13 per cent., while in competitive companies in this country 68 per cent. of the premiums were eaten up in expenses. It was highly important that a national association for the study and promotion of compulsory insurance should be formed.

Mr. Sherman, formerly State Commissioner of Labor, said that the number of accidents reported in factories for the year 1907 was about 19,000; of these between 4,000 and 5,000 were either permanently injured, or reported to be so seriously injured as to be practically permanently crippled. About 90 per cent. of all the accidents occurring in factories were in men. In the factories of the State of New York there were approximately 3,600 to 4,000 people, who were efficient and industrious, suddenly thrown out of work and who were to be found among the ranks of the cripples. The law made no provision for their care or support, and they were turned over to public charity. The law that existed in this State was the old common law of England. Under this law the employer must provide a proper place for the employee to work in, and the employee assumed all ordinary risks of the business, the employer being liable only when accidents occurred through negligence on his part. There was a certain unreasonableness in this, as shown when an accident occurred in a factory which was the result of negligence of neither party. When a gang of men was employed, and an accident occurred, it was very seldom that the person negligent was the person injured. Therefore, the person injured in such a case could not sue his employer, because the employer was not negligent. Again, it was the jury who determined what was meant by negligence and who assessed damages, and they, as all know, were influenced largely by their sympathies and not by the real facts alone. If an employee was injured and sued his employer, litigation continued for years, and it was a gamble whether the injured party got anything. Sixty per cent. of the time of the courts was taken up by these cases, and the taxpayer had to spend millions of dollars for the legal machinery. If the injured party won his suit, after the expense of litigation and the attorneys had been paid, the employee would probably get about 20 per cent. of the amount of damages, a very unjust system. In Europe they had abandoned all such laws; the fundamental principle of the system there now was that the industry should pay the costs of the injured, and not have the cost thrown upon the workman and public charity. This was a subject that should be taken up and inquired into carefully. The adaptation of the system as it existed in Europe might be adopted here, and then all classes of cripples would be well provided for and the money not wasted in litigation.

Dr. Virgil P. Gibney believed that the best way to prepare the cripples for usefulness in life was to secure for them proper and useful limbs; this was what the Hospital for the Ruptured and Crippled stood for. Patients were kept there long enough to give them the best possible use of their limbs. Besides attending to their physical defects, they had a very good public school system, as well as singing classes. They also maintained an industrial school. They endeavored to bring out every possible good phase of the child's character that would result in usefulness in his after life. Many of the patients who had been in the institutions years ago were now useful members of society and in business.

Dr. Theodore C. Janeway believed that the thing to be aimed at was prevention, and that curative measures should be a secondary consideration. One might become a cripple as the result of an accident, or from disease, and the preventive measures applicable to the one were not applicable to the other. In the case of the one, prompt and efficient surgical treatment would do away with a large amount of the disability. This could not always be applied in the case of the disease. There would remain, however, many permanently crippled from both accident and disease, no matter what preventive measures were employed. There were the border line cases, those who were only partially crippled, those who had a certain degree of ability to work; these were the ones who needed looking after, in order that they should not become public or private charges. To be useful, industrial training required a preliminary scientific research into the industrial possibilities of cripples of particular types. It should be pointed out to those persons who were responsible for the education of such children that, if the training was to be of value to the individual and to the community, certain lines should be taken up in which opportunities were numerous, in order to assure them of self-support when they left the institution.

Miss Perry of Boston told of the progress which had been made in the school for cripples in Boston in which she was interested. The mental work required corresponded to what was required in the public schools there. In the manual training departments they were taught printing, basket making, sewing, caning chairs, making boxes, etc.

Dr. Thorndike of Boston said that just outside of Boston was the State Hospital for Cripples, which had been in existence for one year; it was under State government. The number of children was 100, many of them with tuberculous bone and joint diseases. Before retiring, the clothing was warmed; then the shacks were thrown wide open. They had wide open school rooms, which were kept open during the day. It seemed to him that the gain in health was almost phenomenal because of this change. Outdoor employments, such as farming, gardening, etc., were taught.

Dr. Wallace said that in one year 6,082 new patients were treated in the outdoor department of the Hospital for the Ruptured and Crippled, and he thought that there might be as many as 7,000 crippled children of school age in New York City. Last year they discharged from this institution 571 children, but he did not know what had become of them. In ten different schools in this city he found 571 crippled children. Among the things to be considered in the care of crippled children were transportation, food, manual and mental training.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

220th Regular Meeting, Held Friday, January 8, 1909.

Dr. E. G. Janeway in the Chair.

Pulsating Tumor of the Forehead.—Dr. W. B. James presented a young man who had for some time suffered from a number of symptoms that were usually included under the term neurasthenia. He complained of headache, vertigo, roaring in the ears, inability to concentrate his mind upon his work, and sleeplessness. Physical examination showed him to be quite sound in body, with the exception of a peculiar pulsating swelling that was situated in the middle of his forehead just below the hair line. This swelling appeared to be vascular in character being supplied by two temporal vessels and one that ran toward the root of the nose; it gave the sensation of

fluctuation, and the stethoscope showed the existence of a continuous murmur produced by the blood current in its interior. Röntgenological examination showed that the skull was intact. A study of the blood supply of the swelling conducted by means of tracings showed the rôle played by the two temporal and the nasal vessels in its production; the obliteration of these vessels by compression resulted in the reduction of pulsation, which fact was well demonstrated by the fall in the height of the tracing produced. However, the obliteration of all three vessels did not lead to the disappearance of the pulsation in the swelling, so that further blood supply in addition to the vessels mentioned above had to be presupposed. It was apparent that this blood supply was derived from some intracranial vessels, and the disturbances of sensation complained of by the patient were probably due to the existence of such communication between the swelling and the cavity of the cranium. Dr. James said that he would like to hear the opinion of the members present in regard to the nature of the swelling and the best way of dealing with it, so as to free the patient from the troublesome symptoms that made his life miserable. As a temporary measure he has advised the patient to sleep with his head raised; this procedure resulted in marked alleviation of the symptoms.

Dr. Charles A. Dana said that he saw the young man on a previous occasion and immediately recognized that his trouble was due to a vascular disturbance and not to a nervous one. Not very long ago he saw another patient suffering from a similar affection: in this case the symptoms seemed to originate not only in the head, but also elsewhere in the trunk, for the patient complained of abdominal pulsations, etc. The patient finally consented to have his carotid arteries tied, and this operation afforded a great deal of relief. Dr. Dana saw him two years after the operation and found him feeling much better, though some symptoms, such as throbbing in the head, were still present.

Dr. A. A. Smith said that the case presented by Dr James could not be benefited by any form of medical treatment; surgery alone offered to the patient some hope of alleviation of the unpleasant symptoms from which he suffered.

Dr. Abbe considered the case to be one of a cirsoid aneurysm of unusual type and location. Surgery offered very distinct hope to the patient, as excision of such aneurysms is both practical and safe. The dilated vessels could be cut down upon and ligated en masse, or the arteries supplying the aneurysm could be tied off one by one. It was quite probable that if the arterial supply of the aneurysm was cut off the symptoms might disappear, or at least be markedly diminished because of the diminution of the venous return, which was probably in great part responsible for the unpleasant sensations experienced by the patient.

Dr. James said that in his opinion the case was one of a Rankenangioma described quite fully by German authors; the arteriovenous communication existing in such tumors led to the production of the sounds heard over the tumor and was responsible for the sensations described by the patient. In his opinion the condition was to be looked upon as a very serious one, and the patient must be told that the best remedy was to remove the mass before it had much chance of increasing in size. Dr. James had seen a case in the Presbyterian Hospital which was somewhat similar in character, though the involvement of the vessels must have been more extensive, as the patient was suffering from a pulsating exophthalmos in addition to the throbbing mass on the forehead. Six operations were performed in that case and yet only a partial relief from the symptoms resulted from the extensive surgical interference. Dr. James thought that in the case presented by him the wisest procedure would be to ligate the two temporal vessels supplying the tumor as a preliminary procedure and then, after the pulsating mass had been reduced in size somewhat by the loss of a part of its blood supply, to remove the remaining network of dilated vessels.

Aneurysm Treated by the Matas Method.—Dr. Robert Abbe showed a colored patient who came to St. Luke's Hospital a few weeks ago suffering from an aneurysmal dilatation of the femoral artery situated just below the profunda branch of the vessel. Dr. Abbe treated this patient by the method recently elaborated by Matas of New Orleans, which offered great advantages over the old method of tying off the artery above the aneurysm, thus stopping all the blood supply below that point. In this case the sac was split open and carefully cleared of clots. Then a tube was made for the blood by diminishing the lumen of the sac, and communication between the artery above and below the dilatation was thus reestablished. On the third day after the operation the arteries below the seat of the aneurysm began to show pulsation, although previous to the operation no pulsation could be felt in them, because the aneurysm took up the impulse of the pulse wave as it came from the heart. For a few days the arteries seemed somewhat shrunken, but they gradually reassumed their normal size, and the part below the seat of the former aneurysmal dilatation did not suffer at all in nutrition. The great advantage of this method of treating aneurysmal dilatation of arteries lay in obviating the danger of gangrene that had often occurred after simple ligation of the aneurysmal sac. The method of Matas not only removed the aneurysm but also restored the circulation, and in this respect it could be called a perfect operation. Dr. Abbe had tried the same method in two other cases, and in both of them had obtained brilliant results. The technique of the procedure was somewhat difficult, the speaker said, as it required the use of very fine needles and sutures, but the result of a successful operation was certainly very much more satisfactory than that obtainable by the employment of any other method.

Dr. James said that the result obtained by Dr. Abbe in this case was most admirable, being more satisfactory than in any other instance that Dr. James could recall. The technique described by Dr. Abbe was, of course, applicable to all aneurysms not affecting vessels situated in the body cavities. If it proved to be applicable even in the latter locations it would mark a great advance in our treatment of intraabdominal aneurysms affecting, for instance, the iliac arteries. Dr. James quite agreed with Dr. Abbe in calling the method of Matas the perfect operation, for it reestablished function while doing away with the anatomical changes produced by the aneurysmal dilatation of the artery.

Transplantation of Teratoma into Monkeys.—Dr. Flexner spoke of a partly successful attempt made by his assistant, N. Jobling, to implant a tumor removed from a human being into monkeys. The tumor was an ovarian teratoma showing the usual structure of such neoplasms and containing a connective-tissue stroma, a great deal of epithelium and some cartilaginous tissue. The tumor recurred after first removal, which was performed by Dr. McCosh at the Presbyterian Hospital, but there was reason to believe that the recurrence was due not to *malignant* infiltration of the surrounding tissue by the tumor cells, but to an implantation of some of the tumor tissue into surrounding tissues, an accident that might have occurred during the operation. The first attempt to transplant the tumor was made after the first recurrence, the material used being obtained at the second operation. Pieces of the tumor tissue were implantd into the subcutaneous tissue of monkeys, and the size of these small bits of foreign tissue was measured from day to day. It was shown that

the implanted bits increased in size for the first sixteen days, then began to diminish very gradually, and finally disappeared altogether. At the time of the maximum size of these bits of tissue, parts of them were excised for a microscopical examination, which showed that no growth of the epithelial constituents of the tumor had taken place at all, the epithelial portion present in the bits of tumor tissue disappearing altogether. On the other hand, the cartilage showed some changes that were quite significant, for mitotic figures testifying to growth of the tissue were found.

On the whole, however, the experiment was a failure, the tumor tissue being finally absorbed. Ehrlich had similar experience after transplanting the tumors of mice into rats; the transplanted bits of tissue persisted for a time, but finally were completely absorbed. It could, therefore, be said, so far as the tumors of lower animals were concerned, that the transplantation of such tumors was possible only when very closely connected species of animals are used in the experiments. The tumor mentioned above recurred once more after the second operation and the attempt to transplant it into monkeys was repeated. The reaction in this case was quite different from that obtained in the first transplantation, both new monkeys and the old animals in whom the first transplantation was made being used for the experiment. In the new animals nothing noteworthy seemed to have occurred, for the bits of tumor were quickly absorbed. In the animals that had previously been inoculated with the tumor the transplanted tissue appeared to have increased rapidly in size. These pieces were removed for microscopical examination and it was then seen that the increase in size was only apparent, being due for the greater part to the formation of a sterile exudate about the foreign material. On the other hand, the epithelial portions of the tumor were not absorbed in this case, but retained the original size. Unfortunately, however, no cartilage seemed to have been included in the pieces used for transplantation, so that it was impossible to find out whether growth would have taken place in this tissue after the animals had been inoculated for the second time. The reaction that had taken place in these animals could be interpreted simply as an anaphylactic phenomenon, the susceptibility of the animals being increased by the primary inoculation. In answer to a question, Dr. Flexner said that it would have been of interest to transplant such ovarian tumors into the ovaries of monkeys instead of using the subcutaneous tissues. At first, however, it was felt that observation of the transplanted pieces could be very instructive and that is why the method used was adopted. Another advantageous experiment would consist in attempting transplantation into the higher anthropoid apes instead of the lower monkeys for inoculation, so as to obviate as much as possible the biological differences between the two species of animals used.

Multiple Pulmonary Abscesses of Obscure Origin.—Dr. Lewis A. Conner reported the case of a girl, twenty years of age, who, two weeks before admission to the New York Hospital, in October, 1908, had begun to suffer from headache and pains in the back and legs, accompanied with some fever. At the end of a week her symptoms grew suddenly worse, and there were added pain in the right chest, cough and increasing fever. She continued to have these symptoms while in the hospital. The fever ran an irregular and very high course, once reaching 107° F.; there were occasional chills, the sputum was abundant, purulent and of rather offensive odor, and the patient was evidently gravely ill.

The physical examination on admission showed an area of dullness at the right base posteriorly, with friction sounds and fine râles in this area and at the base of the right axilla. There were also scattered râles over both upper lobes in front. At that time examination of the heart revealed only some diminution of the heart sounds and a rapid rhythm. Three days later, however, the heart sounds in the region of the sternum took on a curious, loud, amphoric quality suggestive of a pneumo-hydropericardium. This amphoric quality was not heard, however, beyond the limits of the sternum, and at the apex the heart sounds had their normal quality. At the same time it was noticed that the normal heart dulness beneath the sternum had been replaced by a deep, tympanitic note and that the heart seemed displaced to the left. About the same time a small area of consolidation became manifest in the right upper lobe anteriority near the inner end of the second and third ribs; the signs of consolidation at the right base became more distinct, and many moist râles were to be heard over various portions of both lungs. The sputum contained no tubercle bacilli, and Von Pirquet's tuberculin test was negative. Two blood cultures also were negative. At the time of the patient's admission to the hospital the leucocytes numbered 8,000, of which 74 per cent. were polynuclear cells. Toward the end of the illness the white cells rose to 19,000 and the polynuclears to 88 per cent.

The evidence of multiple lesions in the lungs and the abundant purulent sputum suggested the possibility of multiple septic infarcts and the tympanitic note beenath the sternum, and the amphoric heart sounds in that region seemed best explained upon the assumption that one of these suppurating areas had perforated into the anterior mediastinum. Against this view, however, was the fact that no emphysema could be found in the subcutaneous tissues at the root of the neck. Moreover, a careful search of the pelvis, abdomen and veins of the extremities revealed no source for such septic infarcts. The patient died eight days after admission, and during the last two or three days of life the heart sounds lost their amphoric quality. The history obtained at the time of admission did not throw any light upon the perplexing features of the case, but later it was ascertained that during the first few days of her illness the patient had been given by her physician some powders which had frequently excited vomiting. She had persevered in the use of the powders and had vomited repeatedly over a period of several days. It was at the end of this period that the severe pulmonary symptoms had appeared and she had been brought to the hospital.

The post-mortem examination showed the right lung studded with many abscesses, varying from one to three c.m. in diameter. Most of these were scattered through the peripheral portions of the lower lobe; a few occurred in the upper lobe, and one abscess was found in the upper lobe of the left lung. A number of the abscesses had extended to the surface of the lung and had set up a purulent inflammation of the pleura in the neighborhood. One abscess near the median surface of the right upper lobe had perforated into the anterior mediastinum through an opening nearly 1 c.m. in diameter. The mediastinum contained a considerable quantity of pus, and must evidently have contained air, although none could be positively demonstrated at autopsy. The heart and the other viscera were essentially normal and furnished no clue to the origin of the lung abscesses. From the distribution of the abscesses, with relation to the bronchi, the many varieties of microorganisms found in the pus and the absence of all other sources, Dr. Elser, the pathologist, was inclined to regard the case as one of aspiration pneumonia followed by rapid necrosis and abscess formation.

In the light of the history of repeated vomiting before the appearance of the pulmonary symptoms it seemed probable that the accidental aspiration of some of the vomited matter had been the cause of the fatal pulmonary complications.

WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held March 8, 1909.

DR. WILLIAM LINDER IN THE CHAIR.

The Symptomatology and Diagnosis of Pancreatic Disease.—Dr. LEON LOURIA of Brooklyn read this paper. He said that few diseases were so difficult of detection as those of the pancreas, particularly on account of its close juxtaposition to the stomach, duodenum, and gall-bladder, and the close association of its main duct with that of the latter viscus. This association had its physiological significance in the intimate cooperation between the pancreatic juice and the bile in the process of digestion. This was an unfortunate anatomical relationship, and was the cause of many of the morbid processes to which both the pancreas and biliary passages were subject. Another unfortunate anatomical anomaly was the fact that in two-thirds of all cases the common bile duct passed directly through the head of the pancreas on its way to the duodenum. The difficulty of palpating an enlarged pancreas was responsible for the dense obscurity that until recently had veiled all knowledge of the affections of the pancreas. This had slowly emerged in the light of the autopsy room and operating theater. The functions of the pancreas in furnishing both external and internal secretions had to be fully understood for a correct interpretation of its diseases. These were to be considered as not only cause and effect of diseases of contiguous organs, but were also in close physiological relationship with diseases of remote organs, in the evolution of disordered metabolism. The cooperation of surgeon, internest, and laboratory worker was necessary in the investigation of diseases of the pancreas more so than in any other branch of medical research. Little had been recently added to the knowledge of malignant disease and cysts of the pancreas, while the acute forms of pancreatic disease, described by Fitz nearly twenty years, had hardly been added to by more recent writers. The recognition of chronic pancreatitis was the triumph of more recent years, and to the credit of American pathology. It was a form of disease most difficult to recognize and challenged the keenest diagnostic resources of the clinic and laboratory. There were two forms of the disease: interlobular and interacinar. In the latter there was not only atrophy of the secreting cells, but also more or less complete destruction of the islands of Langerhans, which occasioned severe derangements in carbohydrate metabolism. Experimentally, these forms of pancreatitis had been produced by the injection of irritant substances, such as bile, into the pancreatic duct. This explained the frequent coexistence of chronic pancreatitis and cholelithiasis. When the papilla of Vater was occluded by a calculus there was retrojection of bile into the pancreatic duct. The passage or stasis of a stone in the common bile duct often caused necrosis and subsequent infection of the head of the pancreas. This was also caused by occlusion of the pancreatic duct, with the damming back of the pancreatic secretion. There was also close vascular and lymphatic communication between the gall-bladder and the head of the pancreas, so that infections of the former were easily transplanted to the latter. Tuberculosis, syphilis, and arteriosclerosis often involved the pancreas. There was a close association between pancreatitis and mumps. Pressure of the swollen head of the pancreas, which often occurred in this infection, upon the common bile duct, was now considered to be the rational cause of epidemic jaundice. Egdahl considered mumps as the causative factor in 10 per cent. of the cases of pancreatitis. The symptoms of chronic pancreatitis were divided into four categories: first, those due to pressure on the common bile duct; second, those due to diminution in the external secretion of the pancreas; third, those due to impairment of the internal secretions that presided over carbohydrate and fat metabolism; and fourth, those due to the inflammatory process seated in the pancreas. The symptoms referable to pressure on the common bile duct could not be closely differentiated from those due to cholelithiasis. Both conditions caused jaundice, but that due to pancreatitis was more apt to be persistent In addition, there were acholic stools and urobilinuria The symptoms of the second category were the most prominent in the pancreatic syndrome. There was emaciation, which frequently erroneously suggested malignant disease. The stools were offensive and of enormous bulk. There was steatorrhea or the presence of an excessive amount of fat in the stools. More characteristic than this was the diminution in the proportion of split fats. There was also azotorrhea or the presence of a large amount of undigested muscle fibers, and, more important still, the presence of the muscle nuclei, for failure to digest these was a special feature of pancreatic insufficiency. Schmidt's test was designed to determine the presence of muscle nuclei. Sahli's method of testing the efficiency of proteid digestion was next described, as was also Müller's test for determining the degree of tryptic activity of the feces. An important constitutional effect of pancreatic insufficiency was the profound and progressive loss of weight in spite of a rich diet. The symptoms that resulted from defective metabolic activities of the pancreas were not always present, owing to the fact that a small portion of the gland could, if present, preside over the metabolic conversion of sugar and fat. Hyperglycemia and consequent glycosuria frequently occurred, but not in all cases, even of the interstitial variety. Extensive disease of the head and neck of the pancreas was not associated with glycosuria, for the islands of Langerhans were most abundant in the tail of the pancreas. The glands of Brunner in the duodenum were capable of taking in vicariously the metabolic functions of the pancreas. Although the absence of glycosuria did not rule out pancreatitis, yet its presence, particularly in conjunction with jaundice or cholelithiasis, was a sign of no little value. A form of diabetes that could without question be attributed to pancreatitis was the *diabète bronzé*, which was an expression of hemachromatosis in the deposition of blood pigment in the internal organs and in the skin. Its presence in the pancreas set up a chronic interstitial pancreatitis and a consequent diabetes. Certain cases of pancreatitis were associated with disease of the adrenals. Instead of a true diabetes, pancreatitis was frequently the basis of an alimentary glycosuria. The pancreatic reaction of Cammidge belonged to this group of metabolic disturbances. The newest, or the Cammidge "C" reaction, consisted in the isolation from the urine of patients suffering from an inflammatory disease of the pancreas, of a substance which, when boiled with strong hydrochloric acid, split off a body having the chemical character of the sugars. It was a most difficult and laborious method of analysis, but was reliable and of great diagnostic value, although practically unavailable for the average practitioner. Pneumonia, adenitis, and cancer also gave the reaction. Hewlett's reaction consisted in the detection in the urine of lipose, which occurred particularly in cases of acute pancreatitis complicated with fat necrosis. The recent experiments of Lombrosa had shown that an internal secretion of the pancreas enabled the body to consume its own fats. These probably explained the occasional existence of peculiar accumulations of fat on the chest and abdomen in cases of pancreatic disease, resembling in certain respects adiposis dolorosa. The fourth group of

symptoms were due to enlargement of the pancreas and pressure on neighboring structures. Rarely the hypertrophied pancreas could be palpated. There was pain due to inflammation and pressure on the solar plexus, to a neuritis of its pancreatic branches, or to a localized peritonitis. The pain was not agonizing, like that occurring in acute pancreatitis in which there were also shock and severe collapse, with rapid pulse and vomiting. The pain of chronic pancreatitis was either continuous or periodical. Continuous pain was also observed in pancreatic cysts, calculi, and carcinoma. In the last the pain was very severe, and was aggravated by movement. The periodical pain suggested epigastric colic, and similar attacks occurred with renal calculi, appendicitis, and a beginning pericolitis in the region of the splenic flexure. It was difficult to differentiate these attacks of pain from those of gallstone colic, even when there was accompanying jaundice or any of the other symptoms of cholelithiasis, for both conditions frequently coexisted. In gallstone disease the pain was never associated with the extreme weakness observed in pancreatitis. Pancreatic stones also caused attacks of epigastric colic. The character of the pain frequently prompted a diagnosis of nervous gastralgia. In most cases of chronic pancreatitis there were, in addition to the pain, a point of marked tenderness midway between the tip of the ninth rib on the right side and the umbilicus (Robson's point), and an area of tenderness and muscular spasm along the right rectus a little to the right of the umbilicus and extending upward from it for several inches. There was reflex pain referred to the region of the left scapula. These signs were variable and sometimes there was no pain at all, even with extensive lesions of the pancreas. Other and even less characteristic symptoms than the pain were dyspepsia, constipation, vomiting, emaciation, attacks of syncope, hemorrhagic stools, and jaundice. Salivation occasionally occurred as a reflex compensatory activity. The emaciation was progressive and profound. The icterus was frequent and significant. In that which was associated with diseases of the gall-bladder and ducts, the irritation of the skin was apt to be less. The diarrhea of pancreatitis was characterized by large, soft, greasy stools, while the dyspeptic symptoms centered chiefly about the distaste for fats and meat. Ascites was sometimes produced by pressure of the enlarged pancreas upon the portal vein. In conclusion the speaker said that pancreatitis was not a rare disease; it frequently masqueraded under the guise of chronic indigestion, indefinite epigastric colics, and many other vague abdominal manifestations. While internal medication hardly claimed any glory in the successful treatment of pancreatitis, it was the internest who had to appreciate the complex picture of this disease and who was in a position to surrender his patient in time to the surgeon, who alone could afford the only real relief.

Acute Pancreatitis: Symptoms and Treatment.—Dr. John F. Erdmann of New York read this paper. He said that he had previously written that chemical analyses, as then understood in pancreatitis, were frequently misleading, and that symptomatology had to be relied upon to the extent of urging the patient to submit to an exploratory section. He was now willing to withdraw this statement, in view of the successes obtained with the Cammidge "C" reaction, especially in connection with the history and other analyses. This applied to those acute, subacute, and chronic cases in which the time taken for the various analyses did not endanger the patient's chances for an operative recovery, but did not apply to the cases of acute hemorrhagic pancreatitis, with intense onset, or with acute abdominal shock, where the long delay necessitated by the Cammidge reaction jeopardized the patient's life to such an extent as to reduce his operative recovery to almost nothing. In this variety the exploratory operation was necessary to develop a diagnosis. The difficulties of making a diagnosis in the ultraacute stage were multiplied by the contiguity of the pylorus, gall-bladder and its ducts, and the head of the pancreas.

For this reason it was manifestly important that all aids in the chemistry of digestion and the excreta should be called into play. The stools were fatty, were large and spongy, and contained undigested muscle fibers. The urine, in addition to giving the Cammidge reaction, also frequently contained sugar. The speaker alluded to six cases, all without any sugar before or after the onset, one of which was of acute hemorrhagic pancreatitis. The speaker regarded the presence or absence of sugar in acute cases only as a coincidence, and not as a distinct evidence. The lipose reaction required a complex chemical outfit and process, with a period of more than twenty hours' actual preparation, and was not of value in the ultraacute cases. The duct of Wissung was a frequent source of entry of infection; the damming back of bile by a calculus plugging the Vaterian papillus was a common cause; other factors were traumatism, alcoholism, and arteriofibrosis. The cause of death in the acute cases had been attributed by Doberauer to a toxin, and by Guleke, in the acute necrosis cases, to intoxication with trypsin. The speaker reported six cases, four hemorrhagic with two living, and two with abscess formation with one living. Complete destruction of the pancreas occurred in one of the hemorrhagic cases, and its former site was occupied by a blood clot. None of the cases had been accompanied by a slough. The onset of acute pancreatitis was usually a sharp pain, with shock, and rapidly followed in same cases by profound toxemia, denoted by a peculiar cyanosis and lividity, with shallow breathing and rapid pulse. There was especially lividity of the face and abdominal wall. The pain was far more intense than that of gastric perforation or appendicitis. Hiccough was of relative frequency and persistence and vomiting accompanied and followed the pain onset. There was in four of the six cases pain in the back of an intense splitting character. The pain was more severe than that of gallstone colic. These symptoms, with a history of previous digestive disturbances and gall-bladder or duct invasions, were strongly indicative of acute pancreatitis. Fitz's rule was that acute pancreatitis was to be suspected when a previously healthy person, or sufferer from occasional attacks of indigestion, was suddenly seized with violent pain in the epigastrium, followed by vomiting and collapse, and in twenty-four hours by a circumscribed epigastric swelling, tympanitic, or resistant, with slight rise of temperature. The subsequent manifestations were those of an ordinary peritonitis. The treatment was as follows: When in doubt, exploration was to be done. If, upon the latter, there was discovered a peculiar bloody, beef broth-like serum, or peculiar warty, yellowish white plaques of fat necrosis on the omentum or mesentery, search was to be extended to the pancreas. On finding an acutely hemorrhagic, enlarged pancreas, an incision was to be made in its peritoneal coat, and a puncture or punctures in the pancreas itself, and gauze or other drains were to be placed in the incised or punctured areas. In gangrenous or suppurative pancreatitis sufficient drainage was to be provided, either by the anterior route or the costavertebral angle, though the anterior was the better and less dangerous route. The question of doing a cholecystotomy or not was one

that each individual case presented for consideration. The speaker then described the histories of six cases, in three of which the gall-bladder was drained, each time for large numbers of stones. Two of the cholecystotomy cases died and one recovered, while two of the remaining cases recovered. In conclusion, the speaker called attention to some of the pronounced symptoms of acute pancreatitis, which were: The marked pain at the onset, the sharp intoxication, the dyspnea, and lividity, the constant splitting backache, and emphasized the need of early exploration when the given set of symptoms manifested themselves.

Dr. Joshua M. Van Cott of Brooklyn said that the speakers had covered the subject of pancreatitis so well that there was little to be added. The literature of pancreatitis had already assumed enormous proportions. Truehart's treatise on fat necrosis comprised 600 pages. Dr. Louria had brought out beautifully the complex relationships of the pancreas, both in its gross and microscopic aspects, and enabled one to clearly trace the relationship between faulty structure and the semiology of pancreatic diseases. The infrequency of diabetes as a symptom of the latter had been fully explained, for the vulnerable part of the pancreas was not rich in the islands of Langerhaus. The sudden shock occurring in acute pancreatitis had been explained by certain authors as an indication that the solar plexus was the seat of the same condition that prevailed in the pancreas. There was only one thing apparently that the first speaker had not included in his comprehensive presentation of the subject, and that was the theory that fat necrosis might be the result of fat splitting bacteria normally present in the intestinal flora, or to lipolytic enzymes in the blood, or even in the somatic cells. The theory that fibrous degeneration of the pancreas similar to that which occurred in the liver and kidneys might occur in the pancreas found a strong support in the fact that, according to Thoma's blood-pressure scheme, these organs all stood at the same level of blood pressure, namely, about 5 millimeters.

Dr. Walter C. Wood of Brooklyn said that in his surgical service at the Brooklyn Hospital he had found the Cammidge reaction to be reliable, appearing in 80 per cent. of his cases of pancreatitis. It was particularly valuable as a means of differential diagnosis between pancreatitis and malignant disease of the pancreas. One year ago he had read a paper in which he had described four per-acute cases of pancreatitis. There had been no recoveries. Two subacute cases in which there had been abscess formation had both recovered. In these the abscess had drained six weeks. In the presence of an acute pancreatitis one could not wait, but had to make the incisions into the pancreas. There were on record twenty-three cases in which as the result of this procedure a complete recovery had been made. The surgery of chronic pancreatitis had not been mentioned. If there was cholecystitis with gallstones, these had to be removed and the gall-bladder drained for six or eight weeks; these cases made a clean recovery. In the cases of pancreatitis without gallstones, simple drainage of the gall-bladder was not sufficient; it was necessary to drain the gall-bladder into the stomach or intestines. Mayo had described three cases in which the gall bladder had perforated the stomach, with spontaneous recovery. It was theoretically wrong, yet practically sound, to perform an anastomosis between the gall-bladder and the stomach. The ideal forms of anastomosis were with the duodenum, or, still better, the jejunum. Anastomosis with the transverse colon was theoretically wrong, owing to the possibility of the ascension of bacterial infection from the latter, yet it was successful as a practical procedure. As a means of distinguishing with the naked eye between a chronic inflammation of the head of the pancreas and malignant disease of the latter, it was to be noted that in chronic inflammation the surface was usually smooth, while in malignant disease it was nodular.

Dr. H. Beeckman Delatour of Brooklyn said that he had been impressed by the peculiar cyanosis and extreme collapse of acute pancreatitis. The pain was sometimes deep in the abdomen, and was sometimes referred to the back. He cited one case in which there was vomiting with persistent hiccough. There was also one case with attacks resembling biliary colic, with gradually increasing jaundice. He also cited a case of chronic pancreatitis complicating cholelithiasis, in which the head of the pancreas was nodular, simulating carcinoma.

Summer Course of Ophthalmology at Oxford.—The sixth annual course in the department of ophthalmology of the University of Oxford will begin on Monday, July 5, and terminate on Friday, July 16. The main idea of the course is to demonstrate on actual patients, as far as possible, the whole range of ophthalmology, in order to make the reading of a text-book more profitable than can be the case when reliance has to be placed on pictures alone. The first part of the course will be concerned mainly with the practical examination of eye patients, the use of the ophthalmoscope, and the estimation of refraction. During the second part the work will be more specialized and the lectures will be delivered by various ophthalmic surgeons. As on previous occasions, the last two days will be devoted to addresses, special demonstrations, and the examination of interesting and unusual cases. The fee for the course is five guineas. Further particulars can be obtained from Mr. Robert Doyne, M.A., F.R.C.S., Margaret Ogilvie reader in ophthalmology in the University of Oxford, 30 Cavendish square, London, W.

Occlusion of the Abdominal Aorta. The patient of C. H. Cattlewas, a man of 39 years, was admitted to hospital for palpitation, dyspnea, and precordial pain. He had presystolic heart murmur, but no dropsy, and no symptoms referable to lungs, liver, or kidneys. In the course of a few weeks both lower limbs suddenly became paralyzed, and no pulsation could be detected in the femorals or vessels below. Urine contained much blood. The man died almost three days later with hiccough and profuse sweating. No autopsy was obtained, but, from the loss of motion and sensation in the legs, with the other symptoms, no doubt was felt as to the existence of an aortic occlusion. The clot presumably reached as high as the renal arteries. The author says that valvular disease of the heart, especially mitral stenosis, is a fruitful source of embolism, hence it is natural to suppose that embolism of the aorta should occur in the same circumstances as embolism of smaller arteries. The large size of the aorta raises the doubt whether any embolus could be sufficiently large to completely plug it. But an embolus frequently grows in size by the formation of thrombus around it and therefore an embolus arrested at the bifurcation of the aorta might be enlarged in this manner until it filled the lumen of the vessel and extended into both iliacs. An attack of pain in the right iliac region which this patient experienced a few days before the final attack may have been due to a similar cause whether embolism or thrombosis. The occlusion in this instance cannot have been complete, as the symptoms associated with it abated, yet it seems not improbable that an embolus was carried into the right internal iliac still allowing the circulation to be carried on for a time, and that by gradually extending upwards it eventually caused the obstruction of the aorta. Moreover, mitral stenosis not only provides a possible source of embolus, but also often leads to very low arterial blood pressure, which itself is a cause of spontaneous clotting in the vessels. In this patient compensation had quite broken down and it was found impossible by means of rest and cardiac tonics to restore regularity to the pulse or tone to the heart. Hence the circulation was inefficiently maintained, the propulsive force being weak and intermittent. Under these conditions thrombi might be formed in the left cavities of the heart and be the source of an embolus.—*The Lancet*

Books Received.

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THE THERAPEUTICS OF RADIANT LIGHT AND HEAT AND CONVECTIVE HEAT. By WILLIAM BENHAM SNOW, M. D. 8vo; cloth; 119 pages; illustrated. Scientific Authors' Publishing Co., New York.

COMMISSIONER OF EDUCATION. Report, 1908. 8vo; 382 pages, cloth. Government Printing Office, Washington, D. C.

THEORY AND PRACTICE OF INFANT FEEDING. By HENRY DWIGHT CHAPIN, A. M., M. D. 8vo; cloth; 350 pages; illustrated; $2.25 net. William Wood & Co., New York.

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NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS. 8vo; 352 pages, paper. Nat. Asso. for the Study and Prevention of Tuberculosis, New York.

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EINE NEUE HYPOTHESE ÜBER URSACHEN UND WESEN BÖSARTIGER GESCHWÜLSTE. Von Dr. phil. et med. OTTO AICHEL. 8vo; 36 pages, paper. J. F. Lehmanns Verlag, München, Germany.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the weeks ending April 17 and 24, 1909:

	April 17		April 24	
	Cases	Deaths	Cases	Deaths
Tuberculosis Pulmonalis	601	201	578	211
Diphtheria	316	41	319	44
Measles	1,224	45	1,274	47
Scarlet Fever	379	23	297	17
Smallpox				
Varicella	147		191	
Typhoid Fever	17	3	26	4
Whooping Cough	63	8	84	4
Cerebrospinal Meningitis	11	10	8	5
Malarial Fever				
Totals	2,758	331	2,777	330

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending April 23, 1909:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
Alabama, Birmingham	Mar. 1–31	10	
California, Los Angeles	Mar. 27–Apr. 3		1
Georgia, Macon	Apr. 4–11	6	
Illinois, Alton	Mar. 1–31	1	
Galesburg	Apr. 3–10	2	
Indiana, Indianapolis	Apr. 4–11	1	
La Fayette	Apr 5–12	1	
Iowa, Council Bluffs	Apr. 5–12	1	
New Hampton	Feb. 26–Apr. 15	8	
Kansas, Kansas City	Apr. 3–10	2	
Topeka	Mar. 6–Apr. 3	12	
Kentucky, Covington	Apr. 3–10	2	
Lexington	Apr. 3–10	1	
Paducah	Mar. 26–Apr. 3	1	
Michigan, Saginaw	Mar. 26–Apr. 3	2	
Minnesota, Duluth	Apr. 1–8	6	
Montana, Butte	Mar. 30–Apr. 6	2	
Nebraska, South Omaha	Apr. 3–10	2	
New Jersey, Camden	Apr. 3–10	1	
Lodi	Mar. 12	1	
No. Dakota, Sherwood and vicinity	Jan. 12–Apr. 5	73	
Ohio, Cincinnati	Apr. 1–7	7	
Texas, San Antonio	Apr. 3–10	1	
Virginia, Richmond	Apr. 3–10	1	
West Virginia, St. Albans	Feb. 16–Apr. 12	19	5
Wisconsin, La Crosse	Apr. 3–10	2	
Milwaukee	Mar. 13–Apr. 3	23	
Racine	Apr. 3–10	1	
SMALLPOX—FOREIGN.			
Algeria, Bona	Jan. 1–31	16	7
	Feb. 1–28	25	13
Brazil, Para	Mar. 20–27	1	1
Pernambuco	Feb. 15–28		5
Rio de Janeiro	Feb. 27–Mar. 7	25	14
Canada, Halifax	Mar. 27–Apr. 3	2	
Ceylon, Colombo	Jan. 23–Feb. 13	31	9
China, Tientsin	Feb. 20–27	1	
France, Paris	Mar. 20–27	3	
Great Britain, Bristol	Mar. 20–27		1
India, Bombay	Mar. 9–16		18
Calcutta	Feb. 27–Mar. 6		315
Rangoon	Feb. 27–Mar. 6		8
Italy, general	Mar. 21–28	2	
Catania	Mar. 20–27	2	
Naples	Mar. 21–28	16	
Indo-China, Saigon	Feb. 20–27	7	5
Java, Batavia	Feb. 20–Mar. 6	9	1
Mexico, Guadalajara	Mar. 25–Apr. 1		2
Monterey	Mar. 29–Apr. 4		3
Newfoundland, St. Johns	Mar. 22–Apr. 3	2	
Peru, Lima	Mar. 25	1	in Lazar'to
Portugal, Lisbon	Mar. 20–Apr. 3	11	
Russia, Moscow	Mar. 13–20	19	11
Odessa	Mar. 13–20	1	
Riga	Mar. 29–Apr. 5	1	
Warsaw	Jan. 16–30	6	
South Africa, Cape Town	Mar. 6–13	1	
Spain, Barcelona	Mar. 22–29		2
Valencia	Mar. 19–26	5	3
Vigo	Mar. 20–27	1	
Straits Settlements, Penang	Feb. 27–Mar. 6	1	Imported
Tripoli, Tripoli	Mar. 20–27		2
Turkey, Constantinople	Mar. 20–28		1
Smyrna	Feb. 26–Mar. 4		2
	Mar. 18–25		3
YELLOW FEVER			
Barbados	Mar. 27–April	3	2
Ecuador, Guayaquil	Mar. 13–20	26	10
CHOLERA.			
India, Bombay	Mar. 9–16		1
Calcutta	Feb. 27–Mar. 6		67
Rangoon	Feb. 27–Mar. 6		3
Russia, St. Petersburg	Mar. 27–31	13	3
PLAGUE.			
Brazil, Rio de Janeiro	Feb. 28–Mar. 7	5	1
Chile, Antofagasta	Mar. 1–20	24	
Iquique	Mar. 21	26	in Lazar'to
Ecuador, Guayaquil	Mar. 13–20	5	3
India, general	Mar. 30–Apr. 6	5,033	4,109
Bombay	Mar. 9–16		286

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Original Articles.

THE POINT OF VIEW IN MEDICINE.*

BY BEVERLEY ROBINSON, M.D.,

NEW YORK.

I TAKE it that few among us look at medical questions, at present, as we once did. Youth and inexperience never look at things quite in the same way that older and usually, I trust, wiser heads do. Again, the general practitioner has his standpoint, which will frequently differ from that of the general surgeon, or the specialist of one kind or another, almost of necessity. The specialist on his side, and more than ever perhaps to-day, considers, or appears to, that his view of the case is the true and the really advanced one. Now, general practitioner, general surgeon, specialist, are all somewhat influenced by the spirit of the age, surroundings, atmosphere in which they move and live, education, and, despite everything, personal idiosyncracy of their own. Some men are talented, earnest, hard-working, of large experience, and yet they never seem to take quite the same view that others do, even among their peers. Are they right and the majority wrong? It would be unsafe to admit the rule. What we can say with truth and justice, however, is that there are men—a few, a very few—who to skill, experience, training, study, all of the best, add a similar fund of common sense, of mental just balance, so to speak, rectitude of thought and purpose, which makes them think straight, and almost invariably reach sane conclusions, the best practically there are in regard to diagnosis, prognosis, and treatment. So clear and cool are their perceptions, so well balanced and considered their arguments, so free are they of all "fads" or "fancies," that having heard them express a judgment about a case usually leaves in our minds a very strong impression, a tendency almost to share their views, despite perhaps our own which are sometimes opposed to them.

We all know a few such men in our profession and we are grateful for their possession. I shall not speak of men still living, but I shall mention a few I have known or under whom I have studied; and these men will ever remain to me beacon lights of what is best, wisest, truest in medicine and surgery, in which, properly understood, are included, as I believe, the highest ideals given to man to attain on earth. In the list I would include as physicians Jenner, Trousseau, Meigs, Da Costa, Flint, as surgeons, Nélaton, Ferguson, Parker, Agnew, Sands, Bull. I leave to others to mention specialists who may and should rank with these men of great mind, great heart, great courage.

Some of us have never been able quite to get away from the powerful influence of the recognition of a constitutional condition—dyscrasia—in almost every disease, acute or chronic. We cannot see a local affection of any sort, with relatively few exceptions, apart from it. And therefore it is that we are inclined more to general treatment, if any, rather than to local means of help or betterment. To a certain extent, no doubt, this view depends upon our previous and early medical education. Those who have imbued French ideas believe in them perhaps overmuch and see a diathesis almost in every patient. On the other hand, the physicians whose early training was in Germany, in Vienna or Berlin, localize agencies overmuch, and adopt local treatment to the exclusion, at times, of general remedies, because they were taught that in local means could be found the best, if not the sole curative agents.

Formerly, surgery could not and would not perform many operations, by reason of the excessive mortality, which now are performed daily and with very little risk to life in many instances. The physicians of the present time admit great advances in surgical technique, and praise and laud it whenever they feel it proper so to do. On the other hand, they feel, and indeed believe they know, that operations, no matter how skilfully performed and with what remarkable immediate outcome, do not invariably lead to apparent good results. They see recurrences, they remark unexpected deaths, they are not unfamiliar with painful symptoms later, which are fairly attributable to previous operations. Again, they believe, with more careful, painstaking diagnoses, with insistence on correct methods of living—better food, less strenuous life, purer air, prevention of disorders in time, by suitable, well considered medication, many operations might be avoided. Further, they ask, *cui bono*, to have an operation successfully performed and to return to the life and conditions which were unquestionably the occasion of the development of the disease primarily, and which led to the necessity of an operation.

Physical methods of research, even those most employed—namely, palpation, percussion, auscultation, mensuration—are surely very valuable; but, after all, do they teach the vital questions, do they explain frequently why and how we have disordered function, do they enable us always, or indeed in the majority of instances, by themselves, to meet the indications of successful treatment? The newer laboratory methods which give us all we know about blood, stomachal contents, intestinal excreta, do they always ring true when it is a question of how to medicate or treat the patient, even from a surgical standpoint?

A few years ago, a rapidly increasing leucocytosis with acute abdominal pain and tenderness, with or without rigidity, it might be, would have

*Read before the Practitioners' Society of New York March 5, 1909.

seemed to indicate appendicitis and operation. Now we know that leucocytosis, developing rapidly, and acute abdominal pain may find their anatomical seat in the lungs, and a few hours or days later be shown to be due to fibrinous pneumonia. Test meals of a roll and tea, without milk or sugar, do not seem to bring out rationally the best that may be known as to stomachal fluids and the powers of digestion. Good cooking, foods properly prepared and served, will not infrequently settle the questions satisfactorily to the experienced old-time practitioner, when all the refined later wisdom of the laboratory helps us very little, or not at all.

Only a month ago I had a letter from a gentleman whose wife had a diagnosis of ulcer of the stomach, made by two stomach specialists, widely known and in whom the wisest treatment of so-called science was carried out. The result was negative. Subsequently, a very simple treatment, merely the result of wise empiricism, gave a brilliant success. No doubt the laboratory explanation of the happy cure will come later.

In diphtheria I have known the Löffler bacillus not to be correctly found with good microscope and good observer, or else to be very inoffensive so far as causing disquieting symptoms was concerned. Again, I have known a case in which diphtheria was never made out in the best appointed laboratory, and yet when symptoms were most threatening and gravest, life was saved only with proper use of antitoxin.

All this doesn't mean to invalidate laboratory work at proper time and place, and duly and rightly interpreted, but it does mean to reaffirm the conviction on the part of many of us to-day, that laboratory must usually be subservient to older and more reliable clinical methods, if we are to obtain from them what we should require—not as rulers, but as handmaids.

Even in surgical diseases, as witness cases of malignant trouble of the breast or elsewhere, so diagnosed by the laboratory, there are instances, as Maurice H. Richardson has lately stated, in which the clinical acumen of the wise, experienced surgeon may recognize, truthfully, that the prognosis is good and eventually the disease will prove not to be cancerous.

Take now the work of the dead house, and where are we? Where should we be? The pathologist sees in every visible change of structure or organ the great kernel of truth, as it were; the one thing which explains symptoms, suffering, death. Is he right? At times, yes; many times, alas, all wrong, as I believe. No doubt, in pathology, in autopsies, may be found our surest guide, in the main, to securing accurate knowledge of what is in one way a basis for thorough and satisfactory knowledge of our science. But apart from science, there is the art of medicine, which is practice, and this is most important, as you and I know, and is not based solely upon knowledge from the dead house.

I have been witness of, or made, autopsies in which the body was full of organic lesions, and yet during life there had been little pain or suffering or disability of any notable kind, during many years prior to death. Again, we may have one who while living had suffered almost continuously from various ailments, and yet his body at the autopsy was almost or entirely negative, so far as visible pathological lesions were concerned, and as explaining clearly previous suffering or death itself.

Despite all our vaunted and great advance in research, much is still unrevealed, much is still, by reason of ignorance, no doubt, *functional,* so far as we can state positively. But such an affirmation should not for a moment, from a healthy, sane standpoint, in my judgment, give a shadow of right and justice to religious health healers—such as, alas, we meet to-day in the so-called curists of the Emmanuel type. Physicians are after all the true and only ones to look after the needs of the body, and when mental comfort is required, physicians of the best type are often better able to give it than the theologians. Every good and true physician is to-day rejoiced at the probable outcome of the great antituberculosis fight being waged, and while it must be very useful in diminishing the number of those who are thus affected with a dread disease, it is even to a wider degree beneficial, because success in the fight means progress in civilization, refinement, and healthful living for all men. But I see an evil ahead, already referred to by a few. In our efforts to get rid of tuberculosis, so praiseworthy and encouraging, let us not insist upon foolish rules of prevention or cure, and thus become absolutely cruel to those who most urgently require our sympathy and real, genuine help and support.

Bear in mind the following true and important statement of the Health Board of the State of Massachusetts: "It is not at all uncommon to-day to hear of instances where the very means of obtaining one's livelihood have been taken away because the person was unfortunate enough to have tuberculosis. To take away from such a person the means of obtaining his livelihood is to take it from the very person who needs it most. It should be remembered that a person ill with tuberculosis, whose personal habits are clean and who takes care of the material which he coughs up, is a safe person to live with, and that he may attend to his work without endangering his fellow workmen. Failure to appreciate this fact is already causing many hardships, which are both unnecessary and unjust."

These are words of gold, and should be distributed far and wide. Only a short time ago, I knew of an instance where a young man, an only son, was practically driven from place to place, even in a healthful country region, simply because no hotel or boarding house would harbor him for fear of infection. Foolish and inhumane to the highest degree!

Again, while several hundred papers were read at the late International Tuberculosis Congress, in Washington, there was not a single one, so far as I know, devoted to the medicinal treatment of the disease. Is not this lamentable, though true? If there were no medicinal treatment of any avail, it would be equally sad and deplorable, but it would be excusable. But there is a medicinal treatment of the highest value, in my judgment, and, as ample and sufficient proofs have been given of its efficacy, it does seem almost incredible that it should not be widely known and adopted.

It is probable that very few men of judgment and experience believe that pulmonary, or other form of tuberculosis, is cured solely by any kind of medicinal treatment, but some of us do believe, and firmly, that many die without proper medicinal treatment who would and could be saved if they had it—at the proper time and in the right way. Alas, the pity of it!

There are many other topics I might touch upon

and bring about a profitable and instructive discussion from members of the society, and I would very much like to have such a discussion at a later meeting. One topic would be alcoholism; the other prostitution. I, for one, believe that we shall never limit the great, immense evils of alcoholism, until we greatly diminish the custom of treating, or round drinking. I believe, also, we cannot hope to diminish the immense evils of prostitution and the frightful diseases which are its direct outcome, unless it be systematically and carefully governed and regulated, and not merely ignored, or considered as being radically bad, and therefore to be stamped out. It cannot be stamped out entirely—certainly not in large centers of population. The history of the world proves it. Therefore, let us do the best we can to lighten the burden of it, to working, decent men and women, who wish only what is best in last resort, for the betterment of the human race.

In finishing these brief, very imperfect remarks, no one could be more conscious than I of their discursiveness and superficiality. At the same time, they will, I hope, lead to an interesting and profitable discussion—and that will surely be valuable. They could be readily lengthened, amplified, but I don't care to bore or tire you.

A few last words. We have learned from homeopathy some truths despite its great and sinning errors. One is, as I believe, to try and relieve, correct, it may be, symptoms of disease carefully, intelligently. Not to the extent of ignorant assumption, as formerly—not to the degree, for a single instance, of throwing aside true science based upon accurate, advanced research, in hospital ward, dead house, laboratory—but only to that extent which should, which must teach all thinking physicians that man is not a mosaic, composed and stuck together, of small independent parts, but not correlated vitally; that he is not merely an organic mass of blood and tissues, of which the final word comes from chemistry, pathology, physiology, or bacteriology, solely, but that he is a moving, living, vital personality—always alike in a way, but always absolutely different and distinctive—and that he the wisest among us is he also, who alone, finally, should judge and rule, when it is a question as to what line of action—of doing—may or should be followed with best advantage to the patient's ultimate good. Whenever the patient is passed over to the specialist in any line by the general practitioner, the general practitioner should then become and be regarded, *ipso facto,* as the consultant who is best for the patient's good if any consultation is at all required, and simply because he, the general practitioner, the all-round, good and true physician, who has had frequent previous charge of the patient, it may be from his baby days, is the only man who knows all about him and can appreciate at times what is best to do for him—what, in other words, will most surely lead to his ultimate well being and complete recovery, or else to the best results for him possible.

Let me conclude by quoting from Dr. William H. Draper's address, familiar to many of you, and delivered with such marked effect years ago before the Association of American Physicians:

"We may wisely recall and apply the answer," writes Dr. Draper, "which Iphicrates, the Athenian general, is said to have made when he was hard pressed by an orator before the people to say what he was to be so proud: 'Are you a soldier, a captain, an engineer, a spy, a pioneer, a sapper, or a miner?'

"'No,' said Iphicrates, 'I am none of these, but I command them all.'"

"So the practical physician may not be a very learned pathologist, an erudite physiologist, a skilful chemist, or an expert bacteriologist, but he must command them all, and it is he who must finally, through the cooperation of all the sciences which they represent, perfect the most beneficent of all arts; it is he who in his high mission as the servant of humanity must attain that wisdom which results from combining knowledge with the instinct and the skill for its useful application."

THE REEDUCATIONAL TREATMENT OF LOCOMOTOR ATAXIA.*

By J. RALPH JACOBY, M.D.,

NEW YORK.

In the summer of 1908, I had the opportunity of carefully studying the question of the mechanical and reeducational methods employed by Dr. H. S. Frenkel, in the treatment of locomotor ataxia at Heiden, Switzerland. There are a great many elements that enter into the treatment of tabetics at Heiden, the understanding of which is really essential to a more comprehensive insight into the results which Dr. Frenkel obtains.

Heiden is a picturesque little village situated on the top of a hill overlooking the Lake of Constance. The place itself has been regarded as a health resort for years, on account of its altitude, and consists for the most part of small hotels with their so-called dependances and boarding houses, so that it is safe to say that the 2,000 inhabitants depend upon the visitors for their livelihood. The patient is catered to in every way possible by the villagers, while the town itself has provided walks and drives, as well as a Kurgarten, which makes Heiden very similar to the many other health resorts to be found in Switzerland. One of the hotels has been equipped with hydrotherapeutic baths, and directly opposite, in a grove of trees, is the gymnasium.

The patients then take up their abode, according to their means, in one of the hotels or boarding houses, none of which is more remote than five minutes' walk from the gymnasium. The whole environment, the absence of distracting influences, the facilities for comfort and care, all contribute to the patients' well-being, to such an extent that it materially aids in their ultimate improvement.

Before proceeding, permit me to recapitulate a few of the fundamental principles that underly the whole system of reeducation, in the treatment of tabes. The reeducational treatment deals solely with the symptoms of the disturbances of coordination. Frenkel starts with the theory that in tabes, the ataxia is dependent upon sensory disturbances in the muscles and in the joints. If, therefore, the muscular sensibility and the joint sensibility are completely destroyed, there will be no coordination possible. The first essential then is to determine how much muscle and joint sensation has been preserved, for it is upon this remnant of sensibility that the efforts are directed. The unimpaired sensibility, no matter how small, is utilized and educated until it reaches a stage of sufficient acuteness, so that a new system of coordination has been established. Most primitive methods are first used. It

*Read before the Section of Neurology and Psychiatry at the New York Academy of Medicine March 8, 1909

is necessary to begin at the bottom and work up, and this is accomplished through the constant repetition of certain well-chosen and necessary movements, that call into action the very minimum of muscular strength. It is most essential, therefore, to understand down to the smallest detail the mechanics of the various groups of muscles.

Movements of apparent simplicity are in reality very complex when analyzed into their component elements, and Frenkel has made these analyses so carefully that he has been able to formulate exercises that range from the simplest, which involve the use of only one or two muscles, to the most complicated, which cause the muscles of an entire extremity to be brought into action.

In this connection can be seen the extreme importance of dividing the treatment of the disturbances of coordination of the lower extremities into two parts: the bed exercises and the walking exercises. In the bed exercises, the patient lies on his back and his legs are free to move without the weight of his body. Each leg can be exercised separately, or in harmony with the other, or exercises diametrically opposite can be executed with both legs at the same time. In the upright position, however, all the muscles of equilibrium are brought into play, so that any additional movement, no matter how simple, is still very complicated. But here again the understanding of the mechanics of various movements is necessary. It is wonderful to see how a helpless patient, in the course of ten or fifteen minutes' instruction, merely by the correct and properly directed use of his muscles, can accomplish movements that hitherto have been practically impossible to him.

By means of these oft-repeated instructions and constant repetition of the exercises, the reeducation of the muscles is accomplished. It is no trick, but requires an inordinate amount of patience at times.

In all these exercises, the eyes play a prominent part. In the beginning, when the patient's muscular and joint sensations are obtuse, it is difficult for him to locate the position of an extremity without looking at it, so that all of the exercises are first instituted with the patient's eyes closely following each movement. By degrees the exercises are repeated while the eyes are directed elsewhere, until finally the eyes are excluded entirely by closing them. Thus we have a progressive gradation in the education of the muscles.

This brings us up to that important problem, the question of dosage. It is well known that tabetics are to a great extent insensible to feelings of exhaustion. Overtaxation does not tire them as it does a normal person, and for this reason one cannot be governed by the patient's subjective feelings. Dr. Frenkel uses the frequency of the pulse as an indication of the patient's condition. In many cases I have seen the pulse, which normally was between 70 and 80, rise rapidly to 110 and 120 after the exercises, and in some cases as high as 140, without the patient experiencing any feeling of fatigue. In the bed exercises the pulse does not rise so rapidly, but Frenkel never exceeds 10 minutes in these exercises, and at the same time he allows the patient frequent periods of rest during the treatment. In the walking exercises, however, the variations of the pulse are more apparent. As soon as the pulse shows any sign of the patient's fatigue, the exercises are discontinued. The general time consumed in the gymnasium is about ½ hour, but during this period the patient rests half of the time.

In the education of the patients in the gymnasium, practically no apparatus is used. With the exception of a constructed staircase on which the patient is taught to go up and down stairs, the only aid used is a series of markings on the floor. The hall is about 15 meters long and on the floor are marked transverse lines that can be distinctly seen, and the distances between these lines represent variously what Frenkel terms ¼, ½, ¾, and full steps. On these limited spaces the patient is taught to walk his measured step, which is varied from time to time in length and rhythm. Variations of equilibrium are effected by placing the arms in different positions. Frenkel decries the use of gymnastic apparatus, whether simple or complicated. He reiterates that the reeducational treatment is to *educate* muscles, not to strengthen them. The muscles generally, in tabetics, are sufficiently strong and well developed, in fact the muscleplay is always very much in excess of the actual force required to effect any desired movement. The use of weights and appliances, Frenkel maintains, can seriously injure the patient as it subjects him to a strain that not only exhausts the muscle fibers, but dulls the remaining sensibility inherent in the muscle itself. The theory that if a person must jump five feet, he should try to jump ten, does not hold good in the reeducational treatment. Nothing more should be required of the patient than is actually necessary to accomplish any particular movement. And it is for this reason that the exercises are so carefully graded.

The difference between a single exercise, and the next more difficult, is often so slight, that the patient hardly appreciates that he is advancing. And above all when Frenkel has given a difficult exercise, that has in a measure tired the patient, he invariably follows with something much easier, that brings into play muscles that are sufficiently well educated to perform their function with ease.

Another important factor that enters into this treatment of these patients as a certain loss of tonicity of the muscles, which permits them to be stretched beyond their physiological capability. Frenkel has coined the word "hypotonia" to express this condition of the muscles. If a normal individual be placed upon his back, and an attempt be made to flex the extended leg upon the body, the leg can not be raised more than to form an angle of between 30° to 45° with the plane on which he is lying. But repeat this experiment with one whose muscles are hypotonic and the leg can be raised to an angle of 90° and in some cases can be brought over far enough to come in contact with the body itself.

The seriousness of this condition shows itself particularly in the knee joint. If the adjacent muscles are hypotonic, the knee joint is pressed back as far as the articular surfaces will allow, giving the familiar clinical picture of the retroflexed knee. It is for this reason also that Frenkel lays such stress on the inadvisability of exercises or apparatus that overtax the muscles, because they also stretch the hypotonic muscle beyond repair.

For several days after the arrival of the patient at Heiden he is allowed to rest, but during this time he is kept under observation, and is subjected to repeated careful physical examinations. According to the result of these examinations he is placed into one of several groups. Frenkel lays great stress upon the proper grouping, which is dependent upon the degree of ataxia and the condition of the muscles.

In order that we may better understand the grouping, I have arranged the following classification: (1) Those cases that show a mild degree of ataxia; (2) those that show a severe degree of ataxia; (3) those in which the ataxia has advanced so far that the patient is able neither to walk nor to stand without support.

Each of these large classes must be subdivided, for those cases that show no changes in the muscles, and those cases in which the muscles are markedly hypotonic, or in which some muscles or groups of muscles are paretic. As an illustration of this classification and the benefits observed in the reeducational treatment, I have selected six cases that may be considered to typify each of the three large groups and their two subdivisions. In giving a synopsis of these cases I shall omit the general anamnesis and symptomatology, and shall confine myself briefly to those points that bear particularly upon the ataxic gait.

Case I.—A man of 55 years of age in whom the diagnosis of locomotor ataxia had been made about 10 years previously. Under ordinary circumstances it was difficult to note any disturbance in gait, excepting when he tried to run. Then the movements of the legs became exaggerated, and the incoordination was very manifest. The muscles were well developed and there was practically no hypotonia. When this patient was first examined he had a marked Romberg sign, and was unable to walk if his eyes were closed or fixed upon the ceiling. He was, of course, placed in the advanced class.

After four weeks he was able to walk with little difficulty when his gaze was fixed on a point in the wall at a level with his eyes. After six weeks he was able to walk well while looking at the ceiling. About this time he had an attack of lancinating pains which prevented him from continuing his treatment for a week. When he again began his exercises he had retrograded to where he was after the fourth week, but within a few days he was back again to the point where he had been before the cessation of his treatment. At the end of two and a half months from the beginning of his treatment, he was able to walk the length of the hall, a distance of about 15 meters, with his eyes closed. Of course, in this last achievement there still was some staggering and the gait was ataxic, at the same time he was able to do that, which three months previously was impossible to him.

Case II.—This man belongs to this same group, but differs from the preceding case, inasmuch as his muscles were extremely hypotonic. He was 52 years of age and showed his first symptoms three years previously. His main complaint consisted in easily losing his balance when his attention was distracted, and also in tiring very rapidly. The examination showed a marked Romberg sign, and a high degree of incoordination when the eyes were not used to assist him in his movements. His gait, however, was mildly ataxic, and he was, of course, unable to walk with closed eyes. His muscles were remarkably well developed, and when stripped he presented the appearance of an athlete, which indeed he had been before the onset of his present condition. His muscles, however, were extremely hypotonic, so much so, that the thigh, when the leg was extended, could be flexed upon the body to an angle even greater than 90° and with extreme extension of the left leg itself, there was a marked pushing backward of the knee. This showed itself particularly when the patient walked.

This patient entered upon his treatment conscientiously and with great enthusiasm. In fact, he was too conscientious. Every movement in his exercises was accompanied by a tremendous display of muscular contractions, and each step was a feat of balancing, that it would have been difficult for one of good powers of coordination to duplicate. But at the end of ten weeks there was little or no improvement. It is true, he was able to use his legs better when they were relieved of the weight of his body, that is to say, he could coordinate better while lying down, but as far as his gait, or ability to walk unaided by his sight, was concerned, there was no improvement.

Case III.—A man 43 years of age, well built, and of good muscular development. Until a year before he was perfectly well, and had experienced no difficulty in walking. Being a man of methodical habits he had been examined from time to time, and up to the period referred to, no ataxic symptoms had shown themselves. A year ago he noticed that he was unsteady in his gait, and this particularly in the dark. The unsteadiness increased rapidly, so that he soon had to support himself with a cane, and walking became difficult. When he presented himself at Heiden the examination showed a classical case of tabes with marked ataxia of the lower extremities. He was unable to walk without the aid of his cane, and even then would topple over if his eyes were not constantly fixed upon his feet. His muscles were well developed and showed good power, although a slight degree of hypotonia was noted.

The man had been growing rapidly worse, and in a comparatively short time had lost his powers of coordination. Under these circumstances, inasmuch as there was probably still a progression of the process in the cord, it was not deemed wise to subject his muscles to any strain. Treatment was at first begun with the simplest exercises. After about three weeks there was practically no improvement in his gait, but it was at about this time that he began to be able to direct his legs better while in a dorsal position. At the end of six weeks he showed greater accuracy during his exercises in the gymnasium, and his bed exercises were marked by a much greater precision. After eight weeks he was able to walk firmly to and fro, the entire length of the gymnasium, taking measured step, and without support. At the end of three months he was able to do the same without looking at his feet, or in other words, with his eyes looking upward at an angle of about 45° to the ceiling. He has since then returned to his work and in his own words, "has continued to improve," "I am able, now," he writes me, "to walk with very little difficulty and find that I can get around comfortably in a dark room."

Case IV.—A man 62 years of age. He had been suffering from difficulty in walking for the past 20 years or more. This was not his first experience at Heiden, as he had already been under treatment the previous year. His symptoms were also classically those of locomotor ataxia. The Romberg sign was marked. His gait was very ataxic and he had great difficulty in walking without a cane. He was, however, not so dependent upon his eyes as one would be led to believe from the degree of ataxia that existed. Whether or not this was due to the treatment of the preceding year I cannot say. The muscles of the lower extremities were extremely hypotonic, so much so that there was a very marked pushing backward of the knees on extension of the legs. At

the end of the season there was little or no improvement. Objectively I may say there was no improvement, but the patient felt as if he was surer in walking and safer on his legs, and he seemed at times to show greater precision in his movements. So far as this case is concerned, however, I think that the betterment was really of phychic nature.

Finally we come to the last group of cases: those in which the incoordination had reached such a point that the patients were unable either to rise, stand or walk without material assistance.

Case V.—The first case of this group, or Case V, was in a man of 40, who, in the preceding year, was in such a good physical condition that he went on a hunting expedition, and within the year had made a successful Alpine ascent that required several days. The onset of his symptoms was severe and sudden, so that within two months he was bedridden.

When he first came to Heiden his condition was pitiable. Two persons were required to assist him from his bed to a chair, and he was practically helpless. All voluntary movements of the lower extremities were tremendously exaggerated, and he was unable to locate the position of either one of his legs unless he looked at them. What complicated this case, and made the condition still more difficult to handle, was the paralysis of the internal ocular muscles on both sides, so that the bulbi diverged and there was double vision. This was overcome, however, by placing a shield over one eye, so that by turning his head and bending forward, he was able to get a good view of his feet. He could not, however, see his knees very well, and this was a serious obstacle in his treatment. Notwithstanding the severe ataxic conditions, and the great loss of joint sensation as well as sense of posture, there was very little hypotonia. This was practically his condition on June 1. On June 15, while lying on his back, the movements of his legs had reached quite a considerable degree of precision. On June 22 he was able to stand momentarily without support. On June 29 he made two attempts to stand alone. In the first attempt he stood without any support for 1 min. and 45 sec., and then was allowed to rest. On the second attempt he stood for 2 min. and 20 sec., at the end of which, however, he lost his balance, and would have fallen if he had not been caught. The following day he was allowed to try to rise alone from a sitting posture in a chair. This he could not do, but with very slight assistance, viz., two fingers extended to him in order to steady him, he was able to attain the erect position by means of his own muscular strength, and then remained standing for 1½ minutes. At this time he seemed again to lose control of his right leg, and therefore was allowed to rest a few days.

On July 5 the exercises were resumed, and on July 8, for the first time he was able, unaided, to lift the left foot from the floor. The next day he made his first independent step. On July 12 he took seven successive steps without losing his balance. It was about this time that he was taught how to turn. This he learned very quickly, so that on July 20 he walked ten steps forward, turned, and retraced his steps.

These exercises had all up to this time been practised in his room, and as the space became too limited, he was wheeled every afternoon into the gymnasium. Here he progressed rapidly, and I need not enumerate the stages. By the middle of August he was able, unsupported, to rise from a chair and walk in measured steps a distance of about 12 meters. Before leaving this case I must say that the hypotonic condition of the muscles had increased somewhat, so that there was an indication of a slight retroflexion of the knee joint. This hampered the patient a little. But even then the hypotonia was mild.

Case VI.—This belongs to the second variety of the third group. This patient was 50 years of age and experienced no trouble in walking until a year previously. His first sensations were as if he was falling backwards. It was difficult for him to rise and seat himself, especially when the ground under him was not firm, as in a street car. From this time on he rapidly grew worse, until he was unable to walk, stand, or rise at all from a sitting position. The examination showed that, in addition to the regular symptoms of tabes, there was a paresis of the gluteal muscles, as well as the iliopsoas. In addition to Argyl-Robertson pupils, and absent reflexes of both the patellar and Achilles tendons, there was a marked incoordination of the lower extremities, which became very much exaggerated on closing the eyes. The muscles of both legs were well developed and of normal strength, but were extremely hypotonic. The weakness of the gluteal and iliopsoas muscles had, of course, much to do with the patient's inability to stand, and also gave him the sensation of falling backward. There was likewise a marked anesthesia of the skin over the buttocks, and this also hindered him from keeping his balance while seated. In addition to the above symptoms the sense of posture of the lower extremities was seriously impaired.

Throughout the treatment the weakness of the gluteal muscles acted as a serious handicap, but after the first three weeks the patient was able to get up from a sitting position, and stand unsupported for about two minutes. When, however, he tried to sit down again he fell backward. From this time on he began the most primitive forms of walking exercises but was allowed to steady himself with a cane. I mention this because he is the only patient at Heiden to whom Frenkel allowed the use of a cane during his exercises. The cane, of course, tended to give more support for the trunk, which in this patient was particularly wanting. A week later he was able to stand unsupported without looking at his feet, and was also able to walk with the aid of his cane alone, a distance of 3 meters.

It was about this time that the patient was seized with severe pains in his legs, and treatment had to be suspended for five days. When it was again resumed there was no apparent retrogression, and he continued slowly to get more control over his legs, so that after ten weeks from the time he first came to Heiden he was able to rise unsupported, and then, by the aid of his cane, walk with measured steps a distance of 7 meters, return to his chair, and seat himself. In the course of this walk he was also able to raise the cane from the ground and walk five steps without its use.

An examination of these six cases and the results obtained is interesting. What is most striking is that the three cases in which the muscles showed little or no hypotonia, the improvement of the ataxia was very marked. But in those cases where the tonicity of the muscles was very much impaired only one case showed any betterment. It is also noteworthy that in the four cases that did improve, the benefit derived was directly in proportion to the severity of the ataxia.

From my observations of these and the many other cases that I saw and cared for in Heiden, I have come to the conclusion that a majority of the tabetics can be materially helped by the reeducational treatment, that the greater the ataxia, the more benefit there is to be derived from this form of treatment, and that the prognosis is in a measure dependent upon the hypotonia of the muscles.

A PLEA FOR THE ESTABLISHMENT OF HOSPITALS FOR THE RATIONAL TREATMENT OF INEBRIATES.*

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In its report to the Hon. John Franklin Fort, Governor of New Jersey, the Dependency and Crime commission appointed by him for the purpose of making inquiry as to the causes of dependency and criminality and for the suggestion of remedial measures, says: "We desire to call attention to the importance of the establishment of a hospital for persons who are afflicted with the habitual addiction to alcohol and other narcotic drugs, so that they may be scientifically treated and restored to usefulness. It is the consensus of opinion that our present system of dealing with the inebriate who falls into the hands of the law, as he is very apt to do, is barbarous and inhuman, and is a relic of the Dark Ages. Punishment for drunkenness has been meted out for centuries, and has been proven to be an absolute failure. Why should this method be allowed to continue when there is a more rational method of dealing with these unfortunates, many of whom, through heredity and environment, are more sinned against than sinning? A method, which in the light of modern progress is as bright and full of hope as the present method is full of darkness and despair. The State needs most urgently a hospital for inebriates, as a means of preventing insanity, diseased and degenerate offspring, and dependency and crime. Aside from its incalculable value as a saver of men and women, it would be a great financial gain in the end."

That this statement is concurred in by practically every person who has given any thought to the question, you all know. You also know, however, that there are a large number of persons who are in absolute ignorance of the possibility, practicability and feasibility of restoring the inebriate to a life of usefulness, and that inebriety is one of the most curable of chronic diseases, provided, that treatment is begun in time, is properly conducted, and is persisted in for a sufficient length of time. It is plain, therefore, that in order to bring about the rational treatment of the inebriate, we must with renewed vigor and energy continue the campaign of education begun years ago by Turner, Rush, Mott, Crothers, Day, Parrish, Mason, and others.

Generally the public is skeptical as to the possibility of curing the alcohol or drug inebriate and hence we are asked: Can this disease be cured? Is it possible to restore the drunkard and drug user to a life of sobriety and usefulness? Let us consider the views of some of the world's most prominent students of the subject and acquaint ourselves with some interesting facts.

Dr. T. D. Crothers of Hartford, Conn., Editor of the *Journal of Inebriety*, author of many books and monographs upon the subject; a man who has devoted his entire life to the study and treatment of inebriates, says: "The best authorities unite in considering thirty-five per cent. of all patients remaining under treatment one year or more as permanently cured. . . . In view of the chronic character of these cases, these statistics are encouraging and indicate great possibilities for the future from better knowledge and treatment of these cases.

Dr. Day, for many years head of the Washingtonian Home, Boston, an institution now in the fifty-second year of its existence, made a study of eight thousand cases that had been under treatment and found over thirty per cent. sober and temperate. He says: "Twenty-two years of experience in this work has taught me that the task is neither hopeless nor thankless; nor would it be if the measure of success had been lessened one-half from the known rate of percentage of cures."

Dr. Mason, formerly of the Kings County Home, New York, examined the records of two thousand cases that had been away from the asylum for ten years, and found thirty-six per cent. of all cases cured. When we consider that in the above mentioned institutions the worst cases are encountered, the percentage of cures is encouragingly high.

That inebriety can be successfully treated and that a hospital for inebriates is a great saving and not an expense to the commonwealth, has been demonstrated to the satisfaction of the people of Massachusetts where, at Foxboro, there has been such an institution in successful operation for about eighteen years. From Mr. Robert A. Woods, president of the Board of Trustees, I learn that the average number of commitments last year was one hundred and twenty-seven, and a total number of four hundred and eighty men were cared for, most of whom were skilled workmen. The methods of this hospital include medical treatment in the first stage with stimulating industry, gymnasium and baths, proper diet, intellectual and moral stimulus, and visitation by volunteer visitors after discharge. An investigation is made each year as a result of which it is known that thirty to forty per cent. of the patients remain temperate for at least a long period, and from fifteen to twenty per cent. more show definite improvement.

Progressive Switzerland has long since learned that inebriety is a curable disease and that it pays to maintain a hospital for this purpose. At Ellikon, near Zurich, there has existed such a hospital for the past nineteen years. The result of its labors is most encouraging, and proves conclusively that the treatment of inebriety has long since passed the experimental stage. From its eighteenth annual report we learn that: Of five hundred and thirty-one patients discharged between 1889 and 1901 there were cured two hundred and forty, or forty-five and two-tenths per cent.; improved, one hundred and twenty-six, or twenty-three and seven-tenths per cent.; relapsed or unheard of, one hundred and sixty-five, or thirty-one per cent.

Of two hundred and fifty-five patients discharged between 1901 and 1906 there were cured, one hundred and forty-four, or fifty-six and four-tenths per cent.; improved, sixty-one, or twenty-three and

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nine-tenths per cent.; relapsed or unheard of, fifty, or nineteen and six-tenths per cent.

At Knoxville, Iowa, there has been in existence for the past three years a State hospital for inebriates, and the results thus far are very satisfactory. From the second biennial report of this institution we learn that of the entire number of patients treated (774), forty-one and one-third per cent. are known to be cured and living up to the conditions of their parole.

Minnesota has also taken the proper step in this matter and last year established a farm for inebriates. Surely the knowledge of the excellent results obtained in the above mentioned institutions, as well as the results obtained in the great number of private and public institutions for the care and treatment of inebriates in this country and abroad, ought to convince the most skeptical and should serve as a great stimulus in our efforts to overcome the obstacles which we encounter in the path of rational treatment of the inebriate, and there are many obstacles to be overcome.

Permit me to mention a few of those which I have encountered in my efforts to have a hospital for inebriates established by the State of New Jersey. History repeats itself, and, as there were editors of newspapers in days gone by who opposed the establishing of hospitals for the insane in Massachusetts on the ground that such institutions would foster the disease, and would attract patients from other States and even from foreign countries, there is to-day an editor of a Newark newspaper who opposes the establishment of a hospital for inebriates on practically the same grounds. I wonder whether he believes that the Church fosters sin.

My prohibitionist friends say that I am starting at the wrong end. They say "prohibit the sale of alcoholic beverages and there will be no more drunkards." But who believes that prohibition lessens the consumption of alcohol? What practical man doubts that the present so-called temperance wave sweeping over this country is aught but a manifestation of hysteria, and that it will soon begin to recede, leaving in its wake many a "wet" home which previously was "dry." Practical observers know that alcoholic beverages are now to be found in homes to which such beverages were strangers before, and there is good reason for believing that the percentage of children drinkers is growing. Our hope of true temperance lies in education, not in legislation. We know that inebriates have existed since the dawn of day. Who doubts that they will continue to exist until the crack of doom?

Some, who think themselves Christians, say: Inebriety is the result of the sin, and the sinner must and should suffer. Well, if this be true, let us close our hospitals and deny relief to every sufferer from whatever ill, for it may safely be said that almost all disease results from some violation of the laws of nature, and to violate the law of nature is a sin. This group of objectors is small but ever present. Its members are usually persons who are possessed of a high degree of selfishness. They can sometimes be brought to realize the importance of the rational treatment of the inebriate when informed that an habitual inebriate is as great, or a greater menace to society than an insane person, and every bit as much in need of restraint for the protection of the community.

The Binghamton Asylum Failure.—The failure of this, the first inebriate asylum to be established in the world, so far as is known, is a bugaboo which has been held up before me on several occasions. I am glad to have been able to look up the records of the Binghamton Asylum and feel sure that if ever failure was due to success, then the failure of this asylum is so to be charged. It appears that this institution was a private concern owned by a stock company. It certainly made money. There was a stockholders' scramble for the funds and for control and financial failure resulted. But so far as the curing of inebriates was concerned, this institution was a decided success, the results of treatment being most encouraging and satisfactory. I cannot imagine any greater loss to this country than was the failure of the Binghamton Asylum. Had it continued to exist, it would have served as an example to other states and countries, and similar institutions would have been established everywhere, and many thousands would have been saved from insanity, criminality, degeneracy, poverty, suffering and early death.

"Ostrich-like" objectors are also encountered. They prefer to hide their heads in the hour of trouble. They fear that the inebriate problem is too great to cope with. Needless to say no modern student of sociology flees from a problem on account of its vastness. He tackles it, because no problem can ever be solved in any other way.

The question of constitutionality has also been raised and it has been asked whether we can deprive a man of his liberty who is not insane, and who has not been convicted of a crime. Happily this question has been decided by the Supreme Court of Minnesota, which in deciding the case of Leavitt vs. City of Morris, says: "The State, in the exercise of its police power, has the undoubted right to punish drunkenness, and to provide for the detention and treatment in hospitals controlled by it of those who are habitual drunkards, and have so far lost the power of self-control that they are either incapable of properly caring for themselves or are a menace to the public weal. The State has the power to reclaim submerged lands which are a menace to the public health, and make them fruitful. Has it not, also, the power to reclaim submerged men, overthrown by strong drink, and help them to regain self control. . . . The State has for many years punished drunkenness by a fine or imprisonment. The trend, however, of legislation is to treat habitual drunkenness as a disease of mind and body, analogous to insanity, and to put in motion the power of the State, as the guardian of all its citizens, to save the inebriate, his family, and society from the dire consequences of his pernicious habit. . . . The hospital farm for inebriates is not a penal institution but a paternal one, seeking not the punishment of the inebriate, but the safeguarding of his interests and the safety of the public, by treating the inebriate as, what he is in fact, a man of unsound mind, and placing him under the guardianship of the State to the end that he may be healed of his infirmity."

Some say that a hospital for inebriates would merely be a place to which a man could go in order to sober up after a drunk. They are not aware that in institutions such as we are advocating patients cannot leave at will but are committed by law to be detained until they are cured or discharged or removed by law. Even though such a hospital would occasionally be imposed upon and in some way be

used as a sobering place, it would be hailed as a blessing by many wives and mothers who would be grateful for any relief, however small.

The question of expense is naturally an important one. It constitutes a real obstacle and one which is apt to frighten the legislators and the taxpayers. There is little cause for alarm, however, when we consider that many patients will gladly pay for their care, that the law requires pay from all who can pay, and that the indigents are now being taken care of at the expense of the City, County or State, in the general hospitals, jails, penitentiaries, workhouses, almshouses or insane asylums; and when we further consider that many of those who can be restored to usefulness are fast approaching the day when not only they but their families will have to be provided for by the taxpayers, the question of expense assumes a different hue. It is clear, therefore, that the State is not being called upon to bear any new burden, but simply to take up a burden which it is now carrying, in a more humane, hopeful, and enlightened manner. Who can estimate the ultimate gain to the State when we learn from conscientious students of the subject that at least 33 per cent. of insanity, 60 per cent. of epilepsy and idiocy, and 75 per cent. of arrests are due directly or indirectly to inebriety. Aside from the financial considerations, it is as much the duty of the State to control and scientifically treat the inebriate, as it is to restrain the criminal or madman, for in the prevention of crime and dependency lies our firmest security.

It should not be forgotten that hospitals for inebriates are also intended to take care of victims of drug habits, every one of whom is on the road to the insane asylum, and very many of whom can be absolutely cured if treatment is not delayed too long. For the drug fiend there is practically no hope unless he is scientifically treated under legal restraint, in a properly equipped hospital.

In addition to its value as a saver of men and women, a hospital for inebriates could also serve as a reformatory for women, for it is a well known fact that almost all fallen women are either alcoholics or drug users. It could remove the inebriate tramp from the streets and perhaps make him earn his bread by the sweat of his brow. It could serve as a center of learning for the medical profession with a field fertile with opportunity.

The people are awakening to the importance of the rational treatment of the inebriate, but the awakening is rather slow. They are busy fighting tuberculosis, and are making a gallant fight. So busily are they engaged in fighting the seed which produces the disease, that they are forgetting that no seed can grow unless it lodges in appropriate soil. Alcoholism prepares the soil and renders it fertile, and hence the fight against tuberculosis in order to be successful must at the same time be waged against alcoholism. I cannot here enter into a discussion of all the measures which have been and are advocated as preventives of tuberculosis and of alcoholism, but can say that all students of the subject agree that one of the most effective modes of warfare is by establishing in every state a hospital for the care and treatment of inebriates. There is good reason for believing that ere long there will be such a hospital in every State. Pennsylvania has already passed a bill to this effect, and the subject is receiving great attention in New York, New Jersey, and elsewhere. The movement has the support of the Medical Society of the State of New York, the Medical Society of New Jersey, the British Medical Association, numerous prominent judges, lawyers, ministers, and in fact of all persons engaged in humanitarian work, and of everything that is good and uplifting.

At present the Senate of New York has under consideration a bill introduced by Senator Grattan which provides for the establishment of labor colonies for the detention, reformation, and instruction of persons convicted of vagrancy and of habitual drunkenness. Under the provisions of this bill only those inebriates are accepted who have been arrested for drunkenness and sentenced to detention at the colony. There is no provision for the acceptance of patients before they have been convicted of drunkenness, not even if they desire to commit themselves voluntarily. This is a serious error and one which ought to be speedily corrected. As the bill permits the trustees to establish several colonies, it is to be hoped that they will see the wisdom of providing a place for those inebriates who are in the early stages of the disease, and for whom there is hope, before they provide for those who are in the last stages and in whom the possibility of cure is remote even under the best of care. And it is further to be hoped that some provision will be made for voluntary commitments, and also to enable a family to place their inebriate relative under control without being compelled to have him arrested and convicted of drunkenness. The same procedure might be followed in such cases as is now followed in committing the insane. Similar provision should be made for drug inebriates.

After studying the laws governing hospitals for inebriates in this and foreign countries, as well as the laws governing the commitment of insane in New Jersey, I drafted a bill for the establishment of a state hospital for inebriates and had it introduced during the present session of the legislature by the Hon. John F. Clark, Member of the Assembly from Essex County. In spite of the fact that the bill was ably championed by Mr. Clark, it met defeat, but only, I believe, on account of the condition of the State finances.

The bill (Assembly Bill No. 9) provided for commitments as follows:

A patient may commit himself by applying directly either to the superintendent of the institution or to the courts; patients who refuse to commit themselves can, provided they are inebriates as defined in the act, be committed on the certificates of two physicians, in the same manner as the insane are now committed in New Jersey; and, a committing magistrate may, at his discretion, commit to this institution persons convicted of minor offences, if the offense be due to alcohol or drug using.

In an article entitled "The Drink Habit and Its Treatment," which I read before the Medical Society of New Jersey, I called attention to the fact that the drink habit can be cured in a gratifyingly increasing number of cases without requiring the detention of the patient, provided the treatment is begun in the early stages of the disease. In view of my convictions, I have provided in the bill that the superintendent of the hospital may, at his discretion, treat without detention persons who voluntarily apply for such treatment, if, in his judgment, they are suitable patients for such treatment. I have done this in order to make it possible to reach that large number of patients who are in the early

stage of the disease, who will not voluntarily place themselves under restraint, and who cannot be committed by the courts because they have not advanced to the stage where they can be included among those persons who are termed inebriates within the meaning of the act.

The bill says: The term inebriate, as used in this act, includes every species of inebriety, and extends to every person who is suffering from inebriety, whether caused by the periodical or habitual excessive use of intoxicating liquors, morphine, opium, cocaine, chloral, or other narcotics, and who, as a result of such excessive use of intoxicating liquors or narcotic drugs, has become incapable of controlling himself or his estate, or is wasting his estate, or is a menace to the public weal.

All patients are committed to be detained until they are cured, or discharged, or removed by law. No person can be detained longer than two years without being permitted to leave on parole.

At the present time there is in New Jersey only one way in which an inebriate who is a menace to himself, to his family and to society, can be placed under legal restraint if he is not convicted of crime or is not insane, and that is under the provisions of the Habitual Drunkards Act. Under this act an habitual drunkard can be committed to an insane asylum, but Chancery proceedings are required, and the cost is several hundred dollars. This act is therefore available only to those possessed of worldly goods. To send to an insane asylum an inebriate who is sane is, moreover, a great error.

Left to himself the inebriate is practically helpless and hopeless. The disease is progressive, and gets worse as time goes on. Under proper treatment the outlook is as hopeful as it is in almost any other chronic disease. Insanity has yielded marvelously to scientific treatment, and we are more than justified in the light of modern progress to expect likewise marvelous results from the rational treatment of the inebriate. Hence this plea.

214 South Sixth Street.

EXAMINATION OF THE LUNGS BY ROENTGEN RAYS.*

By HENRY HULST, A.M., M.D.,
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A short time ago a medical colleague undertook to ascertain the consensus of opinion of the leading internists and phthisiotherapists in this country on the value of the Roentgen rays in the examination of the lungs. I cannot enter into an analysis of the answers received. Suffice it to say that they were not very enthusiastic and did not differ materially in general tenor and import from the average expressions on the subject met with in textbooks and current literature.

Speaking of lung examination, Hildebrand asserts: "The Roentgen rays have added nothing in certainty to the older methods." Butler says: "The very considerable expense of the necessary apparatus, the technical skill required in its management, and the personal training and experience which are required before trustworthy work can be done, places *x*-ray diagnosis for the present in the hand of the expert." Lawrason Brown sums up by saying: "The *x*-ray examination can hardly be said to repay the study necessary to acquire all the details and should be relegated to the *x*-ray expert."

*Read before the Ninth Annual Congress of the American Roentgen Ray Society, held in New York, December 28, 29, 30, 1908.

According to my opinion there are a number of sufficient reasons to account for this attitude on the part of the medical profession, some of which were valid at one time but none of which is insuperable.

For instance, lung pictures are quite unsuitable for publication by ordinary medical journal methods, and those published in spite of this have served only to discredit roentgenology. Until publishers take as much pains to do justice to roentgenographs as does for instance the *Fortschritte auf d. Geb. d. Roentgenstrahlen,* we should refuse to permit them to print anything beyond pictures of broken bones.

Secondly: In the first excitement incident to the discovery of these wonderful rays, the profession was stimulated to expect altogether too much from the rays in general and from fluoroscopy of the lungs in particular. The natural reaction followed. Especially fluoroscopy, which was at first applied indiscriminately, soon lost its popularity.

I am not one to decry the fluoroscope as an invention of the devil because some were burned by it. Even though lessened excursion of the diaphragm on the affected side, Williams' sign, which was discovered by the fluoroscope and is best studied by means of it, has not the diagnostic significance assigned to it by some, we have nothing yet, after all, to equal it for the study of the phenomena of motion; and for this I have always used and appreciated it.

Even ordinary fluoroscopy, moreover, enables us to see coarse, dense lung lesions better than their existence can be inferred by the most refined percussion through the sense of hearing. But the fine detail to which we have grown accustomed in the case of hard tissue roentgenography, and which is just as essential in the case of soft tissues, the screen fails utterly to reveal. So long, therefore, as general diagnosticians and expert phthisiotherapists confine their roentgenological endeavors to fluoroscopy and the occasional production of a negative of the chest by some hireling or willing nurse, these leaders of medical thought and opinion will continue to write about the rays as they did to my medical friend, and the profession will continue to doubt and do nothing. I am aware that some sanatoriums for the study and cure of tuberculosis make use of the rays. Also a better class general hospital here and there under the sphere of influence of some individual enthusiast makes *x*-ray examinations of the chest. But what have they done for the roentgenology of the lungs? Medical roentgenology must be developed by medical men, not by photographers. The expert internist even though he relegate urine, feces, sputum, and blood examinations to assistants, cannot afford to sit by while the druggist's clerk does the percussing and auscultating. Either the surgeon must roll up his sleeves and use his own hands, or the barber must develop into surgeon. Not until internal medicine has succeeded in benevolently assimilating the rays, and has formulated the principles underlying and described the rules governing medical roentgentology, as surgery has done for itself, will it honestly earn the right to relegate Roentgen-ray examinations of the lungs to the expert, whose existence it gratuitously assumes, or to express any opinion on the subject whatsoever. Then, but not till then, is internal medicine or phthisiotherapy entitled to follow the example of surgery and employ a medical roentgenological expert as the Mayos do Dr. Willey.

The density differences of lung structure, even when expanded by air, are much less than between muscle and bone, and their reproduction on the photographic plate is proportionately less easy. This inherent difficulty constitutes a third and more valid reason for the comparative backwardness of the roentgenography of the lungs and lack of interest in it on the part of the profession. To overcome it has constituted the dream of every roentgenologist. The slowness with which this dream is being realized may seem paradoxical without some explanation.

To obtain a structure picture of the bones of the body we may within certain limits compensate for increased softness of tube by using a stronger current or making a longer exposure, or both. It is moreover not easy to lose a bone by too long an exposure or too strong a current, if only the rays be not too penetrating, that is, if only the tube remains soft enough. Indeed, but for the risk of burning the patient, even softer tubes might be profitably employed in bone work than are ever thought of now. But as soft rays reduce more silver on the photographic plate than those relatively more penetrating, long before the bones are done, the soft tissues will have been rayed into utter darkness. In fact the softer the tube and the stronger the current or the longer the exposure, the greater will be the damage done to the soft tissue part of the picture. This procedure, though ideal for what it was at first intended—hard tissue work—when applied indiscriminately on all occasions and for all purposes within the limit of safety to the patient, reveals a bad habit. Holzknecht's recent prophecy—"Not by shortening the time of exposure, but by selecting less penetrating rays and stronger currents the roentgenography of the future will secure its better result," instead of being a "primum verum" is a "proton pseudos," a one-horse method, whose slavish adoption must be overcome.

Formerly chest pictures were made in this manner. Through the mistaken endeavor to produce what was taken to be, but really was not, a beautiful negative, the ribs, vertebræ, and heart were made to stand out boldly as clear glass against a background of the blackest possible of lung. Such a picture is brilliant because the lungs are pitch black; it is emphatic because it has no meaning. Contrast and emphasis, though more striking than detail and meaning, in roentgenography as well as in other modes of expression and reproduction, represent the earlier stage of their evolution. The first period of roentgenography, the period of screaming contrasts, must pass over into that of detail in contrast. Roentgenography of hard tissues must lead to that of the lungs as well. The first to show the way was Dr. Rosenthal, of Munich, in 1899. The first to get out of the old rut of making long exposures and to produce genuine lung pictures were Prof. H. Rieder and Prof. H. H. Ziemssen in their epoch-making atlas: "Die Röntgographie in der inneren Medizin," in 1901. These were the result of one-second exposures, but with the aid of two intensifying screens to reinforce the rays. The first pictures of the lungs made in America by one-second and shorter exposures, but without the aid of intensifying screens, were exhibited by myself at the meeting of the American Roentgen Ray Society in Chicago in 1902.

This most important revolution in technique created the new roentgenography of the lungs and was accomplished not, as of late some would lead us to believe, as a result of improved apparatus, but through acquired skill in managing the apparatus already at our disposal, according to the principles described. For a long time my one-second and shorter lung pictures were made with a coil of 18-inch spark length designed to be worked with an old-fashioned hammer break, but adjusted to run on a home-made Wehnelt interrupter. Not that such an instrument is satisfactory; but neither are the finest coils and rectified transformers. Any instrument to be ideal must maintain a constant uniformly sustained potential difference at the terminals of the tube as well as furnish a current of adequate strength. Coils and transformers fail to meet the former requirements. Instead of supplying a constant flow of current through the tube, they violently force through it a series of electrical discharges, whose individual amperage drops from a high maximum to zero. The inevitable result is abuse of the tube and a quantity of heterogenous rays, many of which are harmful because not wanted.

Static electricity, as is well known, is entirely free from these defects. It produces more definite homogeneous rays and satisfies the ideal requirements in every respect. Just one thing has prevented its adoption for heavy Roentgen-ray work, the difficulty of getting enough of it.

The Toepfler-Holtz machine projected on the screen stands for the result of the latest effort to overcome this difficulty. This high tension generator, as he loved to call it, was the last and crowning achievement of our colleague, who met with us for the last time a year ago in Cincinnati, the late Dr. Richard V. Wagner of Chicago. It is not unlike an ordinary static machine laid on its back. That is, the 50 mica plates of 70 cm. diameter are rotated by a vertical shaft. The 50 glass stationaries are split through the center. A 5-h.p. motor, coupled directly to the shaft, is on top of the strongly built hexagonal cabinet and is capable of 1,800 r.p.m.

The full discharge from a positive point to a negative disc, 4 inches in diameter, measures about 40 cm. in length and is a deafening torrent of bluish white sparks; passed in opposite direction, the sound rises in pitch until a silent flame curls with a sweep backward, then upward from positive disc to negative point.

This flame, unlike any other probably ever seen from a static, is both thick and yellow. Twelve milliampères of this current through a Walter 6 tube enabled me to take a picture of a kidney stone in a large woman in two seconds. A sharply focussed Müller ran 30 seconds under identical conditions without the target being affected in the least. To quote myself: "The extremely short exposures which suffice for work requiring the maximum current and the perfect ease with which a fine delicate tube transforms such a current into rays of uniform penetration, prove, all other things being equal, the vast superiority of a really adequate static current over all others hitherto employed."

The value of the rays in the diagnosis of thoracic diseases constituting the more material aspect of my subject was assigned a separate number on the scientific program of this congress and does not therefore call for a detailed discussion here. However, the former points to the latter, and is incomplete without it. The rays reveal the lungs; this revelation should be authentic, genuine, and as complete as possible, but also needs to be interpreted. The fact that some roentgenologists speak of counting the number of individual fresh tubercles present

in a lung, while Rieder thinks that fresh tubercles connot be seen at all, and that their shadows are at least composite or superimposed, may serve to show the necessity of a sound exegesis instead of a systematic dogmatism on the strength of a disputed text.

This requires practical familiarity with the symptoms and signs of physical diagnosis, but especially with anatomico-pathological changes. The data furnished by auscultation and percussion are less direct, as well as less accurate, more inferential and less specific than those obtainable by fluoroscopy and roentgenography. It is to the comparison of the half-tones and shadows of the negative with the actual lesions themselves that we look for an adequate reading of all this hieroglyphic wealth of detail. A good deal is already familiar, strings of minute beadlike structures often no larger than a pinhead following the ramifications of vessels and bronchi; isolated and massed bronchial and pulmonary glands; merely enlarged or caseous, sarcomatous and soft, as well as calcified and hard, areas of consolidation; effusions; thickened pleuræ; and cavities both deep and small.

In this connection I may mention that about a year ago I first noticed in an uncommonly good lung picture a spot which I could not interpret and which I was astonished to find afterward more or less clearly defined in every normal lung negative. It appears as a relatively dark area, about the size of a dollar, not far from the right hilum, and corresponds to the space between the eparterial bronchus and vessels to the upper and the hyparterial structures to the middle lobe of the right lung. It has not been possible to locate it by percussion.

An interesting problem remains for pathology to solve. Roentgenologists have learned long ago to look to the hilum instead of the region supplied by the posterior branch of the eparterial bronchus for the earliest evidence of tuberculous invasion. Negatives revealing apical involvement show hilum alteration as well. On the other hand, when the lungs themselves appear normal, enlarged and even calcified glands are often seen about the hilum. The shadows due to the vessels and bronchi crossing each other, often quite marked in mitral insufficiency, should cause no confusion.

Dissections have proved the well-defined dense spots so frequently seen in so-called normal lung pictures to be calcified glands. These are records of past conflicts and partial or complete victories over disease, and are so common that it is difficult to find adults without them. Thus "normal" applied to the lungs as well as to the position of the stomach seems to be the exception. Naegeli, I believe, demonstrated evidence of tuberculosis in 98 per cent. of postmortems in a total series of 500.

The diagnostician who neglects the Roentgen rays in his examinations of the lungs has no conception of the rich field he is neglecting. But a rapid change in this respect is working its way. Last April an entire Congress was devoted to this single subject in Berlin. Prof. Wenkebach, of the University of Groningen, Holland, makes stereoscopic pictures of every chest examined and his students are trained to consider no examination of the lungs complete without this.

The time is coming, and we should hasten it, when this will be done in our country as well. To this end chairs of roentgenology, not footstools, must be established in Johns Hopkins, Cornell, Harvard, The University of Michigan, and other great universities, and efficient Roentgen ray laboratories in connection with all hospitals and sanatoriums for the study and treatment of diseases of the lungs.

THE RELATION BETWEEN ANEURYSM OF THE AORTA AND TABES DORSALIS; WITH THE REPORT OF A CASE.*

By PAUL H. BIKLÉ, M.D.,

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Lesser[1] has recently called attention to the fact that in approximately twenty per cent. of the cases of tabes dorsalis which he has observed, he has found aneurysm of the aorta. This not infrequent occurrence of the two conditions has suggested the question whether, in lieu of the unquestionably frequent dependence of each on syphilis as a causative agent, there may not be in tabes itself a peculiar toxine or condition which exerts an influence on the arterial walls, affecting them in some way which renders them less able than normally to withstand intra-arterial pressure; or whether the intraarterial pressure which, according to Heitz and Norero[2], is determined by gastric crises, and particularly by the lightning pains, may be a factor in the production of aneurysms. In other words, is the occurrence of the two affections in the same patient merely a coincidence, or shall we find in such cases tabes itself, or a toxin peculiar to the two conditions to be the underlying cause of the aneurysm? Lesser suggests the possibility of such a dependence.

Arterial disease is manifested chiefly either in a generalized fibrosis of the vessel walls or in a localized circumscribed nodular form, characterized by the development of scattered patches of atheroma and calcification of the arterial coats. In both instances the elasticity of the vessel wall suffers, but in the nodular form there is less expansibility than in the other, where there is simply a fibrosis. It naturally follows that the less expansile the vessel, the more prone it is to rupture when intraarterial pressure is increased, while under the same conditions, if the pressure is great enough to cause any damage, the more expansile form will more probably permanently dilate than rupture. This fibrous form is, according to Flatau, Jacobsohn, Minor,[3] and others, the variety of arteriosclerosis caused by syphilis, while the nodular sort, associated with calcareous deposit, is due to old age, chronic alcoholism, and plumbism, prolonged physical exertion, exposure, and other similar conditions.

There can be no doubt that syphilis is one of the most frequent causes of aneurysms of the aorta, but wide differences exist in the opinions of writers concerning the degree of the frequency of its relation to this form of vascular disease. The extremes are represented on the one hand, by M. Schmidt, who finds syphilis present in 29 per cent. of cases, and on the other, by Drummond, who believes that lues is responsible for aortic aneurysms in every instance. Debove[4] also shares the latter view, while Gerhardt, more conservatively, regards 53 per cent. as nearer the truth.[5] Julius Citron,[6] in a recent consideration of the relationship of syphilis to aortic insufficiency, calls attention incidentally to the frequency of lues as a cause of arteriosclerosis.

*From the Laboratory of Neuropathology, University of Pennsylvania. Read before the Philadelphia Neurological Society, February 27, 1909

and this same idea permeates all the literature on the subject.

The Wassermann test has been employed by Albert Schütze[7] in cases of aortic aneurysm, only to prove again the existence of a previous luetic infection in almost every case. Confidence in this test is growing rapidly, and it is another instance of a clinical method of precision confirming an opinion which had previously existed for years.

The presence of aneurysm may, at times, establish a syphilitic infection as a certainty. Nonne[8] has recently expressed the belief that reflex pupillary rigidity and failure of pupillary reaction to light and convergence as the only signs of disease are not conclusive of syphilis, since they may be produced by uncomplicated chronic alcoholism. Isolated organic pupillary anomalies with some disease of the aorta, such as aneurysm, however, have in his experience shown themselves only in cases with a syphilitic history, and he shares Strümpell's view that this symptom-complex must be regarded as indicative of syphilis. In the same paper he takes occasion to emphasize the suggestion that the variation in the intensity of the symptoms of diseases of the nervous system caused by syphilis is decidedly less than is usually thought .

Syphilis is likewise, without question, the chief etiological factor of almost all the cases of tabes. Fournier, in 1875, first called attention to the parasyphilitic nature of the disease. He has reported 87 to 93 per cent. of cases as due to syphilitic infection, while Déjerine found 92 to 94 per cent., and Church, out of a series of one hundred cases, found only two which failed to disclose a history of syphilis[9]. W. Erb[10] thinks it probable, though not absolutely proven, that all cases of locomotor ataxia are due to syphilis. Schütze[7] has employed the Wassermann test in cases of tabes also, and has demonstrated the almost constant luetic history in cases of the disease.

In the instances where tabes and abdominal aneurysm are found associated, it is natural to question whether the pains that are experienced may not be partially due to the pressure of the aneurysm on certain nerves. Such a dilation of the aorta, if of sufficient size, may cause pains which are lancinating in character and very similar to those of tabes, particularly if such dilation is located low enough to press upon the lumbar nerves. When high in the abdomen, it impinges upon the solar plexus and splanchnic nerves, causing a more fixed and constant pain in the back. Thus, in a given case, where tabes is known to be present, it is obvious that this symptom of an aortic aneurysm in the abdomen may readily be attributed to the tabetic condition. It is possible, indeed, that such was true in the patient described below. The masking of tabetic pains by the pains of an aortic aneurysm known to exist in the abdomen, could, it seems, just as easily occur.

When we remember, then, that syphilis is an important cause of both aortic aneurysm and tabes dorsalis, and when it is observed that they frequently occur together, the question suggested by Lesser not inaptly arises whether there may be in tabes dorsalis an etiological factor in the production of aneurysms of the aorta. We are inclined to believe that this association which, as has been shown, not infrequently exists, is merely accidental, and that each, in such cases, is a parasyphilitic condition independent of the other. Gowers[11] considers that valvular heart disease complicating tabes is merely a coincidence of causes—both being of syphilitic origin—and the importance of this view in supporting the contention that the same relation exists between aneurysms and tabes is apparent. The researches of Heitz and Norero[5], briefly referred to above, in which they made a study of eight cases of tabes with more or less ataxia, in order to determine the modifications in the arterial pressure under the influence of gastric crises and lightning pains, do not militate against this view. It is true that during the crises there is usually a vasoconstricting spasm, except in advanced cases in which the reflex phenomena are less active. The peripheral lightning pains were found to determine hypertension, and the inhalation of amyl nitrite is usually followed by the relief of pain at once—both abdominal and peripheral—and this relief, as a rule, proves permanent even after the blood pressure has returned to its normal level. Röhmer[12] has recently attempted to demonstrate that subcutaneous injections of suprarenal extract have a curative effect on the pains of tabes. This, if true, is obviously contradictory to the results of Heitz and Norero, which showed the palliative effect of a vasodilator on the same condition. Notwithstanding these facts and that the pulse was found to be accelerated during gastric crises, the experiences related seem to show that the cardiovascular system does not suffer from the repetition of the tabetic pains as much as one might suppose, and while the increase in intraarterial pressure and pulse rate associated with them might be regarded as a factor favoring the production of aneurysm, yet these changes are not sufficiently marked to carry with them any appreciable weight in the production of these aortic conditions. Moreover, we cannot lose sight of the cases of aortic aneurysm which occur in patients with a history of syphilis where tabes never developed; nor, on the other hand, of the many instances of tabes of syphilitic origin which, while the usual amount of arteriofibrosis may occur, yet there is not the formation of aneurysm. Whether the toxine is unique or more virulent, or the resistance of the patient less, in the cases where the two conditions are associated, must, to a certain extent, for the present at least, remain a mooted question, but we believe the better view supports the opinion of Debove[4] that the coexistence of the two conditions is only a coincidence and entirely independent of the virulency of the toxine, the resistance of the patient or any other factor.

For the privilege of reporting the following case, I am indebted to Dr. Spiller, the patient having been in his service in the Philadelphia Hospital:

J. P., age 39, admitted January 28, 1908, complaining of nausea, vomiting, incontinence of urine and feces, pains in the lower limbs, and loss of power in the left lower limb. His family history was negative. His occupation was that of a huckster. He was a widower with no children and his wife had had one miscarriage. He had gonorrhea several times and a hard chancre at the age of seventeen. He used alcohol in large quantities and indulged in great sexual excesses. With the exception of the present trouble he was never seriously ill.

The present illness began seven years ago with loss of control of the bladder and rectum, and with shooting pains in the legs. The power of walking gradually became worse so that his gait was very ataxic. The shooting pains became intense. The week previous to his admission he was not able to

move his left lower limb. He had considerable vertigo and also cough and expectoration.

Examination: Pupils irregularly oval, right reacting feebly to light and the left not at all. Both reacted well to accommodation and convergence. No ocular palsies, ptosis or nystagmus. Upper limbs showed marked ataxia. Grasp equal on both sides. Biceps and triceps tendon reflexes absent. Lower limbs markedly edematous, and showed some muscular atrophy. Power to move left decidedly less than right. There was resistance to passive movement on each side. Heel to knee test showed marked incoördination on both sides. Patellar and Achilles tendon reflexes absent on both sides. No plantar reflex or ankle clonus. There was inability to walk or stand. Sensation impaired over entire body—practically absent in lower limbs. Sense of position was greatly lessened. Mentality was good and speech was normal.

Eye examination showed vision to be 4/5 in each eye. Media clear, discs pale only in papillomacular bundle. Vessels normal in size.

He gradually grew weaker, the cardiac condition increased in severity, and he finally died on March 14, 1908.

The autopsy findings were, in addition to chronic tuberculosis of both pulmonary apices, chronic fibrous endocarditis of mitral and aortic valves, tuberculous ulceration of small intestine, chronic parenchymatous nephritis, a large retroperitoneal mass which was found to be a false aneurysm. Beginning at the diaphragm, the aorta widened out into an irregular sac which was connected with the lumen of the aorta by an opening 4 cm. in diameter. The edges of the opening and adjacent tissue were made up of tissue similar to that of the aortic intima. The bodies of the last dorsal and first lumbar vertebræ were much eroded. Over the lower vertebræ lay a firm, yellowish-white membrane. At the margins of that portion of the sac whose walls resembled the intima of the aorta, and whose boundaries were difficult to determine, began a white stratified clot which lined the false aneurysm. Inside of this was a currant-jelly clot. The original sac measured 12 cm. in diameter while the false sac extended on either side from the diaphragm to the iliac region.

Gross examination of the cord showed a diminution in its size with a thickened and slightly opaque pia. The posterior columns were visible as a gray band throughout the whole length of the cord. On section, the contraction of the posterior columns was conspicuous, and a gray translucent appearance was evident. The posterior nerve roots shared in the atrophic process, and were small and gray. Minute examination showed intense degeneration and sclerosis of the posterior columns and roots with marked round-cell infiltration of the pia.

With the exception of a somewhat thickened pia, infiltrated with round cells, there was nothing abnormal found in the brain.

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ECZEMA.*

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RADIOTHERAPIST TO MT. SINAI HOSPITAL (DR. LUSTGARTEN'S CLINIC).

The name eczema often covers a number of dermatological sins. Almost every form of skin disease for which a proper diagnosis has not been found is usually catalogued as such. A friend of mine, who is chief of a dermatological clinic, on his return from his vacation found that almost two-thirds of all the new cases that had presented themselves during his absence were diagnosed as eczema by his assistants. There is no doubt that the disease makes up a large portion of skin diseases, but, of course, the percentage is nothing like this.

The term is used to describe a form of skin disease which begins with an erythema followed by vesiculation, the formation of papules and pustules, accompanied by serous exudation and finally running into desquamation. The different names of erythematous, vesicular, papular, pustular, or squamous eczema are merely used to denote the stage of the disease or the most characteristic predominating symptom. The special forms of eczema are seborrheic eczema when the affection begins in the sebaceous glands, sweat-eczema when it begins in the sweat glands, eczema folliculorum when it begins in the follicles, and nervous eczema when it is the result of reflex irritation.

There is a type known as artificial eczema, which is produced by various forms of external irritants, but this, while it shows all the symptoms of eczema, should really be considered as a form of dermatitis, as it generally yields as soon as the cause of irritation is removed.

The general symptoms of eczema are itching, burning, and pain. The main symptom is the intense itching, which may be so bad as to become almost intolerable, and this symptom can generally be relied upon as one of the main diagnostic symptoms. If a patient gives you a history of an eruption with an intense itching, and you can exclude prurigo, mycosis fungoides, dermatitis herpetiformis, scabies, and the different forms of lichen, you are almost safe in regarding it as a probable eczema—especially if you see the most characteristic objective symptom, namely, the "weeping" of the lesions. I do not mean to infer that these are the only skin eruptions accompanied by itching, but they are the conditions most frequently mistaken for eczema. Sometimes the complications produced by scratching and the infections produced by various pus cocci make the diagnosis a little difficult, but as a rule it does not present much difficulty.

As to the etiology of eczema, we know nothing definite as yet. There is no question that predisposition is a very important factor. The condition is practically that of a catarrh of the skin, and just the same as a lot of individuals are predisposed to the development of catarrh of the mucous membrane, a large number are predisposed to the development of catarrh of the skin. This predis-

*Read at a meeting of the Richmond County Medical Society, December, 1908.

position and the various forms of irritation I mentioned seem to make up the strongest etiological factors. Just how important a rôle microorganisms play in its development is difficult to determine. Some authorities claim that practically every case of eczema is due to microorganisms, others claim that microorganisms simply make up a secondary factor. Several very careful observers have shown that the contents of the vesicles for a few days after their development are absolutely sterile. There is a form of eczema which is unquestionably parasitic from its beginning; in appearance the pustules are predominating, and they appear most often on the hands and feet, occasionally on the face. To differentiate this form we have termed it parasitic eczema.

The general parasitic theory of eczema is gradually gaining a stronger foothold among dermatologists, and I think it is only a question of time when the specific microorganism will will be proven conclusively.

Treatment.—I am sorry to be compelled to say that a large number of general practitioners seem to know very little about the treatment of eczema. It is an every-day occurrence to us to see patients in our office who have been treated for years by general practitioners with the condition continually growing worse. Four weeks ago I saw a girl of 15 in my office who for the past 2½ years had both her hands completely bandaged for a parasitic eczema which has been continually progressing. She was constantly under treatment by various physicians, who practically regarded the case as hopeless by this time. To-day, after four weeks of treatment her hands are entirely clear, and there are practically no remaining evidences of the disease. She told me that the physicians she went to gave her all sorts of internal remedies, advised her to soak her hands in warm water twice a day, and apply various ointments which they prescribed. It is no wonder that under this treatment her hands got continually worse. I am sure that if this had been kept up for eternity her hands would not have improved. This is not an isolated case, but a history we very often have to listen to.

There is no question that with our advances in dermatology we can cure eczema to-day, even of the worst types. The duration of treatment necessary in a medium severe case is about from four to six weeks. Of course, there might be recurrences, but you must not forget that you are dealing with a catarrh of the skin, with a patient who is predisposed to the development of this catarrh, and who, under the stimulus of the various irritating causes mentioned, may develop the disease again.

This holds good to about the same degree as a recurrence of a catarrhal inflammation of the mucous membrane will hold good. The internal treatment is of some importance in the treatment of eczema. It is important to get your patient in as general a good condition as you possibly can, especially when the disease is due to nervous reflex irritation. You must take care of the patient's nervous system; you must correct any faulty digestion and imperfect elimination. You must take care of the circulation. The theory of arsenic being a specific in eczema has not been proven, and it should be abandoned as a routine treatment; an all around intelligent symptomatic treatment is far better.

As regards diet, I do not know of any special diet which is of much use in treating eczema. In the parasitic form, diet does not influence the disease in any way whatever. In other forms, any rational simple diet will do. Probably cutting out alcoholic stimulants will prove of some benefit. Occasionally you will get a patient who will tell you that eating various substances, such as shell fish, etc., makes his eczema much worse—probably it does through the reflex nervous system—tell him to abstain from it; but these are all individual cases. It may be necessary to make radical changes in the diet of some patients who are subject to various ailments which more or less influence his eczema, such as a gouty diathesis, rheumatism, excess of uric acid, diabetes, etc. In these cases you must treat these conditions in addition to the eczema.

External Treatment.—In the majority of cases this is far more important than the internal treatment. In my opinion the most important thing is to avoid absolutely the external use of water in any shape or form. Never permit water to touch an eczematous lesion. It is the worst form of irritant that you can apply. For cleansing purposes, use cold cream or some neutral oil. If there are a lot of exudations or crusts on the lesions, you can best clear them off by gently rubbing in some fatty or oily substance and wiping off with absorbent cotton. If the lesion is erythematous, or in fact in almost all types of eczema, we had very good results at the Mt. Sinai Hospital in first applying the following solution, known as "Liquor Burrowii":

Plumbi acetatis cryst, ʒii
Alumini crudi pulv. ʒiv
Aquæ dest. ʒviii
Dissolve separately, mix, and filter.

This is best applied by diluting it with 4 parts of water. You order a thick piece of sterilized gauze saturated with this solution applied on the lesion covered with a piece of oil-silk and tied on. Be sure that the oil-silk somewhat overlaps the gauze, otherwise it would dry too rapidly. This should be renewed whenever dry, probably every 3 or 4 hours. You will find that it has a very soothing action on the lesion, that it will generally allay the inflammation, and that after using it for a time the vesicles and pustules will begin to show a clean base. After all the inflammation has disappeared, you follow up with a tar preparation of some form. The one we have found best is the imported oleum rusci with a zinc oxide ointment base. It is perhaps best to begin with a 5 per cent. preparation and increase up to 10 per cent. The best way to apply this is to clean the lesion morning and evening with oil or cold cream, then gently apply ointment, dust over with plain, nonscented talcum powder, and lightly bandage. In cases of dry scaly forms of eczema of the seborrheic type, situated on the scalp or other portions of the body, apply the oleum rusci mixed with olive oil in the proportion of 1 to 3, painting it on twice a day with a skin brush.

In the form of eczema generally found on the palms of the hands and feet (large bleeding cracks, generally known as washerwoman's eczema), we get the best results by painting every day or two with a 5 per cent. solution of silver nitrate, and then applying a 5 to 10 per cent. salicylated plaster. The best is the imported plaster known as: "Emplast. Sapon. Salicyl. (Dieterich)."

Another type of eczema we often find in children, beginning on the back of the scalp, spreading down to the neck, involving the ears, with isolated patches scattered over the face, really belongs more to the impetigenous conditions than to eczema. These

can generally be traced back to pediculi. We must treat this condition before we can expect to accomplish anything with the eczema.

Another drug which I have found very beneficial in a great many cases of eczema is methylene blue. This can be painted on the lesion in a 3 per cent. aqueous solution, or applied in the form of a 3 per cent. ointment with zinc oxide ointment base. Small isolated patches which are not much inflamed can be painted with the methylene blue solution and then painted over with flexible collodion—this makes a very good dressing.

The most important adjunct we have in the treatment of eczema is the *x*-ray. It is often marvellous to see the way old chronic eczematous conditions will yield to the *x*-ray. I have repeatedly seen cases that resisted every other form of treatment cured by these applications. There is a certain amount of fear in the lay mind connected with the *x*-ray. There is no question that a great deal of harm can be done with the ray, but no more than can be done with the improper administration of morphine or any other poison. Carefully administered, there is rarely any reason why it should have any bad consequences. Within the last five years, I have given probably 20,000 *x*-ray exposures without a single serious mishap. It is not surprising that a large number of patients have a certain amount of fear of the *x*-ray. Not only the lay press, but even the medical journals are continually filled with warnings of the dreadful consequences following the uses of the *x*-ray, mostly published by men whose knowledge of *x*-ray therapeutics at best is very limited. There is no denying that there is a certain element of danger, and in inexperienced hands this danger is considerable, but on the whole, in experienced hands the therapeutic application of the *x*-ray is comparatively safe.

In a paper read by me before the last International Dermatological Congress, among other things I reported 225 cases of eczema treated with the *x*-ray at the Mount Sinai Hospital (Dr. Lustgarten's Clinic) with generally good results. This report has been attacked by Gottheil* on the grounds that he gets as good results with medication alone, and he sees no excuse for submitting patients to the great danger of *x*-ray exposures for dermatoses of this type. It is gratifying to know that there is at least one man who has succeeded in curing all his cases of eczema without the aid of an adjunct such as the *x*-ray.

I must candidly admit that our results in treating eczema have been much improved since we have resorted to *x*-ray therapy in our stubborn cases. Dr. Gottheil is evidently laboring under the misapprehension that we use the *x*-ray on every case of eczema that comes into the Clinic. Such is not the case. In practically all of the 225 cases I cited medication alone was tried for a while, and only when the disease was found to be very stubborn were they submitted to *x*-ray treatment. A large number of these cases came to us with a history of having been treated in different Clinics for a considerable time without relief. Under these circumstances we felt justified in resorting to this (according to Gottheil) extremely dangerous measure, I am happy to say without any accidents. To expect good results one must be somewhat conversant with the proper technique of its application.

It is important to shield every part of your patient, except the area of the lesion. The tube used should be a medium vacuum tube; if it is too low, you are apt to produce a dermatitis too easily; if it is too high, you will not have a sufficient amount of therapeutic rays. The time of exposure should depend upon the intensity of the ray, the degree of vacuum of the tube, the distance of the patient from the ray, and the amount of surface exposed.

For an ordinary case, take a middle vacuum tube, with a fairly intense ray, the patient about 6 inches from the tube, a not too large area exposed, probably 5 minutes would be an average exposure. This could be given about two or three times a week.

Of course, a great deal will depend upon the patient's idiosyncrasy, the severity of the case, and a large number of other factors. While in the majority of cases the *x*-ray alone would suffice to bring about a cure, I have had the best results from combining this treatment with the various forms of medication previously described.

In giving you the treatment of eczema, I wish to draw your attention to the fact that I have made no effort to review the innumerable suggestions made by different authorities, many of which are probably very good, but I have simply attempted to give you an outline of the treatment which I am carrying out in private and hospital practice with what I regard as very good results.

30 East Thirty-third Street.

Journal of the American Medical Association, Nov. 21, 1908.

TWO CASES OF CANCER TREATED WITH TRYPSIN.

SUPPLEMENTARY REPORT.

By F. B. GOLLEY, M.D.,

MILWAUKEE, WIS.

Some time ago I reported two cases of cancer under treatment with injectio trypsini and noted the effect up to the time of the report. One was a case in which the disease was located in the vagina posterior to the uterus, extending up into the pelvis, in a woman of middle life. The other was in an older woman in whom a large fungous mass filled the caliber of the bowel and distended it to such an extent that the pelvis was nearly blocked with the growth, and several other surgeons did not consider its attempted removal judicious.

The first patient can be disposed of in a few words. She is in fairly good health, and considers herself cured, although I suspect at some future time she will have more trouble. At this writing she is free from pain, the surfaces are all healed, and she is about her duties as if perfectly well.

Since the first report of the second case I have obtained possibly a more connected history of the trouble, completing the clinical picture of the disease from its outset to the final scene a month ago. The reader will bear in mind that this patient was a large, powerful woman of remarkable energy and will power. Between six and seven years ago, she had some bowel trouble and pelvic uneasiness. She concluded it was hemorrhoids and consulted a rectal specialist who injected some of the larger veins about the anus. She dismissed the trouble from her mind for months, after which she did not feel just right, and in due time, I believe about a year from the first treatment, she had the process repeated. The same was done again, once or twice, at about the same intervals. Conditions now continued to get more troublesome; the discomfort was increasing, and the usual vigor began to wane.

She again consulted the specialist, late in the year 1905 or early in 1906, and at this time he suggested that the hemorrhoids were not causing all the trouble. She then came to me, but concluded to be examined later; this she did some time early in 1906 and the condition previously outlined was found.

After she had been examined by others and operative measures had been advised against, she returned to me for whatever treatment seemed expedient. She had learned of the injection method and wished it tried. After a six weeks' course of injections she went to the Pacific Coast for several months. Immediately upon taking the treatment her general physical condition improved wonderfully. In fact, she was her old self again, as she expressed it. In the fall she concluded to resume the injections, though she had no examination to verify the results beyond her own feelings, being decidedly averse to anything of the kind. I persuaded her that it would be more in line with good judgment to know what the conditions were, and the probable results of further measures for relief. Upon examination shortly before the holidays a peculiar and desirable condition was found. The caliber of the bowel which had been distended by the growth to a great extent was still large, but in place of a soft fungous mass there were large patches of seemingly healthy membrane, studded over with hard (extremely hard) scirrhous nodules varying in size, but averaging about the diameter of a silver quarter. These nodules were mostly covered with membrane. There was no evidence whatever of the former growth, except the large flattened caliber of the bowel and resultant nodules. This condition of tissue continued from the fall of 1906 to the summer of 1908 when the patient died. Some patches evidently broke down sufficiently to allow of coloring of discharge, but at no time was there any hemorrhage. During all of this time the bowels moved with little aid and not much pain up to the last three months. The suffering was nothing like that usually experienced in such cases.

Treatment by injection of trypsin was continued at intervals up to June, 1907. After that she did not use more. Even up to the last there was marked influence over the general physical condition whenever she would consent to its use.

From close observation of the case there seem to me to be three important items worthy of mention.

1. It never became necessary to establish an artificial anus either for relief of pain from fecal presence, or because of stoppage in the bowel.

2. The character of the disease changed from an active and rapidly progressive type, to a slow and practically stationary one, which not only prolonged life, but shut off the disease from outside irritative influences, making life more bearable and wholesome, by the formation of membrane over the raw surfaces. In short, replacing an active, loathsome disease by one more endurable.

3. It seems to me that trypsin exerts some influence upon the metabolism of the general system, and of course indirectly upon the growth. It is a self-evident truth that if the organism could be maintained indefinitely at a sufficiently high standard, it would not only not be subject to the onslaughts of disease, but would live on for all time. It is upon this element, to a very moderate degree in my opinion, that depends whatever influence the trypsin treatment has over cancerous growths. Somehow it influences the metabolic processes particularly and establishes a resistance to the cell activity of malignancy. Further than this I have been unable to locate a reasonable hypothesis for its peculiar action. I would conclude then that it might be a valuable adjuvant to other recognized procedures in the management of cancerous cases.

150 Grand Avenue.

WHOLESALE BABY WASHER.

By W. P. Northrup, M.D.,

New York,

Attending Physician, Presbyterian Hospital.

Given a cold ward, sixteen to twenty babies to wash every day, danger of infection from promiscuous tubbing, and a wish to save time and promote comfort. The wards of the Presbyterian Hospital are 65° F. by day and 60° F. by night.

Wanted (1) A warm washing, dressing, and changing-room (by us familiarly called) "grooming-room," with atmosphere warm (75 F. and more), furniture, walls, and floor warm; fresh clothing, diapers and towels warm; water warm—in short, everything warm.

(2) Facilities for washing and dressing, *i. e.* "grooming" infants, comfortably to the nurses as well as to the babies, and in the shortest possible time.

(3) Assurance that all this may be accomplished for an indefinite period without burning a single baby. The outfit in this respect must be "fool-proof."

Found: Successful facilities and appliances (see illustration). Beginning above, one sees an eighty-gallon tank; the water heated at will, usually to 103° F. The temperature is read off on the thermometer projecting from the left of the lower quarter. This tank is filled by the same nurse each day, the temperature noted by the head nurse and the hot and cold intake pipes shut off till further orders. This insures a constant temperature (103° F.) in the tank and about 100° F. as it runs from the spray. The water gauge shows on the face of the tank. In this glass tube the amount of water in the reservoir can be easily noted. Mixing the hot and cold water is effected as follows: The hot and cold water pipes are turned on together while the filling and temperature are noted by the nurse deputized for this purpose. The hot and cold water pipes within the tank terminate in four points somewhat like a miniature gas-fixture, the hot water tips pointing downward, the cold water pipes pointing upward. The current of the two streams goes against their gravity tendency and so interdigitate that a thorough intermingling of currents is effected, and there can be no layers of hot and cold water. The contained water is of uniform temperature throughout. Eighty gallons is found to be enough to serve for a morning's work. There are overflow pipes.

Below the tank are seen two flexible rubber pipes terminating in the usual metal bath spray tips. From these, it is designed, that the water shall flow at 100° F. uniformly during the entire morning's work.

On the next lower level is seen a sink winged with two sloping marble slabs. These slabs are warm and upon them are laid individual bath towels and the baby. After each bath the towels are boiled.

To the extreme right is seen the hot closet from which the fresh clothing is taken dry and hot.

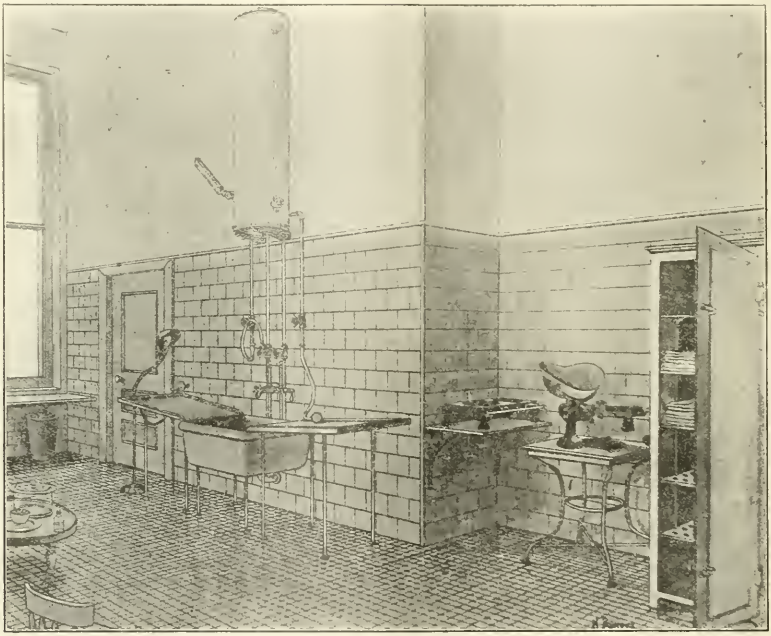
At the extreme left are seen the low nursery tables and chairs found convenient in dressing the children.

It is noted that a very large window lets in a flood of light so that the slightest eruption or change of color or abnormal appearance of the mouth, tongue, or eyes can be easily detected. An electric reflector in addition to the overhead lights serves the same purpose at night. There are two doors, one leading to the corridor and one (that shown in the illustration) to the toilet.

Result: After several months' use, the apparatus and general facilities of the room have proved satisfactory.

(1) The babies are washed in less than half the usual time.

(2) The babies seem to be more comfortable and happier during bathing. They seem thoroughly



"Wholesale Baby Washer," Presbyterian Hospital, New York.

to enjoy the warm room and warm spray; they wriggle and gurgle and crow.

(3) Danger of infection from promiscuous tubbing is avoided.

(4) Mishaps from the use of over hot water are thus far avoided and it would seem that the chances are reduced to the minimum. As a general proposition one is painfully conscious that it is always possible for novitiates, excited individuals, mothers, and doctors, as well as nurses, to have mishaps, with unfortunate results, in the combination of baby and hot water bath.

The present facilities, above described, are the result of much studious attention on the part of the heads of the various hospital departments. The results so far, after a trial of several months' duration, justify us in recommending the apparatus and general facilities of the "wholesale baby-washer."

Sudden Death in Scarlet Fever.—A. Gouget and Dechaux state that sudden death may occur at any time in scarlet fever, and the explanation is not easy. At the very beginning of the disease, even before the eruption has appeared, or there is any angina, in the malignant form of the disease death may occur. In the midst of perfect health vomiting, diarrhœa, delirium, and convulsions may begin, and end in death in a few hours. In these cases diagnosis, except in the presence of an epidemic, is very difficult. In other cases the disease begins as usual, and the only disquieting symptom is a thready pulse, very frequent. Finally sudden death may occur in the midst of convalescence, with sudden vomiting, delirium, frequent pulse and death in convulsions. Sudden death is not uncommon in the nephritic stage of scarlatina. The question is how to explain these cruel surprises. Autopsy gives us no help, since nothing has been found to account for death. The only explanation is that of an extreme degree of intoxication, which overwhelms the nervous system or heart. According to some, there is a lesion of the suprarenals. But examinations of these glands in scarlet fever have given no light as yet. According to others, they occur in those who have been overfed.—*Presse Médicale.*

Diabetic Families of Children.—G. Lion and Ch. Moreau cite their personal observation of a family in which three children were successively attacked by diabetes and all of them succumbed. They have collected thirty examples of such families, which have been published, of which histories are given. This disease seems to have an element of heredity in its causation. The exciting cause is not generally to be found, although emotion or fright seem to have been the beginning of the attack. The course of the disease is progressive and rapid, some cases ending in from a few weeks to eight months, while others last as long as three years. Those not attacked in childhood are very apt to show the disease in adolescence. There is not a typical picture of diabetes at first, and the general health is not at first affected. Thirst is the first sign noticed, and sugar may be the only thing noticed and be accidentally discovered. Treatment may for a time lessen or remove the sugar, but as soon as the diet of milk is stopped the sugar reappears, and cachexia begins sooner or later, and goes on to emaciation, somnolence, and death, in coma. The prognosis for the individual case is bad, and when one member of a family has been attacked the prognosis for the other members is bad.—*Archives de Médecine des Enfants.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE CHURCH AND THE EMMANUEL MOVEMENT.

AT a special masonic service, held last Sunday evening in Calvary Episcopal Church in this city, the anthem, composed by the accomplished choir master, Mr. Arthur Lacey Baker, was in the form of a protest against Christian Science. That its meaning should not be mistaken, it was "respectfully dedicated to Mrs. Mary Baker Eddy," but one thus enlightened, on hearing it, could not fail to interpret it as a warning also to churchmen not to be misled by the teachings and practices of that first cousin to Eddyism, the so-called Emmanuel movement. The theme of the anthem is sustained by the soloist while the chorus confirms and explains the warning. The baritone begins:

O Earth, Earth, hear the word of the Lord.
Be thou instructed, O Jerusalem, lest my soul depart from thee.
Shall a man make gods unto himself and they are no gods?
I hearkened and heard, but they spake not aright.
They are vanity and the work of errors.
Deceive not yourselves Ye looked for peace and no good came, and for a time of health, and behold, trouble.

Then the Chorus affirms:

The way of man is not in himself: it is not in man that walketh to direct his steps.

The soloist continues:

O ye priests! How long will ye sit still?
Who is this that darkeneth counsel by words without knowledge?
How do they say, "we are wise and the law of the Lord is with us?"
Thus saith the Lord of hosts, Lo these have rejected the word of the Most High, and what wisdom is in them?
For they have healed the hurt of my people slightly, saying, "Peace, peace," when there is no peace.

* * * * * * * * *

In thy sickness give place to the physician, for the Lord hath created him and given him skill, that he might be honored in His marvellous works. Let him not go from thee, for thou hast need of him.

Of the Most High cometh healing. He hath created medicines out of the earth, and he that is wise will not abhor them.

The Chorus then explains that "love and might no longer heal by touch, or word, or look," and that they who do God's work must read His laws in nature's book; and the soloist makes a final appeal:

How long halt ye between two opinions?

And the Chorus affirms:

As for me and my house, we will serve the Lord.

Serving the Lord in time of sickness, according to this ecclesiastical poem, is to turn for help to the physicians whom the Lord hath created and to be healed by the medicines which "He hath created out of the earth" and which the wise man will not abhor. It is encouraging to see that the Church will not let this new heresy grow and flourish without opposition, and indeed this is not the first protest which has been heard within an Episcopal church against the dangerous meddling with disease by clergyman of that and other denominations. The Rev. Mr. Werner of Grace Episcopal Church, Norwalk, Conn., preached a powerful sermon against the Emmanuel movement on St. Luke's Day, 1908, and other clergymen have also warned their flocks against it.

Now that the novelty of the movement has begun to wear off and the arguments in its support are being critically considered, its utter illogicality is becoming more apparent. The attitude of the Catholic Church toward divine healing is logical and, assuming its premises, perfectly sound and reasonable. It regards healing by faith and prayer as frankly miraculous, and believing that God will at times, in response to the prayer of the faithful, suspend the action of natural laws, it sees no reason why cancer and tuberculosis may not be cured by faith, as well as neurasthenia or a bad temper. But the Protestant churches hold that the age of miracles is past, and when they resort to extramedical healing they must restrict its action to functional diseases, to maladies without physical basis. But they do not define functional diseases in an intelligible way, and in their attempts to delimit this class of diseases they flounder about in the theory of the subliminal self, without rime or reason. As a witty physician said at a medical dinner last winter, they simply take an autosuggestive pill and get an Emmanuel movement.

It is a healthful and hopeful sign that many earnest churchmen are beginning to look askance on this sensational and harmful meddling of clergymen with pathology. They see that true religion and Eddyism, real or bastard, are incompatible and that the attempt to amalgamate them will only corrupt religion. It will be a sad day when men take to religion, as they might to politics, for "what there is in it" in the way of health or pocket.

THE SCIENTIFIC ASPECTS OF THE CONSUMPTION OF ALCOHOL.

THE last word in regard to the alcohol question has by no means been said. It is true, that in the main, the results of experiments made in this country, in Germany, and in England, in order to determine the effect of small doses of alcohol have been against its use, but these experiments, perhaps, have not been sufficiently conclusive to warrant the statement that alcohol under all circumstances is harmful. Of course it cannot be denied that the general trend of medical opinion is adverse to the employment of alcohol, and this change of front is plainly shown by the fact that hospitals now use far less alcohol than was formerly the case. Many authorities hold that total abstinence from beverages of a stimulating character is the most healthful procedure for everyone,

and especially so for brain workers. The late Professor Huxley declared: "If a man cannot do brain work without a stimulant of any kind he had better turn to hand work. It is an indication on Nature's part that she did not mean him to be a head worker."

Sir Victor Horsley, the well known British authority on brain surgery is violently opposed to stimulants, and has frequently voiced his views that under any conditions alcohol is a veritable poison, and there are many more men of the highest scientific rank in all civilized countries who are of the same opinion. It is stated that the power of memory is weakened by even a small quantity of alcohol. For instance, the experiment has been tried of reading over to individuals a number of names or figures until they remembered them, and it was found that the individuals who did not take alcohol remembered one hundred figures or names in their right order after having them called over forty times, but that on the days when alcohol was given them they could repeat only sixty words aright after they had heard them read sixty times. Experiments have likewise been carried out in connection with rifle shooting, and a number of men were found to make 30 per cent. more bull's-eyes at a rising target when they had not taken any alcohol as compared with what they made when allowed alcohol. It is argued by hard and fast abstainers, that both the nervous system and the circulation are injuriously affected by taking alcohol in quite small quantities, and that indeed all the powers and functions of the human body are injured by its moderate use.

Before accepting all the statements made by those who are opposed to the use of alcohol and who deny that it possesses medicinal value, it may be as well to review a few of the facts marshalled on the other side. All are agreed that alcohol to excess is harmful, and that the drink habit has had much to do with the obvious degeneration that has taken and is taking place in overcrowded civilized countries, but this does not prove that alcohol is injurious under all and any circumstances. An excessive meat diet undoubtedly has a more injurious effect on the blood-vessels than too much alcohol, and it seems likely that alcohol has a value from the psychological point of view. Moreover, a patient recovering from a serious and debilitating illness who has lost appetite for food has, in many instances, appeared, at any rate, to have derived great benefit from the judicious employment of alcohol given in palatable form.

Again, the idiocyncrasy of the individual must be taken into account. There are certain drugs which affect some persons in one way and other persons in an altogether different way, or scarcely affect them at all. There are men and women to whom alcohol is a deadly poison and there are human beings on whom stimulants seem to have a beneficial effect. But, probably, it is still more a question of immunity. A race, for example, like the British race, living in a somewhat cold, damp climate, and which has for generations been addicted to the use of alcohol, acquires a considerable degree of immunity, and really it looks as if, on the whole, the race has not suffered to the extent which, if alcohol is so deadly as its opponents assert it to be, it should have suffered.

In the case of brain workers, alcohol is contraindicated. An individual who leads a sedentary life and who makes large calls on his mental faculties does not require the spur which may, at first, be found in stimulating beverages. It should always be borne in mind that alcohol is a narcotic and that although its primary effect is of a stimulating nature, it really dulls and in large doses deadens the central nervous system. To some of those who lead a vigorous out-of-door life, and who do not rely wholly on their brains for their livelihood, alcohol in moderation apparently does little or no harm. As a medicine, although its value is not so widely recognized as of yore, it yet cannot be said that it is worthless. The same remark may be applied to the value or otherwise of alcohol as a food, for if it is valuable as a food it must be valuable as a medicine.

The opponents of alcohol, even those who argue against it on scientific grounds, and whose scientific attainments render their arguments weighty, seem to an unbiased observer to be apt to go somewhat too far. Experiments and experience certainly have shown that alcohol is not the valuable drug that it was formerly considered to be, but neither have they shown that it is a deadly poison to be absolutely avoided. Experience has demonstrated clearly that the unguarded and indiscriminate use of alcohol is a terrible evil which should be combated in every way possible. If the harm that alcohol has wrought were to be reckoned against its value, little doubt can be felt as to what the verdict would be, and it might be for the good of mankind at large if it were totally abolished. Regarding the matter, however, from the cool and dispassionate scientific standpoint, the case against alcohol as a food or a drug, while it is strong has not as yet been proved absolutely. In the course of a few years, or less, the final decision may be reached, but until that time arrives it will be unwise to be too confident in one direction or another.

SHELLFISH AND TYPHOID FEVER.

Although the earliest outbreak of typhoid fever attributed to the eating of oysters was reported in 1816, and especially since 1880 many other cases have been placed on record, but little is as yet known positively upon which a determination of the sanitary conditions of shellfish can be based. Nor has there yet been established a definite relation between any estimated pollution of water or of shellfish and the disease-producing liability of such polluted water or shellfish. The evidence connecting the eating of polluted oysters with outbreaks of typhoid fever cannot, however, be questioned. In the United States the most notable examples of such epidemics were those at Middletown, Conn., and at Atlantic City. The Monthly Bulletin of the New York State Department of Health in reviewing the subject refers to the conclusions of

the British Sewage Disposal Commission. This commission concluded that a considerable number of cases of enteric fever are caused by the consumption of shellfish which have been exposed to sewage contamination, though an accurate determination of the number of such cases was naturally not possible.

That pollution of tidal waters with undisinfected discharges from typhoid fever patients does occur, in spite of the efforts of physicians and health officers, is undisputed, and it must be remembered that the discharges from convalescents are in some cases as dangerous as those from patients in the active stages of the disease. The probability is that the greatest danger lies in the improper disposal of the excreta of one or two specific cases rather than in the presence of a large amount of sewage, though estimation of the disease-producing power of any infected water, or shellfish from such water, is not possible by present laboratory methods. The most careful studies and investigation of actual conditions are necessary before any positive condemnation or trustworthy certification of oyster beds can be made.

Such an investigation is now being carried on by the State Board, and data are being secured as to the pollution of the streams, tidal waters, etc., in the waters adjoining Long Island and Staten Island, which comprise the oyster cultivation districts in this State. The location and extent of all beds have been mapped out; visits to the beds have been made; and 128 samples of water and 204 samples of oysters have been examined bacteriologically. The results of the studies in the field and in the laboratory are in accord; but the work is still preliminary and the Department is not yet prepared to pass judgment. That unrestricted pollution of the waters of the State should cease, is, however, evident; and the policy of the Department of Health in preventing, in so far as it has the power, the discharge of raw or ineffectively treated sewage into these waters, will be continued and extended.

Pyelocystitis in Infancy.

Digestive disturbances of infants have been so exclusively studied lately that frequently they are taken as the primary disease in cases in which they simply accompany some other underlying condition. One such condition is the inflammation in infants of the urinary tract, from the bladder to the kidneys, to which Göppert devotes a very instructive paper in the *Berliner klinische Wochenschrift* for April 5, 1909. As is usually the case in young children, the disease may begin with symptoms simulating an affection of almost any system of organs; acute gastroenteritis, acute pulmonary inflammation of whatever nature, or a meningitis may at first be suspected. The true nature of the disease is disclosed by an analysis of the urine, a procedure which is altogether too often neglected in the routine examination of a sick child. The urine in such cases is usually foul smelling, contains albumin and a variety of bacilli, the predominating organism, however, being *Bacillus coli*, to which the disease is probably due. The temperature curve and the course of the disease usually answer the picture of sepsis, the severity of the symptoms differing, of course, with the extent of the lesion, and the natural powers of resistance of the individual child. Early diagnosis is the most important part in treating the disease, for when the attention is distracted by the accompanying digestive disturbances, the infection progresses until the kidneys and then the whole organism are involved. Once the disease is recognized, its treatment is simple, consisting in forcing of fluids, so as to wash out the infected parts and in the administration of alkalies and of urinary antiseptics in order to inhibit the growth of the colon bacillus. If treated early the mortality is not very great when the usual dangers of all diseases of infancy are remembered. Late cases, however, always do badly, the organism being rapidly overwhelmed by the infection. Now that attention has been called to the comparative frequency of the affection, its early recognition and consequently its proper treatment will probably follow more often than heretofore.

A Substitute for Bismuth in X-Ray Work.

Bismuth was formerly looked upon as a very harmless remedy that may be given in large doses without untoward results, although its possible toxic action has always been known. Especially large quantities of this substance have been administered lately since the discovery that after such administration complete shadows of the gastrointestinal canal may be obtained in *x*-ray pictures, which fact has, of course, been utilized in the diagnosis of disease. However, a number of cases of poisoning have been reported since the introduction of this practice, and in the *Münchener medizinische Wochenschrift* for March 30, 1909, no less an authority on drugs than L. Lewin recounts a number of untoward conditions which may result from large doses of this remedy. Among them he names dark discoloration of the tissues in the mouth and in the deeper parts of the gastrointestinal canal, such discoloration remaining for weeks in the gums, for instance. Inflammation of the buccal mucosa may occur, followed by salivation, loosening of the teeth, swelling of the tonsils, etc. Functional disturbances of the stomach and intestines are quite frequent, while more important still are the changes produced in the kidneys, resulting in albuminuria, or even desquamative or parenchymatous nephritis. As other salts of bismuth are in Lewin's opinion just as toxic as the subnitrate, he has experimented with different preparations that could prove acceptable as far as *x*-ray photography is concerned and yet result in no dangerous effects upon the organism. Ferric oxide was found to fulfil these conditions perfectly and is therefore recommended by the author. It may be administered as a mixture with potatoes or with chocolate. Experiments with animals proved that the drug was quite free from any untoward action, while *x*-ray pictures of the human gastrointestinal canal, taken after administration of large amounts of this preparation, were much clearer and more useful for diagnosis than those taken after salts of bismuth had been given. Lewin promises to publish a series of cases in which his preparation was used, and the *x*-ray examination of internal hollow organs has become so frequent recently that his publication will be awaited with interest by both practising physicians and röntgenologists.

News of the Week.

Army Medical Corps Examinations.—The Surgeon General of the Army announces that preliminary examinations for appointment of first lieutenants in the Medical Corps of the Army will be held on July 12, 1909, at points to be hereafter designated. Full information concerning the examination can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have at least one year's hospital training or its equivalent in practice. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible. The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the cases of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School. The recent Act of Congress giving an increase in the Medical Corps, together with a larger regular army, will permit of a great variety of medical and surgical work, besides affording opportunities for those specially qualified to engage in special work, such as surgery, sanitation, chemistry, pathology, microscopy, and bacteriology. All appointments are made with the rank of first lieutenant ($2,000 per annum). At the end of three years the officer is promoted to captain at $2,400, which, at the end of five years' service, is increased to $2,640, etc. In addition to this, officers are furnished with quarters, medical attendance, and medicines for themselves and their families, the privileges of the commissary, mileage at the rate of seven (7) cents per mile when traveling under orders, and allowed one month's leave per year with full pay, which may be allowed to accumulate to a maximum of four months; also the privilege of retirement. These allowances are estimated to add from $1,200 to $1,600 to the yearly compensation in the grades of First Lieutenant and Captain. In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of the Adjutant General of the Army on or before June 10, 1909. Early attention is therefore enjoined upon all intending applicants, and free correspondence with the Surgeon General's Office is invited on any subject connected with the examination. There are at present 103 vacancies in the Medical Corps of the Army.

The American Confederation of Reciprocating, Examining, and Licensing Medical Boards.—The annual meeting of this Confederation will be held at Louisville, Ky., on May 12, 1909, at 10 A.M. Several important subjects will be taken up at this meeting, including medical curriculum and reports from committees on constitution and minimum standard of preliminary education for entrance to recognized medical colleges. State Medical Boards in membership should be represented at this meeting by their executive officers or accredited members. Medical Boards which have adopted methods of interstate endorsement of medical licenses, but are not in active membership, are invited to send representatives, as well as those Boards the members of which believe in the principle of reciprocity and intend taking the matter up practically in the future. There are at present some thirty-five States which have adopted practical methods of interstate medical reciprocity, and the advisory standards and methods in force by the Confederation are being generally adopted by such States. It is, therefore, most important that every Board should be represented at this meeting, and accredited representatives are urged to be present. Membership in the Confedration is confined to State Medical Boards, but educators interested in the work of the Confederation are invited to be present, and will receive the courtesy of the floor.

Bellevue Training School.—Following the graduating exercises of the training schools for nurses of Bellevue and Allied Hospitals, New York, on April 28, at which diplomas were awarded to twenty-seven women and nineteen men, the new Residence Hall for Women Nurses, at 440 East Twenty-sixth street, was dedicated by Mayor McClellan. The new home has been built by the city at a cost, including the land, of nearly one million dollars. It contains on the ground floor large lecture rooms, reception room, dining-room, and kitchens. The five floors above are given over to dormitories, in which there are 300 bedrooms. The central portion of the roof is occupied by a roof garden and pergola. Work on the building was begun in 1906, and has been part of the general scheme for the enlargement of Bellevue Hospital. The old nurses' residence is to be made over, enlarged, and turned into a graduate nurses' club house. It is hoped that the building of a similar residence hall for the men nurses may soon be made possible. At the graduating exercises addresses were made by Dr. John Brannan, President of the Board of Trustees of the Hospital, and by Dr. John H. Finley, President of the City College, and the diplomas were presented to the women nurses by Mrs. W. C. Osborne, and to the men nurses by Dr. W. K. Draper.

Hospital Saturday and Sunday Association.—The Distributing Committee of the Hospital Saturday and Sunday Association met at the City Hall, New York, on April 30, and apportioned the funds collected during 1908. The apportionment is made according to the free work done by each hospital, with the proviso that no institution shall receive less than $250 or more than 10 per cent. of the entire fund. The fund for the year amounted to $72,000, and the Montefiore Home and Mt. Sinai Hospital had the largest awards, each receiving $7,200.

Gifts to Charities.—St. Joseph's Hospital of Syracuse and St. Joseph's Hospital for Consumptives of New York receive an income of $200 a year each, for ten years, by the will of the late Peter F. Collier.

By the will of the late Henry Harmer of Philadelphia a contingent bequest of $3,500 is made to the Home for Consumptives at Chestnut Hill.

By the will of the late George C. Thomas of Philadelphia bequests are made to Hahnemann Medical College and Hospital and the Episcopal Hospital of $10,000 each.

By the will of the late Fannie R. Shoemaker of Philadelphia her residuary estate, amounting to about $25,000, is devised for equal division among the Episcopal Hospital, the P. E. City Mission, the Philadelphia Home for Incurables, the P. E. City Mission for the Home for Consumptives, and the Sheltering Arms.

By the will of the late Edward N. Benson of Philadelphia the sum of $50,000 is bequeathed to the Pennsylvania Hospital, $10,000 to the Children's Bethesda Christian Home, and $10,000 to the Chestnut Hill Hospital.

By the will of Miss Elizabeth Brigham, sister of the late Robert Brigham of Boston, $1,500,000 is given to the Robert B. Brigham Hospital for Incurables, for the founding and maintenance of which the brother left the bulk of his large fortune.

Public Health in Illinois.—At the public health conference, held at the University of Illinois, Urbana, April 23, the following resolutions were adopted: (1) That an annual conference of health officers should be held in the State of Illinois, to provide for the instruction of health officers in recent advances of science and of practical experience related to the public health, for the free discussion of public health problems in the State, and for the expression of opinion by the assembled health officers on methods of promoting the public health and related subjects. (2) That the State University be asked to provide opportunity for more systematic investigation and more comprehensive instruction in hygiene, sanitary science, and the science related thereto. (3) That a committee of three be appointed by the Chair to present to the University and to the State Board of Health a plan for carrying out the suggestions made in the above resolutions, and to render assistance in securing the necessary legislation.

Death Rate from Tuberculosis.—Twenty-six cities in New York State showed a smaller death rate from tuberculosis in 1908 than in 1907, New York, Troy, and Schenectady among them. Troy, however, still has the highest rate of deaths from this cause, with Albany second, and New York third. Increases were noted in Buffalo, Rochester, and Yonkers, but these are probably due to more accurate records. An increase was also noted in many of the rural districts.

Epidemic of Measles.—An outbreak of measles has occurred on the receiving ship *Wabash* at the Charleston Navy Yard. A number of patients have been sent to the Chelsea Naval Hospital, and the ship has been quarantined.

Amendments to Sanitary Code.—Two amendments to the Sanitary Code of the Board of Health, New York, were put into effect on May 1. One provides that cream, sweet or sour, sold in the city, must contain at least 15 per cent. of butter fat. The sale of sour cream is permitted as in some of the foreign quarters it is considered a great delicacy. The other amendment concerns the covering of garbage receptacles.

Summer Medical School.—The medical department of St. Louis University will conduct a summer medical school, beginning on May 24 and continuing until July 24. The course will be for graduates and practitioners, and to it women will be admitted on the same terms as men. The University has also announced that beginning with the term 1909-10, the course in medicine will be increased to five years, and high school diplomas or their equivalent will be necessary for admission.

New York Diet Kitchen.—The work of this institution has been extended to include the provision of certified milk for tenement babies at the price of six cents a quart. The milk will be furnished only on a requisition from a physician or some one of the charitable organizations cooperating with the Diet Kitchen. In previous years the work of the Diet Kitchen has been confined to those unable to pay for food for their sick, though it has recently been broadened to include instruction in the preparation of babies' food by the visiting matrons.

Cost of Antivivisection Campaign.—The New York Antivivisection Society has certified to the Secretary of State that it expended $941.75 on the proposed legislation during the present session of the Legislature. The society opposed the Davis-Lee bill and favored the passage of the Brough-Murray bill, neither of which was acted upon by the Legislature.

Centenarians.—Mrs. Esther H. Patterson died at Philadelphia, on April 9, at the age of 102 years. From Tennessee comes the news of the death of Jesse Jones, colored, who claimed to be 115 years of age, and to have fought in all of the important wars of the United States since 1812. Mrs. Fannie Friedman, who died recently in New York, was said to have passed her 112th birthday. She was born in Hungary, was married before she was twenty-one, and had thirteen children. At the time of her death she had eighty-two living descendants. Her rule for good health and a long life is said to have been: "Don't worry; take things easy; sleep ten hours a day, and eat five meals." Viewed in the light of her experience, the rule is certainly as well worth following as those of some younger philosophers, whose eating and sleeping allowance is less liberal. Simon Bildstein, who celebrated his 100th birthday in St. Louis on Sunday of this week, attributes his long lease of life to the fact that he is a philosopher and never worries. The newspaper report of his birthday celebration says that he smokes, chews, and drinks without stint. His regular consumption of whiskey, according to this statement, is one gallon a week.

Harvard Medical School in China.—The Harvard Mission, a body connected with the Young Men's Christian Association and the Harvard Medical School, has in contemplation a plan for establishing a medical school in the Orient, probably in China. For several years such an institution has been in prospect, and the preparations have now reached the appointment of a board of trustees and enlistment of volunteers. The institution will have no affiliation with any missionary or religious organization. Dr. M. R. Edwards will probably go to China this summer to look for an available site.

The Mary Gates Hospital.—The hospital which Mr. John W. Gates is to erect at Port Arthur, Tex., in memory of his mother, is to receive an endowment fund of $500,000. To this will be added each year two per cent. of Mr. Gates' profits from oil, which it is estimated will amount to between $2,000 and $5,000.

Report of Mercy Hospital.—According to the annual report of the Mercy Hospital, Chicago, for the fiscal year ending April 1, 1909, the number of patients received there during the year totalled 3,435. Three thousand one hundred and thirty-two

patients were discharged as cured, 162 died, leaving 141 patients still in the hospital. Of the cases treated, 563 were medical, 2,392 surgical, 219 gynecological, 106 obstetrical, and 155 ophthalmological and otological.

A New Dispensary.—Adjacent to the Mercy Hospital by the Northwestern University Medical School an addition known as the Calumet Avenue Branch of the South Side Dispensary has been erected, at a cost of $30,000. In this building are a large faculty room, two recitation rooms, thirteen small examining rooms, drug rooms, a photographic room, an *x*-ray room, all these being on the first floor. The entire rear of the floor is occupied by laboratories. On the second floor there is an assembly hall for clinical demonstrations, with a seating capacity of 300.

Fire at Sheldrake Springs.—On the night of April 20, the power plant at Sheldrake Springs, on Lake Cayuga, was destroyed by fire, causing a loss of $10,000. Fortunately no damage was done to the main building, and arrangements were made within two or three days for supplying water, heat, and light, so that no serious inconvenience in caring for patients resulted. A new and fireproof power plant is now under construction.

Vacancy at Bellevue.—A vacancy exists at present in the position of Attending Surgeon to the Fourth Division of Bellevue Hospital. The trustees have adopted a rule in accordance with which no one herafter occupying the position of attending physican or surgeon on the Fourth Division shall be at liberty to affiliate himself with any of the three colleges (Columbia, Cornell, New York University) now having teaching connections at Bellevue Hospital. Applications for the position should be made without delay to Dr. Cyrus J. Strong, Secretary of the Medical Board, 60 West Seventy-fifth street, New York.

The Fordham Hospital.—Several vacancies exist on the staff of Fordham Hospital, Out-Patient-Department. Applicants can obtain proper application blanks from the secretary, Dr. Alexander Nicoll, 123 West Seventy-fourth street, New York City.

The Brooklyn Memorial Hospital.—Founded twenty-eight years ago for the treatment of women and children, this institution was closed on April 30, pending the erection of a new building. The frame building on Sterling place which has been occupied by the hospital will be used for a dispensary, a single bed being kept for an emergency.

St. Luke's Hospital Alumni.—The annual dinner of the Society of the Alumni of St. Luke's Hospital, New York, was held at the Yale Club on April 30. Addresses were made by Dr. F. C. Wood, who outlined the plans for work in the new chemical laboratory at the hospital, and by Dr. F. S. Meara, whose subject was Medical Education in New York. The society elected the following officers for the ensuing year: *President*, Dr. C. T. Dade; *Vice-President*, Dr. E. H. Rogers; *Secretary*, Dr. Karl M. Vogel; *Treasurer*, Dr. J. B. Squier.

Cautious Montclair.—The Board of Health of Montclair, N. J., has recently adopted a rule requiring that every loaf of bread sold in the town shall be delivered to the consumer in a sealed aseptic paper bag.

Lecture on Cancer.—Dr. William Seaman Bainbridge will deliver the fifth annual lecture on malignant disease, with the presentation of patients, in the out-patient hall of the New York Skin and Cancer Hospital, Second avenue and Nineteenth street, New York, on Wednesday afternoon, May 12, at 4.15 o'clock. The lecture is free to the medical profession.

Dr. Theobald Smith of Harvard University addressed the members of the Cumberland County (Maine) Medical Association, at Portland, on April 17, on "The Relation Between Human and Bovine Tubercle Bacilli, with Especial Reference to the Milk Supply."

Dr. Frederick Randolph Bailey has tendered to the trustees of Columbia University his resignation as Adjunct Professor of Histology and Embryology in the College of Physicians and Surgeons, New York, to take effect at the end of the present academic year.

Removals.—Dr. T. Wood Clarke has removed to 96 Park avenue; Dr. Frederic J. Leviseur to 680 Madison avenue; and Dr. Alfred E. M. Purdy to 449 Park avenue.

Alumni Association of the New York Lying-In Hospital.—The first annual dinner of this Association will be held on Tuesday, May 11, at 8 P.M. at the Harvard Club, 27 West Forty-fourth street.

Oklahoma Medical Board.—The Oklahoma State Board of Medical Examiners recently adopted a resolution to the effect that no more licenses to practise be issued to physicians suffering from tuberculosis. It was stated that the influx of consumptive physicians from the East was already sufficiently large to cause concern, and it was felt that such action would be for the best interests of the State and the patient.

The South Carolina Medical Association, which was in session at Charleston from April 19 to 22, elected the following officers for the ensuing year: *President*, Dr. John L. Dawson, Charleston; *Vice-Presidents*, Dr. F. H. McLeod, Florence; Dr. C. M. Rees, Charleston, Dr. A. H. Hayden, Summerville; *Secretary*, Dr. Walter Cheyne, Sumter; *Treasurer*, Dr. C. P. Almar, Charleston. The Society also appointed a committee to consider the erection of a memorial to Dr. J. Marian Sims, who was born in Lancaster County, South Carolina.

The Oklahoma Medical Society.—For the purpose of "investigating by discussions, lectures, etc., all that pertains to the profession," the physicians of Oklahoma City, South Oklahoma, and vicinity, recently organized as the Oklahoma Medical Society, and elected the following officers: *President*, Dr. L. W. Benepe; *Vice-President*, Dr. Delos Walker; *Secretary*, Dr. W. M. Baird; *Treasurer*, Dr. H. C. Way.

The Tolland County (Conn.) Medical Association held its 117th annual meeting at Hartford on April 20. The following officers were elected: *President*, I. P. Fiske of Coventry; *Vice-President*, Cyrus E. Pendleton of Hebron; *Secretary and Treasurer*, Eli P. Flint of Rockville; *Counselor*, Thomas F. Rockwell of Rockville; *Delegate to State Convention*, Fred W. Walsh of Rockville.

The Plymouth District (Mass.) Medical Society held its annual meeting at Brockton on April 21. Officers were elected as follows: *President*, Dr. Fred J. Ripley; *Vice-President*, Dr. Charles S. Millet; *Secretary-Treasurer*, Dr. Alfred C. Smith; *Librarian*, Charles E. Lovell; *Reporter*, Dr. A. C.

Smith; *Commissioner on Trials,* Dr. Jesse H. Averill; *Censors,* Drs. Gilman Osgood, Edwin C. Frost, Charles W. Stodder, Arthur L. Beals, and Joseph Frame; *Councillors,* Drs. A. E. Paine, F. G. Wheatley, Gilman Osgood, Nathaniel K. Noyes; *Orator for* 1910, Dr. Harrison A. Chase.

Obituary Notes.—Dr. Allen Vinton Smith of Canton, Ohio, died on April 10 of heart disease, aged 53 years. Dr. Smith was graduated from the Rush Medical College, Chicago, in 1880. During the Spanish-American War he served as assistant surgeon in the 8th Ohio Infantry. He was a member of the Association of Military Surgeons, visiting surgeon to the Aultman Hospital, and a member of the city council and health officer of Canton.

Dr. George G. Farnandis of Baltimore, Md., died at his home on April 4, aged 80 years. Dr. Farnandis was graduated from the University of Maryland in 1852; from 1856 to 1859 and 1870 to 1875 he was physician to the Baltimore Almshouse; and from 1870 to 1873 he was professor of surgery in Washington University, Baltimore. During the Civil War he served as surgeon in the Confederate Army.

Dr. Henry C. Potter died at his home near Santa Barbara, Cal., on April 3, aged 85 years. He was graduated from the Albany Medical College in 1844, and for a short time was one of the health officers of Utica, N. Y. He later settled in Saginaw, Mich., where he practised for many years.

Dr. Charles Wright Huff of Kalamazoo, Mich., died at his home on March 31, aged 59 years. Dr. Huff was graduated from the medical department of the University of Pennsylvania in 1874, and was a member of the Michigan State Medical Society and of the Kalamazoo Academy of Medicine.

Dr. Ernest F. G. Horst of St. Paul, Minn., died suddenly, on March 26, from an overdose of chloroform, aged 55 years. He was graduated from the medical department of New York University in 1876.

Dr. Perry D. Goldsmith of Toronto died, on April 5, after a short illness, at Belleville, Ont., aged 64 years. Dr. Goldsmith was a graduate of the University of Victoria College of Coburg, Ont., in 1868.

Dr. Louis Stern of San Francisco died in the German Hospital in that city, on April 7, aged 55 years. Dr. Stern was educated in medicine at the University of Würzburg, Germany, from which he graduated in 1878. He was one of the founders of the German Medical Society of San Francisco.

Dr. Frederic B. Mandeville of Newark, N. J., died on April 26, aged 69 years. Dr. Mandeville was graduated from the University of Michigan in 1873. He was a member of the American Institute of Homeopathy and the State Homeopathic Society, physician to St. Mary's Hospital, and consulting physician to the Homeopathic Hospital of Essex County. For several years he served as a member of the Newark Board of Education and of the Department of Health.

Dr. Alfred Quin Donovan of Elizabeth, N. J., died in the Elizabeth General Hospital on April 26, aged 55 years. Dr. Donovan was educated at St. Mary's College, Halifax, and at the Bellevue Hospital Medical College, graduating from the latter in 1882. He was a member of the American Medical Association and the State and County Societies, and visiting surgeon to the Alexian Brothers' Hospital.

Dr. Ezra Mitchell of Lancaster, N. H., died at his home on April 20, aged 67 years. After graduating from the Maine State seminary, he entered the Harvard Medical School, but at the outbreak of the Civil War withdrew to enlist in the Maine Volunteer Infantry. At the close of the war he entered Dartmouth Medical College, from which he was graduated in 1867. A sufferer from the disease himself, he became greatly interested in the study and treatment of tuberculosis, and was largely instrumental in effecting the building of the State sanatorium. He was a member of the Coos County and the New Hampshire Medical Societies, and of the American Medical Association, and from 1882 to 1885 was surgeon-general of the State militia.

Dr. Thomas Worcester Dike of Bath, Me., died, on April 17, at Westboro, Mass., after a long illness, aged 43 years. He was graduated from Bowdoin College in 1886 and from the Maine Medical School in 1890.

Dr. Milton Newberry of Whitemarsh, Pa., died, on April 4, at the age of 80 years. He was graduated from the Medical Department of the University of Pennsylvania in 1855.

Dr. Harry Hill died at Bethlehem, Pa., on April 23, at the age of 30 years, from the result of a self-inflicted wound. He was a graduate of the Medical Department of the University of Pennsylvania.

Dr. Louis E. Taubel died at Philadelphia on April 26. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1885.

Dr. George M. Boyd died at Philadelphia on April 28 at the age of 31 years. He was graduated from the medical department of the University of Pennsylvania.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

FAINTING OR FITS—EPILEPSY—LACTIC FERMENTS OR CHEMICAL PREPARATION OF MILK—FLATULENCE—EXTIRPATION OF LARYNX—A NURSING AND MATERNITY EXHIBITION—OBITUARY.

London, April 16, 1909.

Epilepsy is a malady displaying such a variety of phenomena that no definition can include the long list of its clinical manifestations. I say malady rather than disease, as there are some, among them, I think, Dr. Mercier, who deny that it should be called a disease at all, by which they perhaps mean to assert that we do not know it as a pathological entity. Anyone who has been present when a patient has been seized with—shall I say falling sickness?—of a severe type will admit that many other cases, as described by all observers, can well be grouped with that he has witnessed. But when we consider milder cases and the great number of similar or allied manifestations of the disorder, whether we think of them as functional or organic, we find a long catalogue of symptoms more or less related but almost impossible to classify, a sort of scale at one end marked by violent fits shading off to the other end a mere transient feeling of faintness or giddiness. In his Goulstonian lectures, lately delivered at the Royal College of Physicians, Dr. Alfred E. Russell of St Thomas's Hospital maintained that the difference between a mere faint and an epileptic fit is really one of degree rather than of kind, and he found clinical evidence of this in the suddenness of some faints and in the passing of some of them gradually into fits. According to him, the fundamental factor underlying both fit and faint is cerebral anemia—the difference between them being due to the difference in the rate of development of that anemia. In a faint the cerebral circulation slowly diminishes, with falling blood pressure; in an epileptic fit it suddenly ceases. So on recovery

from a faint the circulation slowly improves; from a fit it returns suddenly. The proclivity to fainting, so marked in some persons, is usually associated with other evidences of cardiac and vasomotor instability, and there is usually some exciting cause. In epilepsy, on the other hand, those evidences of an unstable circulation are not so obvious and exciting causes are seldom to be traced.

While holding that the fit or faint is due to a diminution of the volume of blood passing through the brain, Dr. Russell admitted two important factors of this: (1) Vasodilatation in the splanchnic area; (2) cardiac inhibition. In some cases, he thought, one only might be primarily concerned; in others both were involved. Sudden depression of the normal vascular tone in that area caused rapid accumulation in its capacious bloodvessels; if momentary only a sudden sinking feeling at the epigastrium is felt—common enough on being startled. If it lasts, this sort of aura goes on to a faint. A very sudden shock might cause almost sudden unconsciousness and the lecturer had no doubt sudden vasodilatation might occur. It was difficult to judge how often or to what extent the heart might be affected independent of the change in the splanchnic area. But it seemed probable that direct cardiac inhibition might sometimes occur and the two factors might also act simultaneously. The extreme suddenness with which some faints occur suggests a very transient cardiac inhibition rather than splanchnic dilatation. An isolated attack of unconsciousness, and that, too, with a degree of muscular spasm, is not unknown in a person showing no other tendency to faints or fits. In such cases cardiac inhibition seems the most probable cause. The lecturer quoted cases recorded by Sir W. Gowers, in which repeated faints brought on by external influences, after a time appeared spontaneously and with more sudden onset; in fact, became distinctly epileptic. He attributed these to increased rapidity with which the cerebral circulatory change took place. But Gowers postulates some change in the nerve elements of the brain as underlying the loss of consciousness produced by a sudden diminution in the intracranial pressure. If loss of consciousness thus produced should, by frequent induction, acquire a tendency to spontaneous development, that would constitute minor epilepsy. The lecturer submitted rather that the resistance of the nervous mechanism of the cardiovascular apparatus by frequent repetition was diminished, when the reflex would be easier, the failure of the circulation take place more suddenly, and the loss of consciousness be proportionally more sudden.

The lactic acid ferments have been so much discussed and their use in preparing milk for infant and invalid feeding so freely exploited commercially that the simpler plan of precipitating the calcium from cow's milk is in danger of being forgotten. The dilution of cow's milk and the addition of cream, simple as it seems, is to ignorant mothers a difficult undertaking and to those who cannot procure the cream an impossible one. The bacterial method pressed on one who can afford the several products cannot be called economical. Moreover, recent investigations show that the lactic acid tablets on the market are not always trustworthy. There seems, therefore, plenty of room for the precipitating plan, for which two grains of sodium citrate per ounce was shown by Sir A. Wright to be sufficient. Dr. Poynton adopted this method partially, using one grain to the ounce and combining dilution. But Sir A. Wright is satisfied that undiluted milk treated with two grains gives adequate nutriment, and this method has been employed for some two years at the Paddington Children's Hospital by Dr. Langmead, who reported good results a year ago at the Polyclinic and has confirmed them recently at the Harveian Society. The mother is told to bring the milk to a boil and add a teaspoonful of the solution furnished, which contains the quantity required. The citrate can also be added to the milk in bulk by those who can understand the method and may be trusted to do it. Dr. Langmead has treated about seventy cases in this way, all of them children who were wasting under other methods as tested by weighing. Some were lost sight of, a not uncommon thing with out-patients. Of all others he reports excellent results and concludes that this is the most satisfactory method of infant feeding we possess. It is not a therapeutic measure and of course should not be tried as such. But the simplicity of the preparation makes it available for the most ignorant mothers and the fine flocculent curd produced in digestion is a striking contrast to the tough clots frequently vomited when children are fed on raw cow's milk.

Flatulence is a symptom of so frequent an occurrence and often so distressing that every practitioner has probably been asked to explain how such apparently large quantities of gas rapidly accumulate in the stomach. Dr. Cahill of Dublin lately said at the Academy that fermentation is due to decomposition of carbohydrates and putrefaction to that of fats and proteids, but exception was taken to this view and attention directed to the fact that shock or mental trouble may often bring about sudden accumulation of gas, which can scarcely be accounted for by fermentation or putrefaction. This I can confirm, for I have often seen such attacks come on immediately after food and others when the stomach was empty. In the latter case the swallowing of air might be admissible, but in both the expulsion of gas in very large amounts suggested some further cause. In persons with cardiac lesions the distention of the stomach by gas is not only distressing but dangerous. Sir J. Moore remarked on the connection between cardiac and vascular lesions with flatulence and said people with defective teeth were likely to swallow air with food insufficiently masticated and advised attention to the mouth, as it is practically impossible to disinfect the stomach.

At another meeting of the Academy Mr. R. H. Woods showed a case of extirpation of the larynx with a new apparatus for voice production. The trachea was sutured to the skin and the pharynx cut off from the respiratory tract. To enable his patient to speak Mr. Woods fixed a reed in a tube. By passing it through the nose and dropping it over the soft palate and putting the other end into the trachea the man was able to blow and make the reed vibrate. A valve was used to take in air and when his chest was full he put a finger on the end and the air passed into the tube. The instrument having been inserted, the patient saluted the audience and counted ten.

Mr. Dempsey said this case showed what could be done by laryngectomy when the pharynx was quite cut off from the air passage. Mr. Murphy suggested a smaller tube. Dr. Taylor remarked on the ease with which the operator had closed the pharyngeal tube. In reply Mr. Woods said that he had no trouble in securing a pharyngeal wall, as there was plenty to complete a good tube after the larynx was removed. The tube was small enough to pass through the nose. A smaller one would necessitate a smaller reed and that would lessen the power of the voice.

The second annual exhibition and conference in connection with nursing and midwifery was opened on Wednesday and closes with the week. A good many startling, not to say sensational, statements were made, especially as to the mortality of infancy and maternity. The bare facts are enough without exaggerated comment. The midwives Act was only passed in 1904 and now there are 31,000 women enrolled as qualified to practise midwifery and 8,000 or 9,000 remain unregistered. These last are to be forbidden to continue practice next year unless they pass examinations, but they are mostly very poor and very ignorant and so have little hope of qualifying. The registered ones seem to think the others have no claim to pity from those who have contrived to get on the roll and whose education is often little better than the more unfortunate. General medical practitioners are now loudly lamenting that they have handed over so much of their midwifery work to an inferior class. There are many interesting things in the exhibition where sixty-one firms have stalls, incubators, model crèches. Instruction is also given by lectures and demonstrations on the best way of washing, disinfection, and so on. There is a model nursery fitted up on the plan of that of the Queen of Spain, where a nurse gives advice about wall papers, cots, toys, and whatever goes to constitute a hygienic room for a baby.

Mr. Thomas William Nunn, consulting surgeon to the Middlesex Hospital, died yesterday after a brief illness. Born in 1825, he was educated at King's College, took his M.R.C.S. in 1846, and the Fellowship in 1857. He taught anatomy at King's for a time, but on being elected to the Middlesex surgical staff his life work was henceforth in that institution. His books on "Cancer of the Breast" and on "Cancer Illustrated by Cases" were standard at the time (1899) and he contributed various surgical papers to the societies and journals. He served as a vice-president of the Pathological Society. He at one time held a commission in the militia, and held the volunteer decoration.

Dr. Charles Bell Taylor died on Wednesday, aged eighty, at Nottingham, where he had lived so many years and achieved his great reputation as an ophthalmologist. He studied at Edinburgh and Paris, qualified in 1852, took his M.D. Edin. 1854, F.R.C.S. Edin. 1867, having taken prizes at both institutions. His most important work was done as surgeon to the Nottingham and Midlands Eye Infirmary. His "Clinical Lectures on Eye Diseases" appeared in 1876. His new method of cataract extraction was put forth in the Ophthalmic Review, 1867. He contributed to the *Lancet*, a number of clinical lectures on his specialty between 1885 and 1894.

Mr. C. G. Wheelhouse, consulting surgeon to the Leeds General Infirmary, filled a prominent place in the profession for a considerable time, especially in connection with the British Medical Association, of which he was president of Council at a period when it was subjected to much criticism. He was one of the representatives on the General Medical Council, a position attained through the electioneering maneuvers of the rulers of the association at the time. He took his M.R.C.S. in 1849, L.S.A. in 1850, became F.R.C.S. in 1864, had the gold medal of the association presented to him in 1897. He delivered the address in surgery at the Bath meeting and contributed a few articles to the journals. He served on the Council of the Royal College of Surgeons. McGill University conferred on him the honorary LL.D. and Leeds University the D.Sc.

Mr. Wheelhouse was a man of enormous capacity for work and never spared himself. He was for many years treasurer to a medical charitable society in his county, which conferred great benefits on the profession. As a strong man he never hesitated to carry out the views he held, whatever difficulty or opposition he might meet with. Yet he always held the respect and even affection of colleagues and pupils.

MEDICAL NEWS IN THE DAILY PRESS.

To the EDITOR OF THE MEDICAL RECORD:

SIR:—A daily paper has copied from your account of a meeting of the Medical Society of the County of New York the description of a case of penmanship stuttering which I had reported. If I had known that a matter intended for a strictly medical circle would reach the general public I would not have reported this case.

As the fear of republication in the lay press may deter others from publishing some of their work, I ask you to consider what can be done.

E. W. SCRIPTURE, M.D.

NEW YORK.

Progress of Medical Science.

Boston Medical and Surgical Journal, April 22, 1909.

Intracranial Hemorrhage in the Newborn.—Two cases are reported by J. R. Torbert, who briefly refers to the literature of the subject. He discusses the arrangement of the blood-vessels in the infantile brain, and says that it is doubtless fitted by nature to withstand without shock or injury a degree of molding and manipulation which could not be borne by an adult fully developed and medullated brain. And, moreover, in cases of traumatic edema or of actual hemorrhage the distensibility of the partly membranous skull will accommodate effusions of such extent that were they to take place in an adult skull in proportionate extent, they would rapidly prove fatal. The distensibility of the fontanelle and skull is the salvation of many of the subjects of intracranial hemorrhage in connection with birth, for the symptoms are entirely those of cerebral compression, and later in life there may follow such sequelæ as spastic paraplegia, diplegia, epilepsy, etc. In the author's two (fatal) cases there were no localizing symptoms, and this absence is of very frequent occurrence. Many cases certified as dying from inanition are in reality due to intracranial hemorrhage. In cerebellar hemorrhage the infants are at first quiet and nurse well, but the breathing becomes affected. Hence come on cyanosis, irregular and convulsive respiration, cerebral collateral edema, and general convulsions, with death on the second or third day. Cerebral hemorrhage is generally unilateral, and in addition to the symptoms of compression we have restlessness, crying, refusal of food from the first, coma, irregular respiration and heart action, vasomotor disturbances with definite signs of an unilateral focus as facial paresis, spasm of the extremities with increases of the reflexes of the opposite side. Operation alone will help these cases, and the author refers to Cushing's saving of four out of nine cases. The operation consists in raising a large osteoplastic flap opening the dura and clearing away the extravasated blood with normal saline irrigation. The dura is closed, the flap replaced, and the wound closed without drainage. With proper hemostasis and careful avoidance of exposure, a newborn child stands cranial operations well.

The Luys Urine Separator.—B. S. Barringer offers a second report of forty-one cases. The conclusions reached by the author are thus stated (1) There is a class of cases in which knowledge of the condition of the kidneys is necessary and in which the ureters cannot be catheterized. These cases are those in which (*a*) one or both ureteral openings are obscured by cystitis or (*b*) in which the rapid excretion of pus or blood into the bladder clouds the bladder fluid. These are cases in which the separator is invaluable. (2) In children, the child's model of the separator, 17 F., may be used when ureteral catheterism is impossible because of the large size of the catheterizing instrument. (3) Cystitis forms no barrier to the use of the separator and to obtaining an exact knowledge of the kidney conditions in such cases. The exception to this is when a bacteriological examination is necessary, when catheterization of the ureters is more accurate. (4) Separation is much simpler than ureteral catheterization. (5) In women the pain or discomfort caused by the separator is about the same as that caused by the use of a simple examining cystoscope. In men the pain of separation is slightly more marked. (6) There are certain classes of cases in which the separator cannot be used. They are the following: (*a*) Those in which the bladder capacity is less than 20 c.c.; (*b*) those in which the urethra is not penetrable to the instrument, and (*c*) those in which the base or neck of the bladder is distorted by (*a*) marked prostatic hypertrophy, (*b*) extreme anteversion or antetlexion of the uterus, (*c*) certain uterine tumors, and (*d*) marked cystocele. (7) Slight hemorrhage occurs in some cases resulting from the bladder muscle grasping the instrument too vigorously and causing trauma of the vesical mucous membrane. This is shown by (*a*) small blood clots along the membrane when the separator is withdrawn, and (*b*) slight and equal increase in the fresh red blood cells of both sides. (8) Any inaccuracy of results obtained by the use of the separator is to be attributed to its employment in unsuitable cases or to a failure to recognize traumatic hemorrhage when it occurs, and does not arise from leakage of the urine from one side to the other.

Vaccines in Typhoid.—W. H. Watters and C. A. Eaton report four more cases of typhoid, a mother and three children. All were attacked at the same time from another case in the family. One child was treated in the usual way with baths and medication p. v. n. The other three were treated with vaccines. The charts accompanying the paper show that the two children inoculated did well from the start, and in a few days all the clinical symptoms had disappeared. In the case of the mother, the fall in temperature was less conclusive as to the value of vaccine treatment, but the general clinical course went on just as satisfactorily as with the children until a period in which after a severe nervous shock, the temperature rose to 105° and was not lowered by the inoculation then given. A hemorrhage then occurred, but without any serious physical indications of trouble. Thence convalescence was slow but steady. The authors do not attempt to dictate deductions, but say that from their personal experience with about forty cases, it seems probable that the early administration of typhoid vaccines will often materially shorten the disease and that even if the temperature is uninfluenced, the case runs a very mild course. In a hospital series of 77 cases, 31 were treated with vaccines with a mortality of 3.2 per cent., while the mortality of those not receiving vaccines was 123 per cent

New York Medical Journal, April 24, 1909

Acute Suppurative (Phlegmonous) Ethmoiditis in Children, Ending in Death.—F. Krauss reports two personal cases and reviews recent literature on the subject. His patients were girls of nine and thirteen years respectively, the case histories presenting nothing unusual. The author has an increasing conviction that acute suppurative ethmoiditis causing orbital and cerebral symptoms is more common than is currently supposed and that in the young this lesion is often rapidly fatal. The indications for operative intervention in acute conditions are sudden increase of temperature, delirium at night, tumor formation in the inner wall of the orbit, and the slightest exophthalmos. Operation should not be delayed too long. The same general

rule holds true here as in appendicitis—early operation being harmless, while late operation is generally useless. When there is bilateral exophthalmos, operation is generally useless, as the lesion has probably extended through the cavernous and circular sinuses, causing a general toxemia and pyemia or a fatal lesion of the brain.

Spirochæta Lymphatica.—The results of further studies of this organism are reported by Proescher, who details his experience in experimental inoculation of monkeys and rats. According to the present conception of the disease, the changes in the lymph glands may be classified as follows: (1) The acute and chronic lymphadenitis (including lues and tuberculosis); (2) leuchemic and aleuchemic lymphomata (pseudoleuchemia, granulomatous and hyperplastic forms with or without blood changes). The pathological anatomy in the leuchemic and aleuchemic varieties is practically the same and consists either of a pure lymphatic hyperplasia or, as is occasionally seen in one form of pseudoleuchemia, a granulomatous hyperplasia. (3) Primary sarcoma of the lymph glands (excluding sarcoma which develops from the connective tissue stroma), or lymphosarcoma, which preserves more or less the character of the lymphatic tissue and which might be better named lymphocytoma (Ribbert) or granulolymphocytoma, or malignant granuloma (Benda), also the leucosarcoma described by Sternberg and accompanied by a characteristic blood picture, and finally the chloroma which resembles morphologically the lymphosarcoma but differs in the production of a greenish coloring matter. The author does not believe that attenuated tubercle bacilli can produce a lymphomatosis. The infection is more likely a secondary one.

The Significance of High Blood-Pressure in Life Insurance Examinations.—The use of the sphygmomanometer is commended by R. Grace, who discusses the use of the instrument and the significance of its records. The physical factors of arteriosclerosis are considered from their clinical side. The high readings in a hypertonic contracted vessel possibly sclerosed are due to the thickening of the vessel wall and the narrowing of its lumen. Substances in the circulation may act directly on the vessel wall without the medium of the nervous system causing contraction of the muscular coat. The source of these substances that even in small quantities cause arterial contraction and raising of the blood pressure is through the alimentary tract, particularly intestinal. As a result of these disorders of alimentation, toxic substances are developed and absorbed into the blood which act directly on the vessel wall, causing this dangerous hypertonicity which should be an element of concern to the examiner. This hypertonicity that exists either in the sclerosed vessel or the sclerosed atheromatous vessel or in the healthy vessel and gives us the high reading, can be relieved by proper hygiene, diet, etc., and we may remove this so-called high blood pressure and find an applicant to be a risk of the first class rather than one to be refused on account of dangerous disease. The very high readings that are obtained in cases of interstitial nephritis are caused by the pathological changes in the arteries that are invariably met with in that disease, and cannot be materially effected by treatment; but high readings do not necessarily mean either arterial or kidney disease; we must recognize this hypertonic contraction of the vessels as a factor in high sphygmomanometer readings and depend greatly upon the microscopical findings of the urinary analysis for our diagnosis of kidney affections.

Journal of the American Medical Association, April 24, 1909.

Oatmeal Diet in Diabetes.—A. C. Croftan gives the following clinical classification of the disease, which he finds convenient and useful. Type 1: In these cases the sugar disappears within two or three days after complete withdrawal of carbohydrates. The patients still possess a small tolerance. The clinical significance of the type is according to the age. In young patients the outlook is always more serious and they almost invariably develop the severe type unless the greatest care is used. In older patients, in whom it is usually associated with obesity, gouty manifestations, or arteriosclerosis, the outlook is specially favorable so far as their developing the severe type of diabetes is concerned. Type 2: The sugar cannot be made to disappear until the patient has been on a carbohydrate diet for two or three weeks. It includes three groups. In group 1, with the gradual reduction and final disappearance of the glycosuria, there is a general improvement in condition, increased weight, and reduction of the acetone bodies of the urine to the normal. In group 2 there is an initial loss of weight, general malaise and weakness, and increase of the acetone bodies. With the complete disappearance of the sugar, however, the weight again increases, sense of well-being improves, and the acetone bodies become normal. In group 3 there is loss of weight and strength and an alarming degree of acidosis, with corresponding larger excretion of acetone bodies. Such patients often develop digestive disorders and in bad cases relapse into coma if the oatmeal diet is persisted in. Type 3: The sugar does not disappear from the urine even with a carbohydrate free diet given for many weeks, and, while reduction of the food albumins often causes a disappearance of sugar, it promptly reappears with the use of the normal protein ration. These patients usually excrete large quantities of acetone and its congeners and rapidly emaciate. The "von Noorden oatmeal cure" is worse than useless in mild cases of the first type occurring in adults or elderly people. These patients respond to it by increased glycosuria and often by severe digestive disturbances. It is also harmful in groups 1 and 2 of the second type of diabetes and may do irremediable damage. In juvenile cases of Type 1 and of Type 3 this method is distinctly useful and brilliant results are occasionally observed. Adults, in cases of the very severe type, do not respond so well, but with certain precautions no harm can result from a trial, and, in view of the general inefficacy of ordinary methods of treatment in diabetes, it should at least be tried. While in juvenile patients no time should be lost, however, in adults oatmeal feeding should be considered a last resort after other methods have failed. Croftan does not advise the unpalatable fatty porridge or soup of von Noorden, but says that there are many more agreeable ways of employing it. In children the gruel treatment is probably the simplest and they object to it least. In patients reacting favorably to this method the resumption of a general diet must be very gradual and oatmeal should be exclusively used for many months. In his experience it is especially precarious to mix carbohydrates after an oatmeal course. Animal proteids should always be resumed with care. It is a good rule in beginning this diet, and a safe one, to give up the oatmeal diet if no benefit is seen after five days' trial. As a precaution against acidosis from two to four teaspoonfuls a day of sodium bicarbonate, either alone or mixed with equal parts of magnesia usta, should be given throughout the oatmeal treatment. The most brilliant results are obtained in children, especially if the oatmeal cure is administered as soon as possible after the diabetes is discovered. In cases of longer duration than two or three weeks children under fifteen years of age do not fare so well. In adolescents and adults the results have been on the whole favorable rather than otherwise. Since the mild cases of Type 1 and certain cases of Type 2 are excluded as altogether unsuitable from this summary, there remain only a limited number of severe, usually old, cases of diabetes to be considered. In no case has he seen a complete cure so that a general diet could be resumed, but there was often a marked improvement, and even in recent cases of diabetes in adults or adolescents he has not seen any such brilliant results as are occasionally observed in children.

Indurative Headache.—N. S. Yawger describes a form of headache which has received little mention in the text-books by American physicians, but has been recognized for years and studied abroad, notably by the Swedes and Germans. Edinger, indeed, makes the statement that, though indurative headache is almost unknown, it is probably the most common form of the disease. In seeking the cause of the condition we find that at the insertions, or within the bodies of the muscles of the head and neck, there appears a deposition which comes and goes at first, and later becomes chronic, and which gives rise to stimulation or irritation of the sensory nerve fibers, thereby causing pain. Given the chronic condition, a paroxysm may be brought on by emotional disturbance, exposure to draughts, atmospheric changes, etc. These deposits actually exist and give rise to a chronic myositis at the points of their lodgings. They are found present in three stages: (1) A soft, yielding swelling; (2) a slightly elastic resistance to the touch, as if some organization had occurred; (3) a hard, inelastic induration with a cartilaginous feeling. The older these deposits the firmer they are and the more resistance they offer to treatment. They occur sometimes also in other parts of the body and may give rise to diagnosis of sciatica and even appendicitis. There is no

fever or redness with them and their favorite location is, as stated, in the muscles of the head and neck. The symptoms are of two kinds, those of the chronic condition and those of the paroxysm. The pains develop gradually, but become more constant and severe the longer the disease continues. Local pressure often affords relief, but if an actual neuritis exists the suffering will be intensified. The patients are susceptible to colds and are liable to mental depression and there may be other symptoms of disturbed nutrition in various parts of the body, gastrointestinal disturbance, myalgia, hypersensitiveness of the teeth, etc. Many of the cases are neurasthenic and it is possible that an excess of uric acid or some other substance is concerned in their production. Before an attack of headache the enlargements become swollen and sensitive, and the pain follows usually over their sites. It may be mild or severe and may radiate. The examination should be made by forcible flexions and twistings of the neck and pressure over all portions of the scalp wherever nodules or indurations are discovered. The diagnosis is made from meningitis by the lack of the indurations and hypersensitiveness and the presence of fever. In migraine there is often a sensitive aura and painful areas are absent, while vomiting and nausea are present. The two conditions may coexist, however, and neuralgia and neuritis may result from these thickenings. Under efficient treatment in from four to three months these enlargements can usually be removed. There are a few cases, however, of such cartilaginous induration that only improvement can be expected. Persons who have tendency to this condition should take active exercise in the open air, drink water freely between meals and avoid over-fatigue and emotional excitement. If relationship with uric acid is proved the diet should be low in purin percentage. It should be nutritious, easily assimilated, and not too abundant. Alkaline waters are useful, tea and coffee should be used only sparingly, and alcoholic beverages should be avoided. Internal medication is of little use unless a tonic is indicated, but potassium iodid may give some relief in advanced cases. For a severe acute attack a brisk purgative, a warm bath, hot dry applications to the affected part, and the salicylates are advised. The removal of the thickenings will take from one to three months, and the effective measures are, in the order of their effectiveness, massage, vibration, and galvanism. Vibration by the electric vibrator is conducive to absorption, but should be avoided in patients with arteriosclerosis. Massage, however, is the most effective method of removing these deposits. At first it is painful, but after a few treatments the sensitiveness disappears. In all cases the bowels should be kept active, not merely open but emptied daily, and this can be done by use of laxative mineral waters. The treatment is complete when the swelling and pain have disappeared.

The Blindness of Hysteria.—H. Gradle says that the real importance of psychic influences on the eye is more apparent in the oculist's office than in the neurological clinic. He reports a case of double-sided complete blindness and one of unilateral blindness, in neither of which was there occasion to suspect simulation. He has seen other cases of unilateral amblyopia, so-claimed, in which, however, he suspected malingering. Of much greater clinical significance are the cases that he has observed of the failures of good vision in persons not suffering from hysterical manifestations; at least, not at the time. In his observations of these cases he found no contraction of the visual fields nor marked changes in color vision and his suspicions as to their hysterical nature were based on the lack of other explanation and the emotional instability of the patient, as well as the fugitive character of the symptoms. Two cases of this class are reported. He has also observed hysterical exaggeration of congenital amblyopia in a child, and also reports two cases of children which are samples of others in his observation, in which the condition was, in his opinion, hysterical or imaginary. Youngsters with vivid imagination are apt to consider disturbances created by their fancy as real, and these cases are difficult sometimes to distinguish from real hysterical blindness.

The Lancet, April 17, 1909.

The Rôle of the Saliva in the Transmission of Tuberculosis.—N. Nield and E. V. Dunkley have examined 50 patients with pulmonary tubercle, in whose sputa the bacillus was demonstrable. Inoculations from saliva taken from the surface of the tongue, on to albuminised slides revealed tubercle bacilli in 29. Many patients engaged in mechanical pursuits are accustomed to spit on the hands before grasping the tools of their trade, and may thus transmit tuberculosis to subsequent users of those implements. Seamstresses moisten the threads with saliva before threading their needles, and knot the terminal end in the same way. They may thus be unwittingly conveyers of the disease to those who wear the products of their needle work. Envelopes which have been sealed by moistening with the saliva of tuberculous patients have been examined and found to contain bacilli in the gum thus imprisoned. The authors refer to several authentic instances in which the saliva has been the medium of inoculation. The method common among the poor of cleaning children's faces with the handkerchief moistened with the mother's saliva, and of moistening the nipple before the child is put to the breast, are also possible methods of contagion. All tuberculous persons should be forbidden to moisten the fingers with saliva for any purpose whatever, and the same prohibition should be encouraged in the healthy, for example's sake, let alone any other reason.

A Case of Vascular Degeneration; A Study in Arrhythmia.—A. M. Gossage presents copies of pulse tracings taken from a man of 68 years, evidently suffering from fibrosis of the heart, associated with coronary atheroma. In consequence of this the contractile force of the muscle was deficient, leading to pulsus alternans and attacks of angina pectoris. The fibrosis had probably invaded the auriculo-ventricular bundle, causing an increased irritability and hence numerous extrasystoles arising in the primitive tissue, of which the bundle is composed. In the cardiac cycle it was noted that there were frequent intermissions, that at times the rate of the pulse was infrequent, and at other times the frequency was normal. The apex beat was one-half an inch outside the normal position. The first sound was shorter than normal. Not infrequently the extra systole appeared in the sequence of a premature feeble systolic sound, followed by a long pause. Besides there were numerous pauses or intermissions, during which no feeble sound was heard. It was considered that owing to insufficient blood supply to the cardiac walls the fibrosis had come on. The anginoid pain was partly constant and partly paroxysmal in character, being brought on by exertion. It was greatly relieved by nitroglycerin.

Disease of the Hip Joint Due to Streptococcal Invasion with Secondary Manifestations in Other Parts.—W. O. Beddard's patient was a healthy looking boy of 12 years, complaining of pain on the outer side of the right thigh. The hip joint was held fixed and any attempt to move the joint or extend the knee aggravated the thigh pain. These symptoms gradually subsided and later returned with fever and evidences of local swelling about the hip joint. The *x*-ray picture was negative at this time. Thence for a period of 170 days from the time of the initial thigh pain, the symptoms grew better and more gradually leading to a positive diagnosis of joint trouble, which was finally confirmed by a skiagram which showed a disappearance of the upper lip of the acetabelum and an upward displacement of the femur. The latter bone was intact but rarified, not apparently in the way typical of caries. The condition was decided to be non-tuberculous. The hip was excised in the usual way and the wound healed by first intention. Two weeks later the right knee was inflamed, but later gradually improved. At the end of a year after operating the boy could walk with a stick, but the leg involved was shortened one inch. The right knee was somewhat enlarged, but could be almost completely flexed. The author believes that if a positive diagnosis could have been made early in the disease the vaccine treatment would have afforded more relief and have materially shortened the period of treatment. Examination of the material removed from the hip joint revealed a Gram-positive coccus, showing on solid media a growth of staphylococcus, and in fluids the characters of streptococcus. It could not be identified with any known species of either.

Anterior Metatarsalgia.—A. Mackenzie Forbes summarizes the treatment of "Martoris toe" as follows. (1) Protection against lateral pressure, and (2) the elevation or support of a depressed arch with suitable protection of the plantar surfaces of the heads of the bones. The elevation of the fore part of the foot is also of importance. Operative treatment as suggested by Marton should be applied only in those chronic and resistant cases where conservative treatment has failed. In certain cases characterized by great spasm of the extensors the transference of the attachment of these tendons to the dorsal aspect of the heads of the metatarsals may be considered.—*Montreal Medical Journal.*

Book Reviews.

Variations of the Bones of the Hands and Feet. A Clinical Atlas. By Thomas Dwight, M.D., LL.D., Parkman Professor of Anatomy at the Harvard Medical School. Philadelphia and London: J. B. Lippincott Co.

Now that the *x*-ray is in such common use in the diagnosis of fractures and other injuries, it is of the utmost importance that the surgeon should be acquainted with the variations that may occur in the bones. The present volume deals with such variations in the hands and feet, and a knowledge of some of these may prevent a mistaken diagnosis of fracture. The bulk of the book is an atlas, chiefly of skiagraphs; but there is a most valuable prefatory chapter dealing with the variations, additional bones, fusion of bones, and variations of relations that may be found in hand or foot. The work is practical rather than scientific, and is intended for the general practitioner, but it will prove useful also to the anatomist, the surgeon, the *x*-ray worker, and every one who has occasion to interpret a skiagraph.

Military Hygiene. A Manual of Sanitation for Soldiers. By R. H. Firth, Lieut-Col. Royal Army Medical Corps, Officer in Charge School of Army Sanitation, Aldershot; Formerly Professor of Military Hygiene in the Royal Army Medical College, London. London: J. & A. Churchill; Philadelphia: P. Blakiston's Son & Co., 1908.

This book is written for the layman—the soldier—and both in subject matter and in language it is a model of what such a book should be. It begins by pointing out to what extent disease has prevailed and contributed to military inefficiency in the past and how much it prevails in the army, even now. Then the causes of disease are considered, and it is made clear that all preventible diseases come from without. The physical training of recruits is inculcated on the lines of physiological teaching in place of the old rule-of-thumb methods; and the housing, feeding, clothing, and general equipment of the soldier are all elaborated. The application of hygienic laws and principles to the circumstances of the march, the bivouac, and the camp is then considered, and the whole is admirably treated in a most readable pocket volume of three hundred pages.

A Text Book of General Bacteriology. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago, and in the Rush Medical College. Fully Illustrated. Philadelphia and London: W. B. Saunders Co., 1908.

This is one of the newest works on bacteriology, and it is written from the viewpoint of one who believes that bacteriology should be studied in every scientific course. Hence the present volume is not written especially for the medical student, any more than for students interested in agriculture, sanitary engineering, or technology. The book is a good one: it covers the ground quite thoroughly, and the subject matter is well arranged and well written. There are numerous bibliographical references which add to the value of the work. For the general scientific student this volume will certainly prove of value; but the medical student, with his overcrowded curriculum, had better select one of the numerous works written specially for him by one who knows his special requirements and caters to them alone. For those who are not beginners, or who are anxious to review the subject from a broader basis than is generally possible for the medical student, this book is all that can be desired, and will prove a welcome addition to any library and to every laboratory.

Maladies des Reins. Par E. Jeanselme, Professeur Agrégé à la Faculté de Médecine de Paris, Médecin de l'Hôpital Broca. A. Chauffard, Professeur Agrégé à la Faculté de Médecine de Paris, Médecin de l'Hôpital Cochin, Membre de l'Académie de Médecine. P. Emile Weil, Ancien Interne des Hôpitaux de Paris. L. Laederich, Ancien Interne des Hôspitaux de Paris. Avec 75 Figures Intercalées dans le Texte. Paris: Librairie J. B. Baillière et Fils, 1908.

This is the twenty-first fascicle in Brouardel and Gilbert's "Nouveau Traité de Médecine et de Thérapeutique," published under the direction of Prof. A. Gilbert and Prof. L. Thoinot, and, like its predecessors, the work has been done by specially selected authors, who are authorities on their respective subjects. The first part of the work deals with physiological facts concerning secretion and excretion of the urine, the physical and chemical characteristics, along with the microscopical and biological peculiarities of the kidneys' secretion.

Following this, the subjects of anuria, polyuria, indicanuria, hematuria, hemoglobinuria, chyluria, albuminuria, and kindred abnormalities are considered, along with the microscopic findings. The clinical deductions are then treated separately by the authors of these foregoing parts, Jeanselme and Weil. The diseases of the kidneys, including nephritis, congestions, tuberculosis, abscess, perinephritis, parasitic diseases, cancer, calculus, nephroptosis, and hydronephrosis are thoroughly described by Chauffard and Laederich. The great bulk of the book deals with nephritis and in a most satisfactory manner. The clinical varieties are well divided, the theories, for instance, of edema and arterial tension, are given with due judgment and conservatism, and brief but sound methods of treatment are advised. A few plates serve to elucidate the text, although the clear descriptions, concise and told in an interesting manner, are vivid enough to make an unillustrated edition well worth reading.

Diseases of the Nervous System. For the General Practitioner and Student. By Alfred Gordon, A.M., M.D. (Paris), Associate in Nervous and Mental Diseases, Jefferson Medical College; Neurologist to Mount Sinai Hospital, to Northwestern General Hospital, and to the Douglass Memorial Hospital; Late Examiner of the Insane, Philadelphia General Hospital; Member of the American Neurological Association; Fellow of the College of Physicians of Philadelphia, etc. With 136 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1908.

The author lays considerable stress, in his preface, on the necessities of clearness and practicability as underlying qualities for a text book or treatise on the difficult subject of neurology, especially when such a book is written expressly for the student and general practitioner. We expected, therefore, in perusing the book, to find a directness and simplicity of style and a logical sequence in the discussion of subjects. We regret that in these respects we were a little disappointed. The plan of the book is to give first the anatomy and physiology of the central nervous system. Next, methods of examination for diagnosis. Then follow consecutively diseases of the brain, diseases of the spinal cord, functional nervous diseases, diseases of the sympathetic nervous system, and, finally, nervous symptoms produced by intoxications. The anatomical descriptions are far from clear, and would be more practical if simplified and accompanied by hand-in-hand statements of function. Every student of neurology knows how difficult it is to find clear and comprehensive descriptions of the physiological functions of the various tracts and centers. The beginner, we fear, will be hopelessly muddled by this part of the book. The chapter on "Examination for Nervous Diseases" is also incomplete, even for the use of the general practitioner. The author's classification of nervous diseases and his arrangement for description are not especially scientific. There are many good illustrations. The book offers a striking example of the well recognized fact that the possessor of knowledge is not always able to impart it. Those who know of the author's profound knowledge, his earnestness and enthusiasm, will regret that those gifts were not joined with a talent for lucid expression, so as to make the rich stores of learning which the work contains readily accessible to the reader.

Vorlesungen über die mechanische und psychische Behandlung der Tuberkulösen besonders in Heilstätten. Von Dr. Georg Liebe, Leiter und Inhaber der Heilanstalt Waldhof Elgershausen. München. J. F. Lehmann's Verlag, 1909.

These fourteen lectures make up the first volume of a proposed series dealing with the mechanical and psychic aspects of tuberculosis. The author believes that patients should be given a moderate amount of work to do, which shall keep them in the open air much of the time. For this he recommends landscape gardening and farming on a small scale as quite suitable. Indoor exercise can be had to advantage in a gymnasium under control of a physician skilled in such activities, or in the patient's own room, if need be. Liebe believes that "most people breathe badly," and hence favor the propagation of lung diseases. Deep breathing he regards as an enemy to the bacillus tuberculosis, and also as an adjuvant in constitutional tissue building. As recreations, he recommends books, pictures, music, singing, declamation, writing, card playing, and nature study. A suitable translation of this book into English would be of help to many patients and of interest to the physician.

Society Reports.

AMERICAN SOCIETY OF TROPICAL MEDICINE.

Sixth Annual Meeting, Held at Washington, D. C., Saturday, April 10, 1909.

JAMES M. ANDERS, M.D., PRESIDENT, IN THE CHAIR.

THE President of the Society, Dr. JAMES M. ANDERS of Philadelphia, read an address entitled, "A Review of the Year's Progress in Tropical Medicine."

The Secretary, Dr. JOHN M. SWAN of Philadelphia, read his report, in the course of which he gave a biographical sketch of Dr. Azel Ames, a member of the society who had died during the year.

Malaria, with Especial Reference to What Is Not Malarial Fever.—Dr. JOHN PELHAM BATES of Nashville, Tenn., in an exhaustive paper on this subject, drew the following conclusions: (1) Malaria is an extremely simple disease, unless complications are present. In true malaria, with the patient at perfect rest, quinine will control all symptoms within five days; if not, death will be so prompt that there will be no time to hesitate over the diagnosis. It is important to remember the large number of infections that may be present along with an acute malarial infection. Lack of knowledge of this fact accounts for the confusion in our ideas with regard to the course of malaria and its nonamenability, in exceptional instances, to treatment. Finding malarial parasites in the blood is not the end, but the beginning of the diagnosis. When quinine fails to have a marked effect upon the fever within forty-eight to sixty hours, although parasites may be present, there is some complication; and when the fever is once reduced by quinine and there is again a rise of fever, the second rise is not due to malarial infection, but to an intercurrent infection manifesting itself late in the attack. In the presence of a marked leucocytosis, the idea of malarial infection should be abandoned and search should be made for the real cause.

Report of a Case of Quartan and One of Estivo-autumnal Malaria.—Dr. JOHN M. SWAN of Philadelphia reported these cases. The quartan infection was accidentally discovered in a patient admitted to the hospital for nephritis. The man had recently landed from Jamaica. His blood was studied and found to contain a single generation of quartan parasites. He had no chill, but his temperature was 99.4° at 8 A.M. on Oct. 9. Seventy-two hours later the temperature registrated 100.4°, without chill; at the next seventy-two hour period there was a chill, the temperature reaching 101.4°. The nephritis was independent of the malarial infection. The return of the dropsy, with chest pain, chills, cough, and blood-tinged expectoration was unaccompanied by the recurrence of the sporulating parasites in the peripheral blood, and examination of bone marrow after death failed to show malarial pigmentation.

The second patient, a male, was admitted to the Polyclinic Hospital, complaining of hiccough. He had an intermittent temperature. No suspicion of malarial infection was entertained, but at autopsy the very large spleen suggested the nature of the disturbance, and smears made from the expressed spleen pulp showed a large number of pigmented macrophages and a fair number of deformed and partly degenerated parasites. The lung seemed to be affected by hypostatic congestion. On histological examination a pneumonic consolidation was seen. The exudate was not that of a true pneumococcus infection.

A Study of the Leucocytes in Tropical Malarial Infections.—Dr. PAUL T. TALBOT of New Orleans referred to a group of malarial cases that suggested to him the necessity for careful study. The condition had been termed "tropical anemia." The patients all gave a history of ague. There was a relative white blood count, which showed an increase of the small lymphocytes, with an erratic form of plasmodium. A great amount of physical depression existed. Every blood disease had its own picture, and it was possible that there was some change in the leucocytes, not yet determined, that represented a certain organism or toxin. Ordinarily the leucocyte count was a valuable aid in the diagnosis; these cases, however, showed the relative increase in the lymphocytes in the small rather than in the large varieties. Sometimes the plasmodium was that of an estivoautumnal form. The author concluded, therefore, that he was dealing with a different toxin, produced by a different parasite.

Dr. W. S. THAYER of Baltimore said that he was surprised that Dr. Bates should have stated that malarial parasites were not found in any greater number in the internal organs than in the peripheral blood. Not infrequently a moderate number of parasites were found in the peripheral circulation and an enormous number in the internal organs. There were occasional cases of malarial fever in which no parasites could be found in the peripheral circulation, even with the most careful staining. Dr. Thayer had also seen cases in which tuberculosis exactly simulated malaria, but in which the blood showed no parasites. He had likewise encountered trichiniasis resembling malaria most markedly. The paroxysms were like those of estivoautumnal infection.

Dr. C. G. BASS of New Orleans reported a case similar to Dr. Swan's. After the man had been in the ward three or four days twenty grains of quinine were given to him by mistake. It was immediately stopped, when discovered. The plasmodia were absent the next day, and from that on, until a month and a half later, he had had no more parasites. He had previously shown three crops of parasites. He died two months later, and at postmortem tuberculous peritonitis was disclosed. Dr. Bass then referred to a second case of quartan malaria, in which the patient had died within a short time after treatment, and showed markedly few evidences of malaria at the autopsy.

Dr. THAYER mentioned a case of the obstinate type of quartan malaria in a man who had consulted Dr. Osler on account of recurrent chills. Dr. Osler did not think it was one of malaria, but Dr. Thayer examined the blood and found quartan parasites.

Dr. BASS cited two other cases of quartan malaria. On admission, one patient showed an enlarged spleen and a triple infection, with three crops. At the end of three days the disease had yielded to quinine, but he was kept in the ward ten days more. The pathologist at the Charity Hospital had thought he could recognize a different type of plasmodium in the patients coming from Honduras, and had named it the Honduran malarial parasite.

Dr. GEORGE DOCK of New Orleans said that the old English idea of the greater severity and obstinacy of quartan malaria did not always hold good. He then referred to the enormous number of parasites that had been found in Dr. Bass's second case, yet the patient that died had had practically no symptoms. There was also a very decided estivoautumnal infection, a crescent having been found later on. In regard to the distribution of the parasites in the blood, he said that the circulation did not go on as in a series of tubes without any outlet; he then spoke of a patient in whom he was unable to find parasites in the circulating blood, yet found quantities on puncturing the spleen. Dr. Dock agreed with Dr. Bates that most cases of malaria could be checked in forty-eight hours, holding Dr. Osler's limit of five days to be too long. He thought that the microscope should be used, and, if necessary, the spleen punctured.

Dr. O. T. LOGAN of Chingteh, China, referred to the patient mentioned by Dr. Bass who got well. He thought the recovery explained by the fact that our forefathers got well before the discovery of quinine. In China several

persons had come under his observation who did not believe in taking medicine. By simply remaining in bed they eventually got well.

Dr. HENRY SKINNER alluded to the facts mentioned by the previous speakers in regard to the Honduran parasite, and said that the formation of a distinct species or a geographical race was to be expected when this amount of distribution was found.

Dr. W. P. CHAMBERLAIN of Jackson Barracks, La., said that in studying malaria he had found four patients who resisted the administration of quinine by mouth for four days, the rest yielding promptly to treatment.

Schistosomiasis (Japonicum), with Especial Reference to Observations in Hunan Province, China.—Dr. O. T. LOGAN of Chingteh, China, said that the existence of this disease seemed to be connected with wet farming. Diagnosis was usually easy, though it might be necessary to make examinations on several days before the characteristic ova were found in the stools. It was believed that the infection took place through the skin in persons who waded in stagnant water. The prognosis was bad in heavy infections; and even light infections lowered the vital resistance and rendered the patient more liable to concurrent infections.

The Prevalence and Importance of Uncinariasis Among Apparently Healthy Southern-Bred White Men in the United States Army.—Major WESTON P. CHAMBERLIN said that uncinariasis was very common among soldiers of less than three years' service. Of one hundred serving in their first enlistment, sixty were infected. It was believed that uncinariasis in childhood was the cause of the poor development so common among Southern-bred recruits. Those who led a farm life were frequently infected with hookworms, as most persons on farms habitually went barefooted in childhood; more than half of these had, probably, suffered from ground itch during their youth.

Mild Uncinaria Infections.—Dr. CHARLES C. BASS of New Orleans called attention to the fact that the negro presented fewer symptoms, even when laboring among these parasites. He then described in detail the method of obtaining the ova by the means of the centrifuge.

Dr. THAYER of Baltimore opened the discussion on the two preceding papers by saying that it would be of great interest to study the stools in *Strongylus stercoralis* infection by the method described by Dr. Bass, in order to determine the relative measurements of these eggs and those of uncinaria. The eggs of the former were very rarely found in the stools; and when they were found, were so like those of uncinaria that there was sometimes a question as to which they were.

Dr. SWAN mentioned a patient who had recently come under his observation. He had had, at periods of four weeks, epileptiform attacks of considerable severity, and upon examination of the blood an eosinophilia of 15 per cent. was found. A pretty large flagellate infection was discovered by examining the stools. After appropriate treatment for two months there was no return of the convulsions, and, in spite of repeated examinations of the stools, Dr. Swan failed to discover any uncinaria eggs.

Dr. JOSEPH SILER of Port Jay, N. Y., thought the question of prophylaxis of uncinariasis ought to have more attention, as the South would never get rid of the hookworm unless the question was taken up by the Government. The fact that nearly all the children of the South were infected made him conclude that if that section could get rid of the hookworm a great deal would be done for humanity.

Dr. CHAMBERLAIN closed the discussion by saying that his cases were widely distributed, every State in the South being represented, even as far north as Maryland.

Dr. BASS agreed that ridding the South of this infection was of very great importance. He thought, however, that the question must be one of education, rather than of legislation; as it would be impossible to force the layman by law to observe such sanitary measures as would be necessary to prevent this disease.

The Relation of House-Flies to the Spread of Disease.—Dr. HENRY SKINNER of Philadelphia read this paper. This insect, he said, oviposited in horse manure, decayed vegetable matter and meat, cow dung, fowl droppings, and human excrement; but the vast majority of house flies were bred in horse manure. The house fly as a carrier of typhoid fever was very dangerous. Wherever flies could gain access to material containing the *Bacillus typhosus* they were almost certain to carry it to food. They had long been suspected of being agents in the dissemination of cholera and other intestinal diseases. So far as was known, however, the house fly was only the mechanical conveyor of bacteria, and was not the host of any known animal disease-producing organism similar to the protozoan organism that caused malaria. If the insect could be prevented from depositing its eggs in horse manure the fly as a pest would soon be a thing of the past. The manure should be rammed into barrels that could be tightly covered.

Dr. P. M. ASHBURN, U. S. Army, opened the discussion on Dr. Skinner's paper by saying that he had, some time ago, prepared some slides covered with some serum, when he discovered a fly busy in eating some of the serum. He caught the fly, and found in its proboscis two larval enoatodes that were indistinguishable from strongyloides. He thought that in this way the fly might be a carrier of intestinal parasites—possibly of uncinaria. He also said that in the Philippines flies were much less common than in the United States in the summer time.

Dr. LOGAN said that in China the blue-bottle fly was more common than the house fly.

Dr. GEORGE DOCK said that the only way to get rid of house flies was to observe absolute cleanliness; if a soup-plate containing sugar water and a 10 per cent. formalin solution was placed in the room it would be found pretty effective in keeping the flies down. The odor could not be perceived, but the flies were absolutely destroyed.

Mr. H. L. VIERECK of Washington, D. C., said that at the laboratory in Harrisburg, Pa., while specimens were being immersed in 4 per cent. formaldehyde it was found that the flies were attracted by the formaldehyde solution, which they sucked up; and that they died in great numbers.

Dr. SKINNER, closing the discussion, said that there were numerous records of places in the tropics in which house flies were very abundant. He considered that further information would be very valuable, as the pest is one distributed pretty well all over the world, and especially prevalent in Southern Europe.

The Etiology of Pellagra.—C. H. LAVINDER of the U. S. Health and Marine Hospital Service, Washington, D. C., read this paper. After an exhaustive review of the subject, the following conclusions were drawn: The cause of Pellagra is essentially unknown. The idea, in one form or another, that there is an etiological relation between pellagra and the use of maize as a food is not likely to be abandoned, as it rests on the observations and experimental work of many able men. Sambon's suggestion of the possible sporozoal nature of the disease rests largely on an argument from analogy and is, at present, little more than a suggestion. It offers new and possibly profitable fields of investigation.

The Relation of the Production and Utilization of Maize to Pellagra.—CARL L. ALSBERG of the Bureau of Plant Pathology, Department of Agriculture, Washington, D. C., attributed the increasing prevalence of pellagra in the United States to (1) differences in the variety of corn

grown, (2) changes in the climate, (3) the spreading of the cornbelt northward, (4) the manner of transporting corn, and (5) changes in the methods of milling. In the South the germ of the corn was left in when it was milled, and, for this reason, the meal milled in the South contained a much higher percentage of toxins. He then proposed that the standardization of grain should be carried out by the Federal Government, which should enforce the proper drying of corn.

Dr. George Dock opened the discussion, and said that from Dr. Alsberg's remarks one might get the idea that pellagra had developed in this country simply through the change of conditions for the raising and selling of corn; but Dr. Dock was certain that he had heard of cases before the existence of these changed conditions. He thought that the main point was that it existed now, in a form difficult to recognize, and very often mistaken; as the clinical recognition of the disease was difficult in the less marked cases.

Dr. J. M. Anders called attention to the fact that of 196 cases of pellagra collected by Dr. Wood, 70 occurred in North Carolina. He said that the acute form of pellagra proved fatal in from four to five weeks to three months, this form being unknown in Italy. The average duration of cases here, in the chronic form, was only three years; whereas in Europe it was at least five years.

Dr. Edward Stitt of Washington said that in not a single case of pellagra that had been shown him in Egypt could he see any typical symptoms.

Dr. William Thayer referred to a case that he had seen in 1905. The patient had had two previous attacks, associated with diarrhea, an eruption on the back of the wrists, and marked stomatitis. This condition lasted about a month, and then cleared up. He also said that intensive arsenical treatment had produced some very good results in trypanosomiasis. Therefore it was tried in pellagra on two successive days. In many cases there was a prompt recovery, and it was unnecessary to give the treatment a week later. He considered this result so remarkable that he could not help feeling skeptical regarding it.

Dr. T. B. Futcher of Baltimore asked whether it was known how long a person must be subjected to the infection in order to develop the disease.

Dr. Alsberg said that he did not think there were any exact data regarding this point. He thought that a good many cases were overlooked in this country, especially in colored persons.

Dr. Lavinder said that not enough reports had been received from men who had seen the disease clinically to enable one to draw conclusions. He remarked that, while the Italians do have an acute pellagra, what they mean by this term is an acute exacerbation of a chronic case.

The Method of Teaching Tropical Medicine.—Dr. Edward R. Stitt of Washington referred entirely to the teaching conducted in schools outside of the tropics, in which no tropical material was available. He suggested that, instead of showing a tropical-climate case and giving the differential diagnosis from a temperate-zone disease, one should exhibit a case with a disease common here and differentiate it from one common in the tropics. More attention should also be given to epidemiology; and to relate an amusing anecdote in connection with the description of a disease would often impress students as nothing else could.

A Method for the Preparation of Flat Worms for Study.—Dr. A. J. Mink of Washington gave a concise description of the method.

Dermatobia Noxialis Infection: Report of a Case Contracted in Southern Mexico.—By J. D. Mangee of Atlanta, Ga. (Will be published later.)

Blood-Pressure in Yellow Fever.—Dr. J. Birney Guthrie of New Orleans said in this paper that, after a prolonged study of blood-pressure in the Emergency Hospital in New Orleans, he had come to the conclusion that a low average of pressure was a favorable sign of no little prognostic value, and that a crossing or touching of the curves of blood-pressure and pulse was of great significance. A single observation of blood-pressure was of no value; but the record from day to day was vastly instructive in yellow fever.

Dr. Bass of New Orleans said he felt certain that the general observation of a decline of blood-pressure was the rule. The association of nephritis with the increase of blood-pressure was also confirmed in two cases, one patient dying with absolute suppression of urine and the other with nephritis and black vomit.

A Note on the Ipecac Treatment of Amebic Dysentery.—Dr. George Dock of New Orleans urged the more frequent use of ipecac, the neglect of this being in direct opposition to the strong recommendations made by experienced physicians in India, the United States, and Manila. Vomiting was hardly ever produced, even with doses of 60 or 80 grains a day. The clinical result was most striking; the amebas disappeared quickly, as a rule. Subjective discomfort was often surprisingly slight.

Dr. Stitt said that in the Philippines most excellent results were obtained by the use of ipecac. He also said that he had had an amebic affection for two or three years, and that the only thing that would do him any good was ipecac. After using it for three or four days, however, he would lose his appetite and be forced to discontinue the drug.

Dr. J. M. Anders asked whether Dr. Dock had met with any cured cases, he having found the cure only temporary.

Dr. P. M. Ashburn said that he had never seen any patients who did not promptly recover under ipecac treatment, save one, if they could retain the drug. If he could not cure it within a month he felt doubtful of ever curing it.

Dr. Dock, in closing, said, in answer to Dr. Anders' question, that he had been unable to follow all of his cases up. He considered ipecac more effective in acute cases than any other drug, and had had better results from it in cases of long standing.

Officers.—The following officers were elected for 1909-1910: *President*, Dr. William C. Gorgas, U. S. A.; *Vice-Presidents*, Dr. William S. Thayer of Baltimore and Dr. Rudolph Matas of New Orleans; *Treasurer*, Dr. Charles Lincoln Furbush of Philadelphia; *Secretary*, Dr. John M. Swan of Philadelphia; *Assistant Secretary*, Dr. Edward R. Stitt, U. S. N.; *Councillors* (to serve two years), Drs. Ramon Guiteras of New York and James Ewing of New York. Drs. William S. Thayer of Baltimore and James M. Anders of Philadelphia were elected delegates to the International Society of Tropical Medicine.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting, Held April 1, 1909

The President, Dr. John A. Wyeth, in the Chair.

This meeting was held under the auspices of the Section on Dermatology.

Tuberculosis and Tuberculides of the Skin.—Dr. A. R. Robinson said that the term tuberculosis of the skin had been up to the present time applied to those lesions in which tubercle bacilli had been found *in loco* and regarded as the cause of the tissue changes. The presence of tubercle bacilli was not positive unless it could be shown that they were not a secondary invasion. They might be present, but on account of the limited number, uncolorable condition, or absence in the tissue examined, they might

not be observed. Miliary tubercle structure, when present, was positive, but such structure was not the only kind entitled to be called tuberculosis. Animal inoculations, if positive, were conclusive, but they were often negative in tuberculous cases, as the part used in the experiment might be free of organisms. A marked local reaction after a tuberculin injection was fairly conclusive. Dr. Robinson maintained that whatever tissue changes were caused by tuberculin or by the tubercle bacilli, active, attenuated or dead, having an origin either at the seat of the lesion, or carried to it from a distant part, represented a true tuberculosis, whatever the tissue changes were. There were several clinical forms of tuberculosis among the lesions in which the bacilli were easily demonstrated, and clinicians had made out several varieties of a single form as in lupus vulgaris. That there could be very similar objective forms of disease manifestations of the skin with a very different pathogenesis was well known, otherwise the diagnosis would not be so difficult as it sometimes was among experts, and for a practical illustration of this he referred to the reports of meetings of dermatological societies where cases were shown and discussed. That a definite agent could produce polymorphous eruptions a reference to syphilis alone was sufficient proof. Therefore, the fact that lesions upon the skin had a morphology and a clinical course different from some other lesion was no proof of a different pathogenesis. There was no difference in virulence in the tubercle bacilli of the skin from those of other organs. The character of the lesions in a given case depended, no doubt, on the virulent character and number of bacilli, the mode of infection, anatomical structure and nature of the ground. It was not known, except in this general way, why different forms arose in different persons from the same method of infection. The lesions arose from inoculation, either exogenous or as autoinfection, from contiguity, or were hematogenous, that was through the blood circulation. The term tuberculide had been used since 1896 for certain lesions that could be described as chronic, indolent, necrotic granulomata, with a tendency to softening and death, leaving superficial or deeper scars. They were met with very frequently in association with flagrant chronic tuberculosis, especially of the bones, glands, and skin. They were supposed to differ from the so-called true tuberculosis already referred to by absence of tubercle bacilli, negative animal inoculation, and absence of tubercle structure. They often showed local reaction after tuberculin injection and also positive reaction after tuberculin inoculation. No single one of the above would serve to separate these lesions from the "tuberculoses." He said he had already given his definition of a tuberculosis, and whether these tuberculides were such or not must be decided on that basis. He stated that, although Darier was the first to use the term tuberculide for this group, Dr. Piffard was the first to use the term in 1892 for tuberculous affections of the skin, and to him belonged the priority and credit. What constituted tubercle structure? What tissue changes could be produced by tubercle bacilli in any condition of existence or by diffusible toxin from the bacillus? Professor Orth agreed with the position Dr. Robinson had taken that true tuberculous tissue could exist without the presence of caseation, giant cells, epithelioid cells and lymphoid cells arranged in the classical manner as described in the formation of miliary tuberculosis. Zieler, using pure tuberculin for skin inoculation, found in an early stage nodules along the blood vessels, with round cell infiltration and perhaps slight necrosis, and, at a later stage, extended deeper along the vessels to the deep fascia, while at the place of infection there were epithelioid cells in the blood vessel wall and giant cells in the scar. Tuberculin containing fragments of bacilli did not cause different tissue changes, hence the changes at a distance from the place of infection were the result of a diffusible toxin. Whether a tuberculide was formative or exudative probably depended on the virulence of the virus, number and character of the bacilli and nature of the ground. Necrosis was caused by the toxins. Dead tubercle bacilli could cause granulation tissue formation, but not caseation, nor could they produce a diffusible toxin. According to this observer, it required for skin inoculation only that dissolved chemical substances arising from the bacilli he used, and corpuscular elements could be excluded. He showed that tubercle structure could be produced without bacilli or its fragments or dissolved body substance, that was, that a toxic tubercle structure could exist without an endotoxin. This view was opposed to that of Wolff-Eisner and others, who maintained that the action of tuberculin depended upon what was contained in the bacterium body, and that giant cells were formed where there was a slow bacteriolysis, with freeing of poisonous substances in the bacterium body, that tuberculin reaction depended upon the splitting up of the bacilli, hence the tuberculous structures forming after a von Pirquet inoculation depended on the visible or invisible bacilli fragments that got into the skin and were there dissolved; also that the endotoxin to which the changes were ascribed arose only in the body under the influence of a bacteriolytic substance set free and wrought into action. According to Zieler, the histological changes depended on the action of living bacilli and also from soluble substances and conditions of the tubercle substances.

As regards the etiology of the tuberculides, three views existed—a toxic hypothesis, that was, that the lesions depended upon a toxin carried to the part from a distant tuberculous area; a bacterium hypothesis, that the lesions depended on attenuated or dead bacilli *in loco* or carried to the part as such from a distant part; a third view that there was only an association and not an etiological relation between the tuberculides and tubercle bacilli. For the toxin hypothesis the clinical history, inability to find bacilli, negative animal inoculation and anatomical structure had been urged, but he stated why the search for bacilli was usually in vain and animal inoculation generally negative. Also, the old test for tuberculous structure was not correct, as shown by Orth, Zieler and others. The objection to the bacterium hypothesis was again the absence of bacilli and of tubercle tissue according to the old test, negative animal inoculation and inconstancy of reaction after tuberculin. They might, moreover, have bacilli and animal inoculations fail, and they might have positive inoculations and be unable to find bacilli as in lichen scrofulosorum. In fact, in lupus vulgaris, an admitted tuberculosis, it was very difficult to find bacilli, and this clinical form had never been reproduced by inoculation. Fadasohn believed the lesions arose from material from weak or dead bacilli from a distant part becoming weak or dead at the primary seat or in transit through the blood vessels or at the seat of the cutaneous lesion. The third view that the lesions were not tuberculous but the result of local infection or autoinfection of different agents on a suitable ground as pityriasis versicolor in tuberculous persons, pyodermias in diabetics and scrofulous individuals, and undoubtedly some of the so-called tuberculides had this origin, that was, the diagnosis was not as yet sharply defined. He doubted, however, if that was ever the origin of a chronic necrotic granuloma with caseation. The researches of Gougerot and Laroche, as published in the archives of experimental medicine and pathological anatomy in 1908, seemed to throw much light on the whole subject. They were able to produce the disease (tuberculides) in guinea pigs, with the same clinical, anatomical, and bacteriological characters as were found in the human subject. They made inoculations by scarification, by rubbing into the skin after epilation, and by injection into the

epidermis. Tuberculides with a typical histology were produced by inoculation, by rubbing into the skin, of virulent bacilli. The lesions were almost invariably those of the papulonecrotic form. Well developed lesions formed in about eight weeks. Sometimes typical miliary tubercle structure formed deeper in the tissues, and superficially the structure was atypical, as in human tuberculides. The process could commence as a general epidermis necrosis or with a spongy condition first and later a necrosis. Inoculations into guinea pigs from these lesions were usually negative. They concluded that active bacilli must be used, that the lesions did not depend upon attenuated or dead bacilli if the guinea pig was nontuberculous. Inoculations with attenuated or dead bacilli or with tuberculin in tuberculous animals caused the same lesions, hence tuberculides in the human subject when not caused by direct inoculation of active bacilli must have a hematogenous origin and show that the person has tuberculosis. From all these observations he concluded that all the group of papulonecrotic lesions had a tuberculous basis and, following Piffani, would employ the term tuberculide for all the tuberculous affections of the skin.

Tuberculin Injections in the Treatment of Certain Diseases of the Skin.—Dr. A. Schuyler Clark said that tuberculosis of the skin was not very common, and Dr. Lawrason Brown had told him that in 1,600 cases of pulmonary tuberculosis treated at the Adirondack Cottage Sanitarium he had only seen one case in which the skin was affected. Dr. Clark said he had used the bacillus emulsion for his injections, and regularly began with the dose of 1/10,000 m.gr., the injections being given in the less sensitive portions of the back, biweekly, and under the most careful aseptic precautions; this dose was systematically increased in series of tenths over periods varying from six weeks to several months, the largest dose he had worked any patient up to having been one decigram. On only two occasions had any reaction resulted from these injections. After reporting a number of cases, he offered the following conclusions: (1) Tuberculin had some place in their dermatological armamentarium, but its administration was dangerous and unjustifiable. (2) It seemed to have some therapeutic value and indirectly might even be a curative agent in erythema induratum, granuloma necroticum, lichen scrofulosorum, and their clinical variations, classed under the heading of tuberculides, and due to the tubercle bacillus. (3) Lupus erythematosus and the so-called lupus pernio were probably not tuberculous conditions and would not be benefited by injections of tuberculin. (4) In only a few selected cases with considerable erythema and congestion, probably due to the additional effect of the tuberculous toxins, were tuberculin injections of value in lupus vulgaris and its so-called allied true tuberculosis of the skin, due to the presence of the tubercle bacillus itself, as administered under this safer method. (5) In this latter class of cases, Senger reported cures by inunctions of the Moro tuberculin salve into the lesion itself, producing specific local reaction without constitutional disturbances, and this warranted its trial. (6) In scrofulodermias, and particularly tuberculous ulcerations, even though tubercle bacilli be present, tuberculin injections seemed to be followed by improvement when used along with hygienic and local measures.

The Diagnostic Value of the Inunction Tuberculin Reaction in Cutaneous Tuberculosis.—Dr. William B. Trimble reported the use of the inunction test in fifty-four patients suffering from various diseases of the skin, a number of whom were cases of cutaneous tuberculosis. The test or method was originally devised by Moro of Munich and was supposed to be specific. The positive reaction was divided into three degrees. The first, a mild efflorescence of ten or twelve pin head, dusky red papules, occurring from twenty-four to forty-eight hours after the application of the salve. The other two were exaggerations of the first, with a larger area of erythema surrounding the papules. He had applied the ointment in lupus, both vulgaris and erythematosus, and tuberculosis verrucosa cutis and had used cases of psoriasis and syphilis as controls. In all the cases of skin tuberculosis the reaction was positive. It was also positive in a few cases of psoriasis, some of which were afterward found to be suffering from general tuberculosis, and others in which no focus of tuberculosis could be discovered. In none of the cases of syphilis was there a positive reaction. The reaction was positive in two cases of erythematous lupus and negative in two.

Lantern Slide Exhibition Illustrating the Clinical and Histological Features of the Tuberculoses and the Tuberculides.—Dr. John A. Fordyce showed a number of lantern slides illustrating the early clinical forms of lupus vulgaris of the anterior nares, involving the mucosa and contiguous skin. He stated that statistics showed that in 72 per cent. of all cases of lupus the mucous membranes were involved, and in about 30 per cent. pulmonary tuberculosis was present, the majority of the latter being secondary to the skin affection. In speaking of the clinical manifestations of intranasal lupus, he referred to the frequency with which perforation of the septum occurred. An early case of lupus of the cheek independent of mucous membrane lesions was shown, and the excellent opportunity which these cases offer for Finson light treatment was discussed. Extensive cases with deformity and chronic cases of lupus of the face resulting in scar tissue were also illustrated, as well as multiple lesions involving the face and body and cases of lupus exulcerans, lupus serpigenosus and lupus maculosus. A rapidly spreading tuberculous granuloma of the commissure of the mouth, presenting neither the features of a lupus nor tuberculosis vera, was next shown, and this was followed by slides of tuberculosis verrucosa cutis of the hands about the finger nails and the buttock and of tuberculous dactylitis. Dr. Fordyce then showed illustrations of acnitis and folliclis and stated that, in the opinion of Barthelemy, Crocker, and Schamberg, of Philadelphia, the acnitis of the face, which was called by Tilbury Fox disseminated follicular lupus, was related in no way to that infection. He also showed a case of extensive scarring of the entire body following an infection of some kind of the pilosebaceous apparatus. This case had been carefully observed by Dr. Trimble, and it was difficult to say whether it was related to the papulotuberculides or not. There was, in the opinion of Dr. Fordyce, a papulonecrotic tuberculide often found associated with glandular and other forms of tuberculosis which gave a positive tuberculin reaction. This form was probably embolic in origin and due to the tubercle bacilli. He showed some further slides illustrating erythema induratum and spoke of the distinction made by Whitfield of the two types, one tuberculous and the other possibly rheumatic. Lupus erythematosus, a typical butterfly lesion, and another more unusual one on the side of the face were shown to illustrate the differences between it and the tuberculous diseases. A number of histological slides illustrated the manner in which infection took place in the skin in lupus and the different ways in which the skin reacted to the infection and the development of the tubercle and subsequent necrosis or fibrosis. These were followed by slides of plasma, epithelioid and giant cells, follicular lupus, lupus in scar tissue, and tuberculosis verrucosa cutis. Early and advanced stages demonstrating the histology of erythema induratum, of necrotic tuberculide and of lupus erythematosus concluded the exhibition.

Dr. Milton B. Hartzell of Philadelphia said that he had accepted the invitation to be present and discuss the papers mainly for two reasons. First, the time was opportune for a discussion of such a subject, a time when the

attention of the whole world was directed to the subject of tuberculosis. Secondly, it seemed to him that the time was ripe for those who were especially interested in the study of the pathology of the skin to call the attention of the profession at large to the very great amplification of our knowledge of tuberculosis as it affected the skin. The additions to our knowledge of tuberculosis of the skin during the past twenty years had been enormous, but he was quite sure that the general profession had not sufficiently appreciated this fact. Comparing the textbooks published in 1880 with those published to-day, one would find in the former one-quarter or one-half a page devoted to a consideration of tuberculosis of the skin; whereas to-day one found as many as fifty or one hundred pages, and even more, necessary for a proper discussion of diseases of the skin of tuberculous nature. He said he was well aware that a multiplication of words did not mean always an increase in knowledge, but he was sure that many permanent and valuable additions had been made to the knowledge of tuberculosis as it affected the skin. Dr. Hartzell, referring to the two tables Dr. Robinson had presented, said that there were two groups of affections which were included under the term tuberculosis of the skin. Some of these had long ago passed from the region of debate; they were well established in the category of tuberculosis of the skin; their histological features, and especially the presence of the bacillus tuberculosis, left no doubt as to their proper place. The mere histological features of any lesion, however, were not sufficient to determine whether it belonged to tuberculosis of the skin or not; they were beginning to learn that there was no such thing as anatomical specificity, but only etiological specificity. Because several lesions presented closely allied morphology and symptomatology, it did not follow that they were due to the same cause. When one came to the so-called tuberculides there was still room for debate. They were by no means sure that they belonged to tuberculosis of the skin, for they had failed to demonstrate in those cases the bacillus of Koch. He wished it to be understood that he was not denying that these were cases of tuberculosis, but they were as yet far from certain about it. The failure to demonstrate the tubercle bacillus in these lesions must leave them in doubt as to the true nature of tuberculides. In the papulonecrotic tuberculide they had an affection usually associated with some fairly well demonstrable tuberculous condition elsewhere in the body; this was one of the chief reasons for regarding this as a tuberculide. All efforts to demonstrate the tubercle bacillus in those lesions had thus far failed, and some authors, notably the French, had attributed them to tuberculous toxins produced in foci remote from the skin. But if they were thus produced it would be very difficult to account for the comparative infrequency of the eruption in cases of visceral tuberculosis, in which tuberculous toxins must be abundantly present in the circulation. One of the peculiarities about several tuberculous eruptions was the tendency, in many cases, to localize themselves about joints; this was a very curious characteristic, and it had not received adequate explanation. In the papulonecrotic tuberculide the walls of the blood vessels were enormously thickened, thus encroaching upon the lumen of the vessel and leading to necrosis. There was in all probability some toxic substance which acted upon these vessels. Pityriasis rubra, which always terminated fatally, was in all probability a tuberculous affection, since in a large proportion of the cases autopsy disclosed visceral or glandular tuberculosis. A few years ago Brunsgard reported a case of universal dermatitis lasting for some months, and terminating fatally from bronchopneumonia; the autopsy revealed tuberculous foci in all the viscera and the lymphatic glands; tubercle bacilli were also found abundantly in the skin. He did not believe erythematous lupus to be tuberculous in nature. Most of his patients afflicted with this disease were in robust health, and many were living to-day after having had the disease for many years. In a case of erythematous lupus, in which death occurred from accident or acute disease, the most careful post-mortem examination conducted by some authors whose names he could not recall failed to show the smallest focus of tuberculosis. A few cases of this kind would completely refute the theory of the tuberculous character of this affection. Dr. Hartzell believed that this disease was due to a nontuberculous infection of some sort.

An important question was what was the relationship between cutaneous and visceral tuberculosis. Phthisis, for instance, frequently occurred with lupus vulgaris; but in how many cases did visceral tuberculosis follow as a result of the cutaneous affection? There were no accurate or reliable statistics on this point, which was a very important one. How much did a local tuberculosis menace the patient's life? We were apt to regard local tuberculosis as a rather benign affection. A second important question was, What was the relationship between bovine and other nonhuman tuberculosis and cutaneous tuberculosis? It seemed likely that tuberculosis verrucosa cutis was in a considerable number of cases due to the bovine bacillus, since it was especially frequent in butchers and others who frequently came in contact with animals. If Koch's contention that the bovine bacillus rarely found a favorable soil in the human being was true, it was rather curious that the same bacillus so often attacked the skin which was very unfavorable soil for the growth of the bacillus, as shown by its scanty numbers in cutaneous tuberculosis.

GENITOURINARY SECTION.

Stated Meeting, Held March 17, 1909.

DR. MARTIN W. WARE, CHAIRMAN.

A Case of Chancroidal Bubo, Followed by Femoral Thrombosis, Pyemia, and Death.—Dr. HERMANN FISCHER reported this case and showed the specimen. The patient was a man 34 years old, a salesman, who contracted a chancre about ten years ago, for which he received treatment for only eight days. He also gave a history of gonorrhea, without complications. Two years ago several ulcers of large size developed on the right leg, which disappeared under antiluetic treatment. At the same time the right inguinal glands became swollen, and this swelling never entirely subsided. A week before coming under observation these glands again became enlarged, and an abscess developed which was discharging pus when he entered the hospital. Examination showed a large ulcerated area, with inflamed, ragged, and indurated edges. The floor of this ulcer was occupied by an irregular mass of ulcerating glandular tissue, freely discharging pus. There was no elevation of temperature. The inguinal glands were extirpated, with the removal of all diseased tissue. The saphenous vein, which was firmly adherent to the mass, was ligated and cut. It was found to be thrombosed. Two days after the operation the patient's temperature suddenly rose to 104° F., and he passed a very restless night. The wound was dressed and found clean. On the fourth day after the operation he had a severe chill; this was repeated daily, and his temperature ranged between 100° and 105°, at one time reaching 107.4°. His pulse ranged between 130 and 140. On the 16th day he developed a septic pneumonia and died the same day. The autopsy showed multiple abscesses in both lungs, and a thrombosis of the femoral vein, the external iliac vein, and the inferior vena cava. An incision into this thrombus revealed pus.

Chancroidal Bubo Perforating into the Abdomen.—Dr. FISCHER also reported the case of an inguinal abscess,

of chancroidal origin, which burrowed its way along the femoral vein and had broken into the peritoneal cavity, causing peritonitis. Upon opening the abdomen, Dr Fischer found a large amount of purulent fluid in the pelvis and right iliac fossa. When pressure was exerted upon the swelling in the groin, it was noticed that a small jet of pus flowed into the abdomen from below Poupart's ligament and from the inner side of the femoral vessels. Upon further exploration he found an abscess membrane which projected into the abdominal cavity like the finger of a glove, the tip of which was perforated. The pus in the abdominal cavity was carefully sponged out, the swelling in the groin was incised, and both incisions were drained. After the operation the patient was rather septic for about a week, his temperature at one time reaching 106°. From that time on it gradually subsided, and his further convalescence was uneventful.

Litholapaxy, with Specimens. (Two Cases).—By Dr. George Knowles Swinburne. The first case was that of a man 54 years old, who gave a history of having had a stone removed from his kidney nine years ago. Subsequently, he developed symptoms of stone in the bladder, and its presence there was corroborated with the cystoscope and searcher. It was of the mulberry type, about the size of the end of an adult thumb, and required considerable force to crush it. Only a portion of it was removed at the first sitting, the remaining fragment being crushed and evacuated a week later.

The second case reported by Dr. Swinburne was that of a man of 60, who had given symptoms of stone in the bladder for over a year. In this case the stone was situated behind the prostate, so that it was impossible to grasp it with the jaws of the lithotrite in the regulation manner, so that time was lost by being obliged to seek the stone with the instrument. In order to effect its complete removal, about ten operations were necessary, which were done at intervals of a week. Both of these patients were operated on under cocaine anesthesia, and in no instance did any reaction follow the procedure. In the first case the urine cleared up within a week; in the second case it did not clear up until all the fragments had been removed. The speaker said he did not consider it necessary to complete the litholapaxy at a single sitting if there were any contraindications to so doing.

Dr. Victor C. Pedersen said that this patient illustrated how in some of these old subjects, notwithstanding beginning prostatic enlargement, one might enter the bladder repeatedly and do a good deal of work there without getting the disastrous renal crisis that one was so apt to fear.

Dr. Follen Cabot said that in the absence of any history of retention of urine and prostatic symptoms he did not think that this could be regarded as a true case of prostatic enlargement.

Dr. James Pedersen said that success after litholapaxy depended largely on the technical skill of the operator. Possessing that, the operation was possible, and was the operation of choice in many cases, in spite of an enlarged prostate, for example, and other possible contraindications.

The Chairman, Dr. Ware, thought that a certain amount of unnecessary risk was incurred by treating these patients with stone in the bladder as ambulant cases. It was well known that urethral fever might occur, even after a simple catheterization done under the most favorable auspices, and therefore to permit a patient to go about immediately after a litholapaxy was rather precarious.

Dr. Swinburne, in closing, said he would prefer to treat these cases in the hospital, but in the cases reported the patients would not consent.

Multiple Syphilitic Nodes of the Testis and Epididymis.—Dr. Victor C. Pedersen reported this case, which was one of multiple syphilitic nodes of the testis, epididymis, and chord, in which the lesions disappeared promptly after a dozen mercurial injections. This patient at first absolutely denied specific infection, and for a time the lesions were regarded as tuberculous.

Dr. F. Tilden Brown referred to the difficulty that was often met with in recognizing the true character of a testicular enlargement, and in the absence of a microscopic or pathological diagnosis he thought we should never fail to avail ourselves of the antisyphilitic test.

Dr. Ware said the history of these patients often counted for naught. He thought one could place some reliance on the use of tuberculin, and an observation of its general and local effects.

Dr. Pedersen, in closing, said the testis in this case was typical of tuberculosis, in regard to both the character and the multiplicity of the nodes. There were, however, no sinuses nor adhesions. The tuberculin test was not tried.

Two Cases of Epithelioma of the Penis, with Specimens.—Dr. Kingman B. Page reported these cases, in which he had amputated the penis for epithelioma. The first case was that of an Italian laborer, 65 years old, who, when he came under observation on March 15, 1908, gave no venereal history, but had been treated for syphilis until coming under observation, and said he had first noticed the growth two months before. It involved the superior surface of the prepuce, and the inguinal and femoral glands were enlarged and somewhat adherent to the skin. The penis was amputated, close to the pubis, and the glands excised. Two months later a recurrence was noticed in the prostate. From this point there was a rapid extension to the base of the bladder and the wall of the rectum, and by ulceration, the whole forming a huge cloaca. The man died of sepsis on July 4, 1908. The pathological report was carcinoma.

The second patient was a German cook, 56 years old. He gave an alcoholic and a probable specific history, and his physical condition was poor. The glands in both groins were enlarged, but movable. The penis was amputated on September 23, 1908, but the glands were not excised. When the patient was last seen, on February 6, 1909, he was in good condition and showed no evidences of a recurrence. Dr. Page said he had seen six cases of epithelioma of the penis, and of these, the longest duration of life after the primary operation was three and a half years. One survived the operation three and a half years, one two years; the others all died within less than a year, the shortest period being four months. Of 7,881 cases of primary cancer of all regions collected by Andrews, there were only 62 cases, or 1.27 per cent., affecting the penis. The majority of the patients were married. There were no cases of contact cancer, and no case in Jews.

Dr. Follen Cabot said that in all the cases of epithelioma of the penis that he had seen, the patients had a tight foreskin, and in most instances the disease was well advanced. These cases were apt to be confused with the lesions of venereal sores, and operation was thereby delayed. The speaker said that one of his patients was alive seven years after amputation; another four years.

Dr. Victor C. Pedersen recalled a case operated on at the New York Hospital by Dr. Robert F. Weir, where the patient was free from recurrence three and a half years after the operation. In that case on one groin Dr Weir did the so-called Lennander operation, by which, in addition to amputating the penis, Poupart's ligament was divided and the glands in the region of the common iliac vessels dissected out. In the other groin Dr Pedersen cleared the lymphaticus away just above Poupart's ligament within the abdomen, by passing beneath the ligament.

Fragment of Rubber Catheter Removed from the Bladder of a Prostatic.—Dr Page showed this specimen, which he had removed from the bladder of an old prostatic who had tried to catheterize himself. The frag-

ment was removed with the aid of an endoscopic tube and a stylet.

Diverticula of the Bladder.—Dr. Hermann Fischer in this paper said that diverticulum, double bladder, bladder-cells, cysts of the bladder, saccules, sacs, pouches and false bladder were terms that were used to designate an abnormality of the bladder, consisting of a receptacle of varying capacity, connected with the bladder by an orifice of variable diameter. These terms were formerly used interchangeably, without a clear or definite conception of the pathological condition to be designated, but in late years, since the pathology of these extra-vesical cavities had been studied more closely, it had been found that their origin and causative factors differed so widely that it was necessary to establish a definite nomenclature in order to avoid confusion. Morgagni was probably the first one to recognize the true nature of diverticula. He attributed their formation to a hypertrophy of the bladder wall, the true cause of which was in his opinion hypertrophy of the prostate. After discussing the various types of diverticula of the bladder, the author stated that the congenital type might be present for a long time before giving any discomfort. Some patients stated that they had suffered from "a weak bladder" as long as they could remember; others experienced symptoms for only a short time. The main symptom in all, at the outset, was frequent micturition. Later this was accompanied by pain, which might be situated in the abdomen, where it had the character of pressure or fullness, or it might only appear as a burning and stinging sensation during and at the end of micturition. After urinating there was in most cases a feeling as if the bladder was not completely emptied, and the desire to urinate persisted or came on again shortly after voiding. Some patients suffered from complete retention earlier or later in life. This complete retention might even be the first symptom of the anomaly. The urine became cloudy and contained mucopurulent material. At times hematuria might be present. These pathological findings made their appearance as soon as the urine in the diverticula stagnated and began to show ammoniacal fermentation. Then all the symptoms were aggravated, and stones might develop in the diverticulum and add to the misery of the patient. If the kidneys became implicated, as they often were in the later stages of the disease, symptoms of pyelitis and pyonephritis might develop, with septic temperature, an attack of uremia finally closing the scene. The treatment of diverticula of the bladder might be conservative, palliative, or radical. There were cases reported which had been made comfortable for years under careful catheterization, with the subsequent flushing of the bladder with various weak antiseptic solutions. Two different methods of operative procedure were at our disposal: 1. Drainage of the diverticulum and bladder through a suprapubic cystotomy, with or without the division of the septum. 2. Radical extirpation of the pouch, and suture of the bladder, with drainage.

Congenital Diverticula of Bladder, Demonstrated by Styletted Catheter and Radiography.—Dr. F. Tilden Brown, in connection with Dr. Fischer's paper, briefly reported a case of congenital diverticula of the bladder. This case was first regarded as one of reduplication of the ureter, and the true condition of affairs was finally demonstarted by the styletted catheter and radiography.

The discussion was continued by Drs. Cabot and Ware, and was then closed by Dr. Fischer.

New Model Composite Cystoscope.—Dr. F. Tilden Brown demonstrated this instrument. He also showed a modified urethroscope.

Glass Tubes for Suprapubic Drainage of the Bladder in Prostatic Surgery.—Dr. Follen Cabot, in showing these, said the advantages they possessed were that they were easily held in place and easily cleaned, and that they permitted a view of the flow of urine or blood through them. The tubes, having an inlet and outlet, allowed a very satisfactory method for continuous bladder washing.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held March 15, 1909.

The Corresponding Secretary, Dr. Frank C. Raynor of Brooklyn, in the Chair.

A Contribution to the Treatment of Cancers.—Dr. C. G. Am Ende, in this paper, first recalled the observation that some sheep thyroids, preserved in their natural condition, seemed to give better results in the treatment of certain goiters than the exsiccated material of commerce. This and other considerations led to the production of a fluid extract made from the gland, which possessed certain antitoxic properties, available to the fullest extent by its complete freedom from producing any cardiac or gastric disturbances, and manifested by restitution of bodily and mental vigor to patients suffering from exhaustion, and in a few cases almost complete prostration, of advanced carcinomatosis, so that they improved in health and in some instances were even able to again take up their previous occupations. When this extract was used in conjunction with the *x*-ray treatment, it seemed to enhance the efficacy of the latter, and the speaker reported cases in which, following this combined method of treatment, there was a disappearance of deep-seated, as yet soft tumors or edematous infiltrations, some quite large—a result not obtainable by the unaided use of the extract, nor by general consensus of opinion, by exposure to the *x*-rays alone. These tumors included metastatic developments in the thus-far healthy female breast subsequent to resection of the other. In offering the use of this thyroid extract as an adjunct to the *x*-ray treatment of cancer, Dr. Am Ende said he did not wish it to be understood that he was in any way heralding a so-called cancer cure, and he wished in no way to detract from the importance of early operative interference in malignant disease. The chief value of this method was in dealing with cancerous growths reappearing after operation.

Dr. J. Herman Branth said that some five years ago, in a paper read before this Association, he asserted that the *x*-rays were very helpful in the treatment of rodent ulcer and epithelioma—in fact, almost a certain cure. This had been confirmed by his experience since that time. He also asserted at the time that deep cancerous affections did not yield to this treatment, but at best were only retarded or brought to a standstill. This had also been confirmed by his later experience. At the meeting in October, 1908, he spoke of the benefits of the high frequency currents, and demonstrated that Houston and Maxwell were in error in their contention that these currents traveled on the surface. He proved by experiment and demonstration that just because of the high voltage, this current would all the more follow straight lines through the body, and that with the aid of a step-up transformer it could be made to pass through any and all insulators known. With this current he had treated epithelioma after raying, with great benefit to the patient. For this treatment he had devised an adjustable spark gap, for which he had received credit in France, where they called it by his name. In Heidelberg they now used a crude affair, unadjustable, and therefore not applicable, excepting with anesthesia, because of the pain it gave rise to. Nevertheless, this spark was followed by the same good result. In Heidelberg they called it "fulguration," and all cases of cancer were treated by this method after operation. Dr. Branth said he called his

method the high-frequency high-tension spark. This series of spark gaps enabled one to have absolute control over the intensity of the current, from the mildest to the strongest. He believed this current to be of greater effect than the *x*-rays in the treatment of glandular tumors of the neck. To warts and moles he applied the high-frequency spark with a pointed vacuum tube. Warts disappeared after from one to three applications; pigmented moles required more prolonged treatment, but all disappeared readily without leaving a scar. Applications for a longer period than two minutes were apt to leave keloidal scars. Electrical applications could not be measured and weighed like pharmaceutical remedies, and ripe experience was necessary to guide the operator and keep him within the bounds of safety.

Dr. Aspinwall Judd said that, while he was in thorough accord with many of Dr. Am Ende's conclusions, there were a few with which he was unable to agree. After ten years' experience with the use of the *x*-rays, the following conclusions briefly embodied his views regarding their value: About 90 per cent. of cases of epithelioma without glandular enlargement yielded very satisfactorily to the *x*-rays. Epithelioma with glandular enlargement, however, presented quite a different aspect, and his results in those cases had not been so good. He always advised the knife in dealing with tumors of that class. In endothelioma his results with the *x*-rays were very satisfactory. In sarcoma he had reported a series of thirty odd cases, all inoperable, in 40 per cent. of which the growth disappeared under the use of the rays, but in these cases there was always a recurrence. In one case the sarcoma had disappeared temporarily four times in the course of five years under the application of the rays. When these cases were inoperable the *x*-ray treatment was better than any other with which he was acquainted; when they were operable they belonged to the surgeon. Dr. Judd said that in recurrent carcinoma his results with the rays had been very satisfactory in cases where there was no glandular enlargement of a malignant nature. In primary deep-seated carcinoma he had obtain no results whatsoever, all the patients dying eventually of metastases, in spite of temporary improvement in some instances. In some of these cases the stimulating effect of the rays caused the rapid formation of metastases and hastened the fatal issue. In about 70 per cent. of these cases the pain was relieved by the rays. In lymphosarcoma and leukemia we simply destroyed the lymphatic cells and lymphatic structures. Caution should be exercised not to attempt to destroy these growths too rapidly; otherwise, we might get a collection of toxins in the body which would destroy the patient. By carefully watching the blood count, this danger could be avoided. Dr. Judd said he had used the hard tube in practically all of his cases. He had used Dr. Am Ende's extract in some of his more serious cases, and he had found that it added very materially to the efficacy of the *x*-ray treatment.

The Diagnosis and Treatment of Rheumatism in Children.—Dr. Le Grand Kerr, in this paper, said that in approaching the subject of rheumatism in children, we must leave behind us all preconceived ideas and deductions which we may have acquired from an experience with adult cases, for acute rheumatism in children was entirely different, in all of its clinical aspects, than the same disease in adult life. There was this chief difference between the adult and child types of rheumatism. In the former it was expressed as an acute polyarthritis, with the symptoms all massed, while in the latter its common occurrence was in monarthritic forms, with cardiac changes as a common manifestation, and the symptoms spread over a long period, so that often the history of the disease was the history of that child's life. The chief object in the child was the prevention of cardiac changes. Before these occurred there were present a multiplicity of symptoms which, when recognized, aided in the diagnosis. A child who had a rheumatic parent was very liable to develop the disease, and if both parents were rheumatic, the liability became almost a certainty. Among the nonarticular manifestations of the disease which were important for its early recognition, the speaker first mentioned tonsilitis. He said that, while not every tonsilitis was of rheumatic origin, fully one-third of the cases were of such genesis. Pain in the chest and exertional dyspnea (irrespective of disease of the heart) was an initial manifestation in 11 per cent. Chorea manifested itself as the initial symptom in 9 per cent. of the cases he had seen, and was severe in but one instance. So-called "growing pain" or myalgia was present in but 4 per cent. of the cases as an initial manifestation. Dr. Kerr said the time to treat rheumatism in children successfully was when any clinical manifestation, backed up by a positive family history, made us suspicious of the tendency to the disease. Joint involvement was the initial manifestation in 31 per cent. In children under two years of age the occurrence of rheumatism was possible, but highly improbable. When active symptoms were present the treatment and care of the child must be rigorous. There were several indications, these were etiological, pathological, and clinical. The etiological indications were absolute rest, both mental and physical. The avoidance of solid food for a few days, and the absolute abstinence from all meats or meat extractives for several days. Sugar must also be restricted to the lowest possible amount, or saccharin used in its stead. All foods which were rich in proteids should be restricted. The pathological indications were to combat the inflammation in the joint, which might be done by the stimulation of the cutaneous circulation, and to limit or prevent an extension to the heart, lungs, pleura, or meninges. Here was the place for elimination, and, with that end in view, the skin, kidneys and bowel must be kept active. Free water drinking should be encouraged. The clinical indications for treatment were hyperpyrexia, pain in the joints, to limit damage to the joints, tachycardia, profuse perspiration, and the resulting anemia and general debility. The salicylates occupied a well-deserved place in the treatment of rheumatism. They were palliative, however, and for the time overcame or modified the rheumatic manifestations. Their use could not be long continued in children, because of their prompt tendency to disturb digestion. Salicin was less objectionable than the salicylate of soda, and could be readily given in the dose of one grain for each year of the child's age and repeated every three hours. Along with the salicylates or immediately following the discontinuance of their use, bicarbonate of sodium should be given. In concluding his paper, the author again emphasized the importance of rest in the care of the rheumatic child, and said that the responsibility of the physician did not end with the diagnosis and treatment of an individual case. If there were other children in that family they must be protected. The parents must be made to realize that what to them seemed a slight illness might be but the beginning of a disease which would limit the usefulness of their child, narrow its activities, or possibly result in its premature death.

Dr. John Dorning said that unfortunately we knew little more about rheumatism to-day than we did fifteen years ago. Even then it was regarded as a disease of microbic origin, conflicting with the old chemical theory. If it is of bacterial origin, and we must admit that in some features it resembled an infection, we could not, at the same time, fail to recognize a predisposing factor in the constitutional diathesis of the child. As a general prophylactic measure, the speaker thought it was incumbent upon the family physician to pay some attention to the diet and general hygiene of the children under his care. During childhood, relatively, a greater percentage of

proteid was necessary for the growth of the body than was required in adolescence. It had, however, been his observation that many children received too large an amount of animal proteid, and they were also indulged too much with sugars, both of which rendered the system more vulnerable to rheumatic affections. The so-called growing pains should not be treated too lightly. In years gone by, when we knew less about scurvy, this affection was often mistaken for rheumatism. At the present time, however, a differential diagnosis was not difficult. Not infrequently, in rheumatism in children, our attention was not called to the case until some cardiac complication had developed. Prior to this the child's symptoms may have been comparatively insignificant; a slight tonsillitis, perhaps, with a persistent low grade of fever, loss of appetite and an increasing anemia. In the treatment of rheumatism in children, in addition to the usual medication, absolute rest was a most important factor. In some cases, the patient should be kept between blankets instead of sheets, as the skin was over-sensitive to cold. In the beginning, an exclusively fresh milk diet should be given, to which should soon be added cereals and fruits, and, later on, green vegetables. A general tonic treatment with iron and cod liver oil was indicated in many cases.

Dr. Thomas S. Southworth said that in the diagnosis of the obscure manifestations of rheumatism in children the family history was extremely valuable, if properly obtained, and it had been his custom for many years, in taking the history of children, to make inquiries as to the occurrence of rheumatism in the grandparents, parents and collateral relatives, carefully excluding senile arthritic changes. If the symptoms in a given case were at all suspicious of rheumatism, treatment should be promptly instituted. This consisted essentially of rest in bed, milk diet and the administration of salicylates and alkalies. Except the newer remedies of the salicylate class, the most marked advances that had been made in connection with the treatment of rheumatism in recent years had not been along therapeutic lines, but in the prompter recognition of the disease, and the more strict management of the case. As an alkali in these cases, Dr. Southworth said he preferred the bicarbonate of soda. He believed that alkalis should be given earlier than Dr. Kerr suggests and simultaneously with the salicylates, as they are the active and perhaps the sole measure for limiting the extent of the infection and its effects, together with absolute rest. The most serious complications were those connected with the heart, and these occurred in many cases where we least expected them. In such cases we may have myocardial as well as endocardial changes, and it was for that reason that prolonged rest was so important. During the convalescence of such a child, iron and tonics were more important than cardiac stimulants. He agreed with Dr. Dorning that the avoidance of chilling in these cases should not be lost sight of.

Dr. Homer Wakefield said he regarded this type of rheumatism as an acidosis. While in a large percentage of cases the alkalinity of the blood was not markedly reduced, yet the acidosis could be determined by the ammonia thrown down by the kidneys, which was often largely increased. In regard to the diet of these patients the injurious effects of sugar had already been referred to; this tended to acid fermentation, which was reduced by cutting out the sugars. Dr. Wakefield said it was his custom to give the alkalies on an empty stomach, half an hour before meals, and several years ago he had called attention to the fact that the salicylates, when given after meals, acted as antifermentatives, and, for that reason entirely, were very valuable in the treatment of rheumatism; whereas, if given at other times, they had very little effect. By controlling the acidosis with alkalies and preventing acid fermentation we obtain our best results in the treatment of rheumatism, and when this method was followed, cardiac complications did not occur. Alkalies should not be administered soon after meals, except to neutralize preformed gastric hyperacidity, and never to neutralize systemic acidosis. Sodium bicarbonate was the preferable form of alkali, and a teaspoonful before each meal should be continued until an alkaline urine was obtained.

Dr. Irving D. Steinhardt suggested the use of applications of ichthyol and iodine in acute cases.

Dr. P. W. Roberts said that in his orthopedic work it was very common to get a history of so-called growing pains, and that many of those children subsequently developed a tuberculous condition of the hip or knee.

Dr. Kerr, in closing, said he preferred local applications of water to the mixture of ichthyol and iodine. The latter made a rather nasty mess, while water was apparently equally efficacious; it was easily obtainable, and by restricting ourselves to these simpler remedies we could more readily secure the cooperation of the mother, which was a very important point. Replying to Dr. Roberts, the speaker said there were cases of myalgia due to bone or joint tuberculosis, but they could be readily demonstrated by a proper examination. In those cases there was restricted motion, and the child made an apparent muscular effort to keep the limb or joint immobilized. The duration of the pain was also a differential point.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

College of Physicians and Surgeons of British Columbia.

May, 1908.

ANATOMY.

1. (*a*) Describe the pleura. (*b*) Give the "reflections of the pleura" of the right side.
2. Name the bones which enter into the formation of the orbit, and give the articulations of any one of them.
3. (*a*) Give the muscles attached to the great trochanter of the femur. (*b*) Give the action and nerve supply of any two.
4. Trace the seventh nerve; what group of muscles does it supply?
5. Describe the ligaments of the ankle joint and the sternoclavicular joint.
6. Dissection necessary to expose the innominate artery.

CHEMISTRY AND PUBLIC HEALTH.

1. Antidotes—classify and give examples. What is the antidote in a case of acute arsenical poisoning? Give equation showing action.
2. In an analysis of drinking water you find chlorides 2 grs. per gallon. Discuss your results.
3. Describe minutely disinfection of a room occupied by an advanced and careless consumptive.
4. Cows' milk. (*a*) Discuss its merits as a food. (*b*) Show how it becomes dangerous for human use when improperly handled.
5. Differentiate between varioloid and chickenpox.

MATERIA MEDICA AND THERAPEUTICS.

1. Name two drugs in each of the following orders, stating doses and cases in which either would be used: Emetics, hypnotics, stimulants, diuretics, diaphoretics.
2. Doses and uses: Potassium bromide, strontium iodide, calomel, ichthyol, guaiacol.
3. State briefly in what disturbances of the circulatory system you would use digitalis, adrenalin, strychnine, ergot.
4. Write prescriptions: Acute bronchitis in adult. Acute rheumatism in adult. Acute nephritis, child, aged 12. Diabetes.
5. Describe treatment for typhoid fever.
6. Serum therapy: Nature and value as far as known.

MEDICAL JURISPRUDENCE.

1. Duties of a medical man when called to a case on which rape is alleged to have been committed.
2. Distinguish between acute alcoholism and acute mania.

3. A case of suspected poisoning. Describe proceedings.

4. Antidotes for: Carbolic acid, corrosive sublimate, chloral, arsenic, opium.

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN

1. What are the causes of delay, from slow dilatation, in the first stage of labor? Give the treatment in each case.

2. Describe the normal anatomy of the Fallopian tube. The varieties, causes, symptoms, prognosis, and treatment of salpingitis.

3. Enumerate the causes of hemorrhage before and after delivery. Give the varieties, causation, symptoms, and treatment of placenta prævia.

4. Name the varieties of displacement of the uterus. The causation and symptoms of retroflexion. Describe the operations performed for retroflexion.

5. Give the etiology, pathology, symptoms, complications, and treatment of a case of cerebrospinal meningitis.

PHYSIOLOGY.

1. Describe the cardiac nervous mechanism.
2. What do you know of renal secretion?
3. Discuss absorption in the digestive tract.
4. State the effect of cutting the third nerve.
5. Account for the different forms of aphasia.

SURGERY.

1. Empyema. Give its causes and treatment. Describe Schede's operation.

2. Prostatectomy. What conditions necessitate this? Describe the technique of the perineal method.

3. Coxalgia. Describe the various stages with symptoms of each, and appropriate treatment.

4. Describe Sayre's method for fractured clavicle. Give the principles of its action.

5. Hip-joint dislocations. Give the varieties, their symptoms and treatment.

THEORY AND PRACTICE OF MEDICINE AND MEDICAL PATHOLOGY

1. Epidemic cerebrospinal meningitis: Give etiology, symptoms, and differential diagnosis.

2. What is uremia? With what conditions may uremic coma be confused? Give differential diagnosis.

3. Mitral incompetency: Give physical signs and describe symptoms as they may arise.

4. Asthma: Give symptoms and treatment.

5. Give pathology, symptoms, and treatment of a case of tuberculous disease of the intestines.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

College of Physicians and Surgeons of British Columbia.

May, 1908

ANATOMY

1. "The *pleuræ* are two serous sacs enclosing and investing the lungs. Each pleura consists of a visceral and parietal layer. The *visceral* portion covers the lung, and the *parietal* layer lines the inner surface of the chest walls, the upper surface of the diaphragm, and the sides of the pericardium. The visceral and parietal layers of the corresponding pleura become continuous in front and behind the root of the lung; and below the root a fold, the *ligamentum latum pulmonis*, extends downward along the inner surface of the lung to the diaphragm. The mediastina are formed by the visceral layers of each side approaching one another toward the median line.

"The limits of the parietal pleuræ are as follows: Each extends upward into the neck, forming a domelike process over the apex of the lung about two inches above the first costal arch; from this the pleura passes downward and forward to the posterior aspect of the sternoclavicular joint of each side and meets its fellow in the midline at the manubriogladiolar articulation; they pass down together to level of fourth costal cartilages, where *right pleura* passes vertically to level of seventh right costal cartilage in midline; then outward, crossing ninth rib in midaxillary line; then downward and backward along eleventh rib to reach spine at neck of twelfth rib. Behind, it passes upward on the right side of the bodies of the vertebræ to the apex." (*Aids to Anatomy.*)

2. The bones which enter into the formation of the orbit are: The frontal, sphenoid, ethmoid, superior maxillary, malar, lacrymal, and palate. Of these, the *malar* articulates with. The frontal, sphenoid, temporal, and superior maxillary.

3. (*a*) The muscles attached to the great trochanter of the femur are. The Gluteus medius, Gluteus minimus, Pyriformis, Obturator internus, Obturator externus, Gemellus superior, Gemellus inferior, and Quadratus femoris.

(*b*) The *Quadratus femoris* rotates the thigh outward; it is supplied by branches from the sacral plexus.

The *Obturator internus* rotates the thigh outward; it is supplied by branches from the sacral plexus.

4. The *seventh or facial nerve* has its superficial origin in the upper end of the medulla oblongata, in the groove between the olivary and restiform bodies. It passes "forward and outward to enter the internal auditory meatus, it lies upon a groove on the auditory nerve, with portio intermedia of Wrisberg between, and at the bottom of the meatus it enters the aqueductus Fallopii, along which it runs first outward between cochlea and vestibule as far as hiatus Fallopii; then backward in internal wall of tympanum, just above fenestra ovalis, at the turn presenting a swelling, the *geniculate ganglion;* and finally it passes downward, to emerge from the bone at the stylomastoid foramen; it then passes outward and forward in the parotid, dividing behind the ramus of the jaw into *temporo-facial* and *cervico-facial* branches, which further subdivide and intercommunicate, forming the *pes anserinus.*" (*Aids to Anatomy.*)

It supplies the muscles of expression in the face, the muscles of the external ear, the Platysma, Buccinator Stylohyoid, and the posterior belly of the Digastric.

5. The *ligaments of the ankle joint* are: The anterior tibio-tarsal, posterior tibio-tarsal, internal lateral, and external lateral.

The *ligaments of the sternoclavicular joint* are: The anterior sternoclavicular, posterior sternoclavicular, interclavicular, costoclavicular, and interarticular fibrocartilage.

6.

CHEMISTRY AND PUBLIC HEALTH.

1. Antidotes are classified as:—(1) *Chemical antidotes*, which act by uniting chemically with the poison and thus converting it into a harmless or insoluble compound. *Example*: Albumin, in mercurial poisoning; sodium sulphate, in carbolic poisoning.

(2) *Physiological antidotes*, which act by combating one (or more) of the physiological actions of the poison. *Example*: Opium will counteract the dilated pupil caused by belladonna.

The antidote for acute arsenical poisoning is freshly prepared solution of ferric hydroxide. The equation showing the action is:

$$As_2O_3 + 2\,Fe_2(OH)_6 = Fe(OH)_2 + 5\,H_2O + Fe_3(AsO_4)_2$$

5. In *varioloid*: There is premonitory discomfort, noticeably pain in the back; there may be a marked initiatory fever; the rash does not appear till the third day, is shotty, is most marked on the face and wrists; vesicle formation is delayed, the vesicles have a central depression which is well marked: the fever subsides as the eruption appears.

In *chickenpox*: There is little or no premonitory discomfort; fever is slight; the eruption appears in about 24 hours, is not shotty, is scattered generally all over the body; vesicles form in a few hours, and umbilication appears late or not at all, and the vesicles rapidly become scabbed.

MATERIA MEDICA AND THERAPEUTICS.

1.

ORDERS	DRUGS	DOSE
Emetics.	1. Apomorphine hydrochloride.	gr. 1/10 (hypodermically.)
	2. Wine of ipecac.	℥ij—iv.
Hypnotics	1. Chloral hydrate.	gr xxx.
	2. Sulphonal.	gr xxx.
Stimulants	1. Aromatic spirit of ammonia.	ʒj.
	2. Strychnine sulphate	gr. 1/30.
Diuretics.	1. Potassium acetate.	gr xxx
	2. Citrated caffeine.	gr. v.
Diaphoretics	1. Pilocarpine hydrochloride	gr 1/5.
	2. Liquor ammonii acetatis.	ʒiv.

2. Potassium bromide, gr. xv.; strontium iodide, gr. vij; calomel, gr. j; ichthyol, gr x; guaiacol, ♏viij.

3. *Digitalis* is indicated in diseases of the heart, (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in nonvalvular cardiac affections; (4) in

irritable heart, due to nerve exhaustion. Digitalis is contraindicated in diseases of the heart (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong and arterial tension high.

Adrenalin is indicated in hemorrhage from different parts, in purpura and in hemophilia.

Strychnine is indicated in cardiac failure and when a cardiac stimulant is required.

Ergot is indicated in arterial hemorrhage (particularly postpartum hemorrhage), hemoptysis, aneurysms, and it also acts as a cardiac sedative.

4. *For acute bronchitis*:

℞. Vini ipecacuanhæ.....3ij
Liquoris potassii citratis.....3iv
Tincturæ opii camphoratæ.
Syrupi acaciæ.....aa ℥j Misce.
Signa—One tablespoonful three times a day.

For acute articular rheumatism:

℞. Sodii salicylatis.....3ijss
Fluidextracti glycyrrhizæ.
Tincturæ aurantii.....aa 3ijss
Aquæ chloroformi q.s. ad.....℥viij Misce.
Signa: Take two tablespoonfuls every four hours.

For acute nephritis, in a child, aged 12:

℞. Tincturæ jaborandi.....3iv
Sodii benzoatis.....3ii
Aquæ chloroformi q.s. ad.....℥iij Misce
Signa: One teaspoonful three times a day.

For diabetes:

℞. Codeinæ.....gr. xij
Extracti nucis vomicæ.....gr. iij
Extracti rhamni purshianæ.....gr. vj
Misce., et fiat massa in pilulas no. xij dividenda
Signa: Take one, three times a day.

6. "*Serum therapy* proper is the prophylactic and curative treatment of certain infectious diseases by the subcutaneous or intravenous administration of a blood serum containing an antibody which is specific to the particular disease." (Potter's *Materia Medica.*)

Examples: (1) Diphtheria antitoxin; dose, 3,000 units; immunizing dose, 500 units; indicated in diphtheria; (2) antitetanic serum; dose, 3ijss to v; indicated in tetanus; (3) antivenomous serum; dose, 3ijss to viij; indicated in snake bite.

MEDICAL JURISPRUDENCE.

1. The physician should note date and time when he is called; he should (with her consent) examine the female, and if possible also the accused, and note (1) marks of violence about the woman's genital organs; (2) wounds, bruises, or other marks of injury on the woman or on the accused; (3) blood stains and seminal stains on the person or clothing of either party; and (4) the presence of any venereal disease on either party.

He should be careful to say nothing, hear everything, and, above all, to avoid saying a rape has or has not been committed. The question of "consent" enters into the subject, and the physician has no means of knowing whether or no this was given.

3. "First of all, the physician should keep his suspicions to himself. In the next place, he should himself test the urine or feces, or both, and govern his treatment and his actions toward the patient and those surrounding the patient by the results of his examination. Should the case terminate fatally, he should at once communicate his suspicions to the prosecuting officer, and require a post-mortem investigation, which should, if at all possible, be conducted in the presence of the chemist who is to conduct the analysis.

"The following portions of the cadaver should be preserved:—The alimentary canal from the cardia to the middle of the rectum, *unopened*, and the contents enclosed by ligatures at the esophagus, duodenum, and lower end of gut; the liver, including the gall-bladder; one kidney; the spleen; a piece of muscular tissue from the leg; the brain, and any urine which may remain in the bladder.

"Any suspected food articles, and any obtainable vomited matter, are to be also preserved. All of these are to be placed in *clean* and *new* glass jars, closed with glass or cork covers or stoppers. Jars with metallic caps should never be used. Tapes or cords should be tied about the jar and cap, to which they should be attached by sealing wax bearing impressions of a seal, in such a manner that access can be had to the interior only after breaking the seals or cutting the tapes or cords. Great care must be exercised that no sealing wax can get into the jars. Each portion should be placed in a jar by itself." (Witthaus' *Essentials of Chemistry and Toxicology.*)

4. The *antidote* for *carbolic acid* is: A soluble sulphate, or alcohol; for *corrosive sublimate*, white of egg in moderate quantity; for *chloral*, there is no chemical antidote; for *arsenic*, freshly prepared ferric hydroxide; for *opium*, dilute solution of potassium permanganate.

MIDWIFERY, AND DISEASES OF WOMEN AND CHILDREN.

3. The following (from Gould and Pyle's *Cyclopedia of Medicine and Surgery*) is a useful classification of the hemorrhages in question:

A. Hemorrhages of Pregnancy: Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) apoplexy of the decidua or placenta.

B. Hemorrhages of Labor: Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) relaxation of the uterus; (4) laceration of the cervix; (5) rupture or inversion of the uterus.

C. Hemorrhages of the Puerperium: Caused by (1) retained secundines; (2) displaced uterus; (3) displaced thrombi; (4) fibroid tumors; (5) hypertrophied decidua; (6) carcinoma.

4. *The varieties of displacement of the uterus* are: Retroversion, retroflexion, anteversion, anteflexion, lateral version, lateral flexion, descent or prolapse, ascent, and malocation (to front, back, or one side).

The causes of retroflexion are: Distended bladder, retrouterine peritonitis; chronic cystitis; small fibroid in posterior wall of uterus; too long a period in the recumbent position after labor, or too tight bandaging; tight lacing; infection during puerperium; pressure of tumors; inflammations of uterus and its appendages; gonorrhea.

The symptoms of retroflexion are: Bladder disturbances; constipation and painful defecation; dysmenorrhea, or amenorrhea, or hemorrhages from the uterus; leucorrhea; sterility, or frequent abortion.

The operations performed for retroflexion are: Breaking up any adhesions that may be present, and then shortening the round ligaments (Alexander's operation, or some modification of it); suspension of the uterus (hysterorrhaphy, hysteropexy, ventral fixation, abdominal fixation or suspensio uteri); vaginal hysterorrhaphy is also done occasionally.

PHYSIOLOGY.

1. The *nerves which control the heart* are: (1) The pneumogastric nerve, which slows or inhibits the heart beats; (2) the sympathetic nerves, which accelerate or augment the beats; and (3) the intrinsic cardiac ganglia, which enable the heart to continue beating for some time after it is removed from the body.

2. The mechanism of the *secretion of urine by the kidneys* is twofold: (1) By filtration, most, if not all, of the fluid is eliminated, and also inorganic salts; this depends upon blood pressure, and takes place in the glomeruli. (2) By cell activity and selection, in the cells of the convoluted tubules, the urea and principal solids are eliminated.

3. Substances that may be absorbed in the *stomach* are: Water, alcohol, salts, sugars, and dextrins that may have been converted from starch by the ptyalin of the saliva, and proteoses and peptones resulting from peptic digestion of proteids.

In the *small intestine*, sugars, proteoses, peptones, fats, water, and salts are all absorbed.

In the *large intestine*, water, salt, sugars, proteids, and fats are all absorbed.

4. *Cutting the third nerve will produce*: Ptosis of the upper lid, external strabismus, slight prominence of the eyeball, dilatation of the pupil, and loss of the power of accommodation.

5. "The speech areas, four in number and in kind, are in the left hemisphere in righthanded persons and in the right in lefthanded persons. There are two types of aphasia, which is the loss of the power of speech, known as motor and sensory aphasia. The motor speech center lies in the posterior part of the third frontal convolution (Broca's convolution), just in front of the center of the muscles of speech (hypoglossal and facial nerve centers). A lesion of the motor speech center causes motor aphasia, in which there is a loss of the word-forming power, although the tongue is movable and the patient may understand spoken and written language and knows what he wants to say. It is as if memory of the motor combinations essential to produce speech were lost.

"The power of writing is usually lost with motor speech. The probable location of its cortical center is in the posterior two-thirds of the first, and perhaps in the second, temporal convolution. A lesion here causes 'word deafness,' a sensory aphasia in which the memory of the sounds of words is lost so that they are not understood, though hearing may be normal.

"The visual speech center lies in the posterior part of the

angular gyrus in the outskirts of the higher visual or the visuopsychic field. Word-blindness (alexia), or the loss of memory of printed or written language, is caused by a lesion here, though sight itself may be normal.

"Thus the basis of language is a series of memory pictures (1) of the sound of words; (2) of their appearance; (3) of the effort necessary to enunciate them, and (4) to write their symbols. As these memory pictures are connected with each other and with others that make up the concept by subcortical asssociation fibers passing between them, a lesion in any of these association tracts also leads to a defect of speech." (Woolsey, *Applied Surgical Anatomy.*)

SURGERY.

1. Empyema.—*Causes:* Wounds, injuries, pleuropneumonia, direct extension of a suppurative process in the lung, abdomen, or neck. The bacteria will vary with the cause; diplococcus pneumoniæ is the commonest; tubercle bacillus, staphylococcus, streptococcus, colon bacillus may also be present.

Treatment: Aspiration, drainage, irrigation, resection of ribs (Estlander's operation), or resection of chest wall (Schede's operation).

2. *Conditions which necessitate prostatectomy*: Marked enlargement of the prostate gland (when catheterization is painful, difficult, or impossible; when cystitis is imminent, and when the patient is comparatively young).

3. Coxalgia.—There are three stages. The first is the stage of synovitis, prior to the development of pus in the joint. The second is the stage of destruction of cartilage and ligaments, and continues till the development of pus outside the joint. The third is the stage of destruction of the bone.

Symptoms of first stage: Night cries; lameness in the morning; a slight limp; tendency to become tired on slight exertion; wasting; spasm; pain; swelling; and deformity (either real or apparent).

Symptoms of second stage: Abduction; limping; pain, which is worse at night; apparent lengthening of the limb; abscess; atrophy of thigh muscles; flexion of thigh; effusion into hip joint; and there may be crepitation in the joint.

Symptoms of third stage: Flexion, adduction, and shortening of the limb; the joint may be dislocated or ankylosed, or suppuration may occur.

4. *Sayre's method for fractured clavicle*: "Sayre's dressing consists of two strips of adhesive plaster three and a half inches wide and two yards in length. The first strip is looped around the arm just below the axillary margin and is pinned or sewed with the loop sufficiently open not to constrict the arm. The arm is then drawn downward and backward until the clavicular portion of the pectoralis major muscle is put sufficiently upon the stretch to overcome the action of the sternocleidomastoid muscle, and in this way draws the sternal fragment of the clavicle down to its place. The strip of plaster is then carried completely around the body and pinned or stitched to itself on the back. The second strip is next applied, commencing on the front of the shoulder of the sound side; thence it is carried over the top of the shoulder diagonally across the back, under the elbow, diagonally across the front of the chest to the point of starting, where it is secured by pinning or sewing. A slit is made in this strip to receive the point of the elbow. Before the elbow is secured by the plaster it should be pressed well forward and inward." (Wharton's *Minor Surgery, and Bandaging.*) The action of the dressing is simply to press the shoulder upward and backward.

5. Hip Joint Dislocations.—*Varieties—Backward*: (1) On to the dorsum ilii; (2) on to the sciatic notch. *Forward*: (3) On to the obturator foramen; (4) On to the pubis.

Dorsal dislocation: Head of femur lies on the dorsum ilii, and can be felt in the buttock. The obturator internus is ruptured in most cases. The short rotator muscles are lacerated. The trochanter lies well above Nelaton's line and approximated to the anterior superior iliac spine. The leg is shortened two to three inches. The iliotibial band is relaxed. The leg is flexed, adducted, and inverted. The femur crosses the lower third of the opposite thigh. The toe rests on the opposite instep. A hollow exists in Scarpa's triangle.

Sciatic dislocation: Similar to the above, except in the following:—The obturator internus tendon is intact and lies over the neck of the femur, holding it down in the sciatic notch. Shortening amounts only to one inch or less. The axis of the femur crosses the opposite knee. The great toe rests on the dorsum of the opposite great toe.

Treatment of the backward dislocations: Flex the knee and thigh in position of adduction. Abduct the thigh and evert simultaneously. Bring the leg down straight. "Lift up, bend out, roll out."

Obturator dislocation: The head of the bone lies on the obturator externus in the obturator foramen. The adductor muscles are lacerated. The trochanter is obscured, the iliotibial band is tense. The leg is lengthened, the toes point forward and outward. Flexion, abduction, and rotation outward are well marked. The head of the femur is felt in the perineum. The capsule is torn in its lower part. Pain referred to the distribution of the obturator nerve.

Pubic dislocation: Similar to the above except: The femoral head is felt under Poupart's ligament. The leg is shortened about one inch. Abduction and eversion are more marked, the toes pointing outward.

Treatment of forward dislocations: Thigh is flexed in a position of abduction. Adduct the thigh and then invert it. Bring the thigh down straight. "Lift up, bend in, roll in." (From Groves' *Synopsis of Surgery.*)

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION
Alabama*	W. H. Sanders, Montgomery	Montgomery July 13
Arizona*	Ancil Martin, Phoenix	Phoenix July 5
Arkansas*	F. T. Murphy, Brinkley	Little Rock July 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco Aug 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver July 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven July 13
Delaware	J. H. Wilson, Dover	Dover June 15
Dist. of Col'bia	Geo. C. Ober, Washington	Washington July 13
Florida*	J. D. Fernandez, Jacksonville	Tallahassee May 19
Georgia	E. R. Anthony, Griffin	Atlanta Oct. 12
Idaho*	W. F. Howard, Pocatello	Boise Oct. —
Illinois	J. A. Egan, Springfield	East St. Louis May 11
Indiana	W. T. Gott, Crawfordsville	Indianapolis May 25
Iowa	Louis A. Thomas, Des Moines	Des Moines June 1 Iowa City June 8
Kansas	D. P. Cook, Clay Center	Kansas City June 10
Kentucky	J. N. McCormick, Bowling Green	Louisville
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans May 20
Maine	Wm. J. Maybury, Saco	Augusta July 1
Maryland	J. McP. Scott, Hagerstown	Baltimore June 15
Massachusetts*	E. B. Harvey, State House, Boston	Boston May 11
Michigan	B. D. Harison, 205 Whitney	Detroit May 24
Minnesota	W. S. Fullerton, St. Paul	St. Paul June 1
Mississippi*	S. H. McLean, Jackson	Jackson May 11
Missouri	J. A. B. Adcock, Warrensburg	St. Louis June 7
Montana*	Wm. C. Riddell, Helena	Helena Oct. 5
Nebraska	E. J. C. Sward, Oakland	Lincoln May 25
Nevada	S. L. Lee, Carson City	Carson City Nov. 1
N. Hampshire	Henry L. Morrison, State Library, Concord	Concord June 29
New Jersey	J. W. Bennett, Long Branch	Trenton June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe July 12
New York	C.F. Wheelock, Univ. of State of New York, Albany	New York Albany May 18 Syracuse Buffalo
N. Carolina	B. K. Hays, Oxford	Asheville June 5
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks July 6
Ohio	Geo. H. Matson, Columbus	Columbus June 9
Oklahoma*	P. P. Davis, Enid	Guthrie July 18
Oregon*	B. E. Miller, Portland	Portland July 6
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg June 22
Rhode Island*	G. T. Swarts, Providence	Providence July 1
S. Carolina	H. H. Wyman, Aiken	Columbia June 8
S. Dakota*	H. E. McNutt, Aberdeen	Watertown July 14
Tennessee	C. A. Abernathy, Pulaski	Memphis Nashville May 4 Knoxville
Texas	C. B. Foscue, Waco	Cleburne June 22
Utah	R. W. Fisher, Salt Lake City	Salt Lake City July 5
Vermont	W. Scott Nay, Underhill	Burlington July 13
Virginia	R. S. Martin, Stuart	Richmond June 22
Washington*	K. Turner, Seattle	Seattle July 6
W. Virginia	H. A. Barbee, Point Pleasant	Charleston July 13
Wisconsin	J. V. Stevens, Jefferson	Madison July 13
Wyoming	S. B. Miller, Laramie	Laramie June 23

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Michigan.—According to the *Journal of the Michigan State Medical Society*, the Michigan Board of Medical Examiners has notified the several medical colleges upon its recognized list, that in future it will require a demonstration of an applicant's fitness to do practical refractive work, in addition to the usual written paper upon diseases of the eye, ear, nose, and throat. The examination on this subject will be conducted by a specialist, and will constitute an integral part of the examination, and failure to obtain 50 per cent. of possible standing will subject the applicant to refusal of license.

Alabama.—Last year examination by the county boards was abolished, and State board examinations were made compulsory. It is interesting to note that the failures under the former were less than 10 per cent of those who applied; whereas under the one State board there are over 60 per cent. of failures.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

ATEMKUREN. Von Dr. Med. HENRY HUGHES. 8vo; 58 pages, paper. Curt Kabitzsch, Würtzburg, Germany.

FORMULAIRE DE CONSULTATIONS MÉDICALES ET CHIRURGICALES. Par LEMOINE & GÉRARD. 12mo, 916 pages, leather; 7 francs. Vigot Frères, Paris, France.

HYGIÈNE OCULAIRE DE LA PREMIÈRE ENFANCE. Par le Dr. ETIENNE GINESTOUS. 12mo, 111 pages, paper; 2 francs. Vigot Frères, Paris, France.

L'ASTHME (Étiologie, Pathogénie et Traitement). Par le Dr. R. MONCORGÉ. 8vo, 252 pages, paper; 4 francs. Vigot Frères, Paris, France.

THÉRAPEUTIQUE MÉDICALE ET MÉDICINE JOURNALIÈRE. Par G. LEMOINE. 8vo, 1113 pages, cloth; 16 francs. Vigot Frères, Paris, France.

A GUIDE OF THE TWELVE TISSUE REMEDIES OF BIOCHEMISTRY. By E. P. ANSCHUTZ. 16mo, 91 pages, cloth; 75 cents. Boericke & Tafel, Philadelphia, Pa.

INFANT FEEDING. By J. S. FOWLER, M.D., F.R.C., P. Ed. 12mo, 230 pages, illustrated, cloth. Oxford University Press, American Branch, New York.

SANITATION AND SANITARY ENGINEERING. By WILLIAM PAUL GERHARD, C.E. 12mo, 175 pages, cloth; $1.50. Published by the Author, New York.

PURE MILK AND THE PUBLIC HEALTH. By ARCHIBALD ROBINSON WARD, B.S.A. 8vo, 218 pages, cloth, illustrated. Taylor & Carpenter, Ithaca, N. Y.

DESZENDENZ UND PATHOLOGIE. Von D. VON HANSEMANN. 8vo, 488 pages, paper. August Hirschwald, Berlin, Germany.

STATE BOARD OF HEALTH OF THE STATE OF OHIO. 8vo, 375 pages, paper. F. J. Heer, State Printer, Columbus, O.

STUDIES FROM THE DEPARTMENT OF PATHOLOGY OF THE COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY, NEW YORK. 8vo, 469 pages, paper, illustrated.

IL RICAMBIO MATERIALE NELLE ANEMIE GRAVI. By G. PADOA. 4to, 248 pages, paper. Società Editrice Librarie, Roma.

MORTALITY STATISTICS, 1907. 4to, 537 pages, cloth. Government Printing Office, Washington, D. C.

KOMPENDIUM DER RÖNTGEN-THERAPIE. Von Dr. H. E. SCHMIDT. 8vo, 158 pages, paper, illustrated. August Hirschwald, Berlin.

ATLAS AND EPITOME OF OPHTHALMOSCOPY AND OPHTHALMOSCOPIC DIAGNOSIS. By Prof. Dr. O. HAAB. 12mo, 94 pages, cloth, illustrated; $3.00 net. W. B. Saunders Company, Philadelphia, Pa.

ATLAS OF THE EXTERNAL DISEASES OF THE EYE. By Prof. Dr. O. HAAB. 12mo, 244 pages, cloth, illustrated. W. B. Saunders Company, Philadelphia, Pa.

MEDIZINAL-BERICHTE ÜBER DIE DEUTSCHEN SCHUTZGEBIETE. 8vo, 324 pages, cloth; 7.50 marks. E. S. Mittler & Sohn, Berlin, Germany.

DAS PROBLEM DES LEBENS IN KRITISCHER BEARBEITUNG. Von Prof. Dr. BERTHOLD KERN. 8vo, 592 pages, paper. August Hirschwald, Berlin, Germany.

THE RECTUM. By Sir CHARLES B. BALL. Crown 4to, cloth, 300 pages; $10.50. Oxford University Press.

DISEASES OF THE HEART. By JAMES MACKENZIE. Crown 4to, cloth, 362 pages; $9.00. Oxford University Press.

DER SCHIFFSARZT. Von Dr. M. BRENNING und Dr. E. H OPPENHEIMER. 8vo, 79 pages, paper, illustrated. A. Hirschwald, Berlin, Germany.

GEISTESKRANKHEIT UND VERBRECHEN. Von E. SIEMERLING. 8vo, 28 pages, paper. A. Hirschwald, Berlin, Germany.

SAMMLUNG KLINISCHER ARBANDLUNGEN ÜBER PATHOLOGIE UND THERAPIE DER STOFFWECHSEL UND ERNAHRUNGSSTÖRUNGEN. Von. Prof. Dr. CARL VON NOORDEN. 8vo, 106 pages, paper. A. Hirschwald, Berlin, Germany.

LARYNXTUBERKULOSE UND GRAVIDITÄT. Von Dr. R SOKOLOWSKY. 8vo, 28 pages, paper. Carl Marhold, Halle a. S., Germany.

BEITRÄGE ZU NEUEREN THERAPEUTISCHEN MASSNAHMEN IN DER GEBURTSHILFE. Von P. BAUMM. Breslau. 8vo, 55 pages, paper. Carl Marhold, Halle a. S.

ÜBER DIE WIRKUNGSWEISE DER GAUMEN UND SCHLUNDMUSKULATUR BEI ANGEBORENER GAUMENSPALTE. Von HOFRAT Dr. med. C. RÖSE. 8vo, 26 pages, paper, illustrated. 1 mark. Julius Springer, Berlin, Germany.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending May 1, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	590	181
Diphtheria	337	56
Measles	1,389	37
Scarlet Fever	326	11
Smallpox		
Varicella	191	
Typhoid Fever	19	11
Whooping Cough	62	13
Cerebrospinal Meningitis	3	6
Malarial Fever		
Totals	2,917	315

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending April 30, 1909:

SMALLPOX—UNITED STATES

		CASES.	DEATHS.
Alabama, Dallas County	Feb. 20–Apr. 12	12	
Salma	Feb. 28–Apr. 12	26	
California, San Francisco	Apr. 3–10	1	
District of Columbia, Washington	Apr. 10–17	2	
Georgia, Macon	Apr. 11–18	4	
Illinois, Danville	Apr. 4–18	13	
Galesburg	Apr. 10–17	2	
Springfield	Apr. 2–16	6	
Indiana, Fort Wayne	Apr. 6–17	2	
Indianapolis	Apr. 11–18	1	
Lafayette	Apr. 12–19	1	
Iowa, Davenport	Apr. 11–18	1	
Kansas, Kansas City	Apr. 10–17	15	
Wichita	Apr. 3–10	2	
Kentucky, Newport	Mar. 30–Apr. 10	14	
Louisiana, New Orleans	Apr. 3–17	7	4 imported
Massachusetts, Taunton	1 case erroneously reported by local health officer, January 9.		
Michigan, Saginaw	Apr. 3–10	6	
Minnesota, Duluth	Apr. 8–15	3	
Minneapolis	Mar. 27–Apr. 10	6	
Missouri, St. Louis	Apr. 3–17	3	
Montana, Butte	Mar. 23–30	1	
	Apr. 6–13	1	imported
New Jersey, Camden	Apr. 10–17	4	
Haddonfield	Mar. 26–27	2	
Plainfield	Apr. 3–10	2	
Ohio, Ashtabula	Apr. 10–17	3	
Cincinnati	Apr. 9–16	7	
Cleveland	Apr. 9–16	1	
Tennessee, Knoxville	Apr. 10–17	2	
Nashville	Apr. 10–17	2	
Texas, Galveston	Apr. 2–16	6	
San Antonio	Apr. 10–17	5	
Washington, Spokane	Mar. 27–Apr. 10	6	
Wisconsin, Appleton	Apr. 12–19	1	
La Crosse	Apr. 10–17	3	
Milwaukee	Apr. 3–17	25	
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Feb. 21–Mar. 6	6	1
SMALLPOX—FOREIGN.			
Algeria, Bona	Mar. 1–31	18	12
Brazil, Bahia	Feb. 27–Mar. 13	26	5
Rio de Janeiro	Mar. 7–14	21	9
Canada, Halifax	Apr. 3–10	1	
China, Amoy	Mar. 6–13		Present
Hongkong	Feb. 27–Mar. 6	3	1
Egypt, Cairo	Feb. 25–Mar. 18	77	28
Suez	Feb. 4–25	27	2
France, Nantes	Mar. 14–21	1	
Paris	Mar. 27–Apr. 3	5	1
India, Bombay	Mar. 16–31		15
Calcutta	Mar. 16–13		264
Madras	Mar. 19–19		1
Rangoon	Mar. 14–19		11
Indo-China, Saigon	Feb. 27–Mar. 13	15	6
Italy, General	Mar. 27–Apr. 4	56	
Naples	Mar. 27–Apr. 4	15	2
Java, Batavia	Mar. 6–13	3	
Manchuria, Dalny	Mar. 6–13	1	
Mexico, Acapulco	Feb. 7–14	3	
Monterey	Apr. 4–11		7
Portugal, Lisbon	Apr. 3–10	2	
Russia, Moscow	Mar. 20–27	25	11
Odessa	Mar. 20–27	4	1
St. Petersburg	Mar. 13–20	17	2
Spain, Barcelona	Mar. 28–Apr. 5		4
Madrid	Mar. 1–31		28
Valencia	Mar. 26–Apr.		7
Straits Settlements, Singapore	Feb. 27–Mar. 6		1
Turkey, Bassorah	May 20–27		Present
YELLOW FEVER.			
Barbados	Apr. 3–10	3	
Ecuador, Guayaquil	Mar. 13–27		28
CHOLERA.			
India, Bombay	Mar. 16–23		1
Calcutta	Mar. 6–13		98
Madras	Mar. 13–19		1
Rangoon	Mar. 6–13		6

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Original Articles.

NEWER CONCEPTIONS OF CARDIAC ARRHYTHMIAS AND THEIR TREATMENT.

By THOMAS E. SATTERTHWAITE, M.D.,
NEW YORK

UNTIL quite recently physicians have relied mainly on the radial pulse, as felt by the finger, to contradistinguish the various forms of arrhythmias.

But the newer instruments of precision have been enlarging our field of vision, the sphygmograph, the polygraph, and to some extent the *x*-ray, enabling us not only to locate with a gradually increasing degree of certainty the sources of these irregularities, but also to classify them on a more scientific basis.

To understand, however, the present aspect of these matters, some of the work that has been done on the heart by physiologists and anatomists during the last twenty-seven years must be reviewed.

The first important move was made by Gaskell, who in 1882[1] demonstrated that the heart muscle has five separate physiological activities or functions. His propositions have now been accepted by physiologists generally. These functions are as follows:

1. Rhythmicity, *i. e.* the faculty of rhythmically initiating a stimulus.
2. Irritability or excitability, the faculty of receiving a stimulus.
3. Contractility, or the power of responding to a stimulus.
4. Conductivity, or the power of conveying a stimulus.
5. Tonicity, or the power of maintaining the tone of the heart.

It is on these postulates that the present classifications of cardiac arrhythmias is based.

Clinically speaking, however, the physiological or pathological disturbances of these functions are not always clearly distinguishable, for one reason, because they may occur together and then are not always or easily separable. In the matter of excitability and tonicity, too, we have as yet no criteria for determining abnormalities of function. And yet very often there can be seen a predominating disturbance of function sufficient to distinguish each form clinically from its fellows; while there is reason to believe from the progress that has recently been made, that far greater accuracy is going to be attained, and before very long.

Already we have learned enough from sphygmographic and polygraphic tracings, studied in conjunction with other objective and some subjective signs, to enable us to classify clinically at least five different forms of arrhythmias.

But before taking up this subject it is necessary to realize that there are two theories to explain the heart's action, the neurogenic and the myogenic. Let us examine some of the aspects of the former.

That the heart of many vertebrates acts rhythmically after removal from the body is certain. Now, following the known fact that the sinus,* auricle, and ventricle contract in serial order one after the other, it came to be assumed, very naturally, by the adherents of the neurogenic theory that the sinus was first stimulated into contraction by the intracardial nerves, then the auricle, and lastly the ventricle; so that there was a regular peristalsis of the heart chambers, like the peristalsis recognized in the group of muscles concerned in swallowing. The inhibitory and accelerator influences were also naturally relegated to the intracardial nervous system. So, too, it was assumed that the cardiac nerves arising in the central nervous system might have a positive as well as negative influence on the intracardial system; that is, that they might regulate the speed of the heart, making it fast or slow, according to the needs of the moment. This theory would then accord with known physiological laws, and there would be two systems of nerves controlling the activities of the heart. From this point of view the heart muscle would be a passive instrument on which the nervous system played.

According to the myogenic theory, on the other hand, there is an autochthonous origin of the cardiac contractions. The muscle cells originate the movement and conduct it onward. And this theory is based on such facts as these, viz.: that rhythmic contractions occur in portions of the cardiac muscle, such as the apex of the heart, which do not contain a single ganglion cell. Another fact is that, in some vertebrates, the embryonic heart beats before the development of the cardiac nerves has taken place; and this is in harmony with the known fact that the cilia of cells operate independently of nervous influences.

On physiological grounds, therefore, there is excellent reason to conclude that contractions may arise independently of nerve influences in the heart muscle cells.

Now this automatic action belongs to the entire heart, though it is best seen about the sinus, perhaps in the muscle cells of the venæ cavæ, or of the coronary veins, from which it proceeds downward to the auricle and then to the ventricle. And yet it is possible, under artificial stimulus, to make the wave of contraction pass in any direction. That the conduction can be accomplished by the nerves in an opposite direction to their usual course is difficult to conceive. Besides, if only a very small bridge of muscle connects two bundles of the heart muscle, and the muscle is cut zig-zag, the contraction will still take place; all of which facts support the evidence that muscle can conduct the impulse. In fact, this function of the muscle is necessary to support the theory of "extra-systoles" which will be considered

*In using the word sinus, it will include not only the sinus, but the mouths of the coronary and great veins or parts immediately adjacent.

in this article. In this connection it may be said that when the stimulating substance has stored up enough muscular energy to cause a contraction, a "muscular explosion," as it is called, occurs at systole. It abolishes the excitability and contractility, but it destroys at the same time the stimulating energy itself.

New energy is therefore necessary, and it is rapidly regenerated at that particular spot in the heart to the point of effective strength, sufficient to give the predominant rate of contraction for the whole heart. This rate is known as the "spontaneous rhythm." And yet artificial stimulation of other parts of the heart wall may cause artificial waves of contraction to start from these centers, throwing out of action, temporarily, the regular spontaneous rhythm. And such an artificial wave will give rise to what are now known as "extra-systoles," to be described at greater length further on.

But now that these influences are recognizable, the relation of the nerves to stimulus production comes into less prominence. That they do act on the heart is certain, however. For example, the attention of the mind to a task quickens the pulse. The most rapid form of pulse I ever saw was in a case of Graves disease, where the nervous system was profoundly involved. That there is also an arrhythmia due to the penumogastric is proved by the fact that when, in such cases, a small dose of atropine (gr. 1/60), which paralyzes the nerve, is given, the arrhythmia will be stopped. This point will be referred to again.

So that all these evidences of the influence of the nerves on the heart must be recognized equally well with the power of the muscle fibers, among the influences that govern cardiac action.

Before proceeding further along these lines it is necessary to call attention to some of the newer anatomical facts relating to the heart. In the first place, at an early stage in embryonic life the heart is a tube at whose posterior end—the *sinus venosus*—the veins of the body unite. Out of this tube pouches develop which eventually become the auricles and ventricles, the original tube still remaining to connect them. Eventually, from this sinus the ends of the inferior and superior venæ cavæ are formed, a portion of the right auricle and the coronary sinus. At the same time, the primitive cardiac tube gets to be transformed from a tube into a connecting band (the auricular-ventricular bundle, His' bundle, or Gaskell's bridge), uniting the auricles and ventricles.

*All the tracings except Fig. 4 were taken by Dr. T. B. Barringer, Jr., who also furnished the descriptions.

Now, after the primitive cardiac tube, as a pump, has been replaced by the auricles and ventricles, the origin of the normal or physiological heart-beat remains at or about this sinus; though as a matter of fact the impulse may start from other parts of the heart, provided the stimulation is greater in degree than at the sinus, as has been said.

Further, it has been shown, experimentally, that after separating sinus from auricle, and auricle from ventricle, that though stimulation will cause auricular and ventricular contractions, they will be independent of one another. Now for the newer anatomical discoveries. The remains of the sinus were discovered recently by Keith and Flack at the mouths of the venæ cavæ, though previously Keith,* Stanley, Kent, and His had found the rudiments of the primitive tube (eventually the bundle) spreading over the auricle into the ventricle. The bundle arises from a node (Tawara's node) situated in the right auricular wall near the mouth of the coronary sinus.

Tawara, in Jena, and also Keith and Flack of London,[2] were able to trace the bundle of His from the anterior edge of the coronary vein to the auricular-ventricular septum, where it pierces the septum, there dividing into two branches, to be distributed to either side of the septum, from which they extend down to the lower third of the ventricular cavities, where they divide into numerous branches.

Fig. 1.*—Pneumogastric, Sinus or Fundamental Arrhythmia—Polygraphic tracings taken March 27, 1909, at Bellevue Hospital, from a uremic patient with Cheyne-Stokes respiration, in the service of Prof. W. Gilman Thompson. During the apneic period shown in the upper respiratory tracing, the radial pulse became more regular and frequent. In the respiratory phase following the apneic period the pulse at first was less frequent and quite irregular, but gradually assumed its former speed and regularity. This arrhythmia is characterized by a lengthening of the diastolic interval. It is an example of the respiratory type of arrhythmia, and is caused by pneumogastric influence. It can be inhibited by atropine.

Now Keith is one of the majority who hold that the origin of the heart's action is to be referred to the sinus, where it sets the pace of the heart's rhythm, the impulse passing to the auricle and ventricle, and then to the bulbus cordis (corresponding in the adult mammalian to the infundibulum of the right ventricle).

In this connection it may be said that Koch* holds to the view that the heart's action originates in the mouths of the coronary veins. He studied this matter from the pathological and anatomical points of view. Erlanger and Blackman believe it originates either in the mouths of the coronary veins or in the mouths of the venæ cavæ.

(1) The first irregularity to be considered is a variation from the normal, to be called here *Pneumogastric arrhythmia*, but known to some as *Fundamental* or *Sinus* irregularity, on the theory that the normal or spontaneous rhythm starts at the sinus.

It is a variation in rhythm within normal bounds. There is in this form of arrhythmia a varying length of the cardiac cycle, mainly in the diastolic interval, while the pulse beats are of equal or nearly

*In 1903.

equal size, without "imperfect systoles" or "missed beats." With the quickening of the pulse-rate the shortening of the cardiac cycle is almost entirely at the expense of the diastolic interval. The length of the diastolic interval, therefore, is the chief characteristic of this kind of irregularity. It is seen in the "Pulsus Paradoxus" of Kussmaul, caused by a deep inspiration or swallowing. It is not uncommon in young people, when it assumes the so-called juvenile type. It may also occur in adult life, though as a matter of fact there are apt to be trifling irregularities even in health. From this it is evident that the pneumogastric plays a prominent in part in the causation of this form of varying rhythmicity. Thus in the reflex stimulation of the pneumogastric, where the patient has swallowed something, the heart is quickened for some beats and then slows up. The same effect is produced by hurried breathing. This variation of normal regularity is easily recognized. Even the finger feels that the pulse varies with inspiration, but the beats are tolerably equal in length.

Premature contractions of auricle and ventricle or node occur in response to a stimulus from some part of the heart other than the sinus, but where otherwise the sinus or fundamental rhythm is still maintained. This (2) *extra-systolic arrhythmia* is easily recognizable in a polygram as a "premature or dwarf beat" in the radial pulse, followed immediately by an abnormally long pause (Fig. 2). If, as happens occasionally, it is preceded and followed by a beat of normal length, the extra-systole is then said to be "interpolated." The extra-systole appears at irregular or regular intervals. But the wave may be so weak that it is not recognized by the finger on the radial, though shown in the sphygmogram. It may be appreciable in the apex beat as well (Fig. 2). In such instances the ventricle has contracted to the extent of producing an extra-systole, but without sufficient force to convey the wave to the radial.

Examples of this form of arrhythmia are seen in the "deficient" or "intermittent" pulse of the older classifications. The irregularities are best differen-

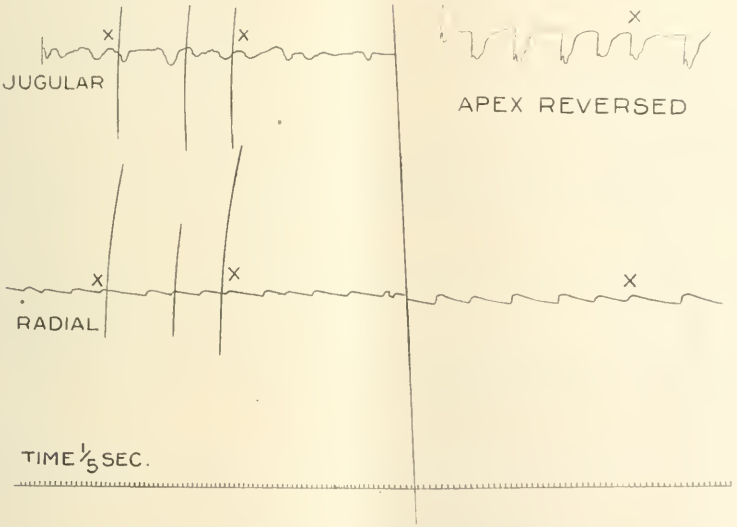

FIG. 2.—Extra-Systolic Arrhythmia of the Ventricular Type—Polygraphic tracings taken from a patient with mitral stenosis, tricuspid regurgitation and auricular paralysis. At three points in the radial pulse (XXX) the irregular cardiac rhythm is interrupted by extra-systoles. Inasmuch as the duration of the pulse period preceding and that following the extra-systole is equal to two normal pulse periods, the extra-systole originates probably in the ventricle. The apex-beat gives a reverse tracing, because formed by the right ventricle

In the polygraphic tracings it is seen that the auricular and ventricular waves have their natural relation in point of time.*

In Fig. 1 the temporary apnoea is associated with Cheyne-Stokes respiration. Medicinally, it is said to have been caused by an overdose of digitalis; it is also said to be found in neurasthenia and in brain diseases; follows febrile attacks and occurs in tuberculosis and in the paroxysmal form of the frequent pulse. No great importance is to be necessarily attached to this condition of mere sinus irregularity, because it is simply a variation in rhythmicity within normal bounds and functional in character, depending on a temporarily disturbed condition of the heart; or upon an underlying systemic affection; or temporary disturbance of the functions of the nerves.

*The illustrations of this article were drawn from the originals, or tracings of them, by the Central Bureau of Engraving, New York City, and then reduced in size.

tiated by a polygram giving the simultaneous tracings of the radial and jugular, or radial and apex beat. The extra-systole, however, is, as a rule, easily recognizable in auscultation. The regular sequence of events is interrupted by two short, sharp sounds (if very faint, only one sound may be heard) followed by a long pause.

The explanation according to MacKenzie is this: The extra-systole is produced by a stimulus starting in the remains of the primitive cardiac tissue in the auricle, ventricle, or the auricular-ventricular node (Tawara's) independently of the sinus or fundamental rhythm which starts in the sinus.

So far as the *ventricular extra-systole* (Fig. 2) is concerned, it is assumed that the origin of the stimulus arising in a ventricle is in the auriculo-ventricular bundle on the distal side of the auriculo-ventricular node.

In the *auricular extra-systole* (Fig. 3) MacKenzie

thinks the stimulus arises in the primitive tissue incorporated in the auricle, the exact site of which has not been determined. It is important to know that it is only by a polygram that the auricular can be differentiated from the ventricular extra-systole.

In some cases the extra-systoles may originate in the bundle of His, as a result of sclerotic changes in those branches of the coronary that supply the auriculo-ventricular node and bundle, causing secondary changes in their substance and increased excitability of this tissue.

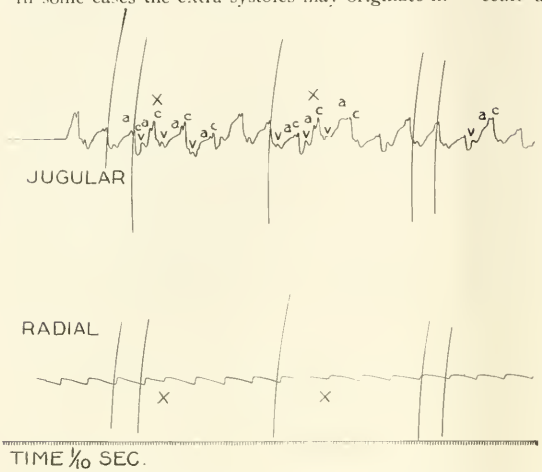

Fig. 3.—Extra-Systolic Arrhythmia of the Auricular Type—This polygram represents an extra-systole originating in an auricle. In the jugular tracings the extra-systoles are shown at X X. The a (auricular) waves represent the contractions of the right auricle. The extra-systoles are shown also in the radial tracing at X X. The compensatory pauses in the radial tracing are seen to be shorter than with ventricular extra-systoles.

The bigeminal pulse can be produced by extra-systoles. But it is not uncommon for several extra-systoles to appear in succession, as the result of abnormal stimulation, and with a certain regularity; the *trigeminal* and *quadrigeminal* pulses may be thus caused.

As a matter of fact, extra-systoles occur at all ages and under the most varying conditions, both in health and disease.

The coffee and tobacco heart and reflex conditions due to gastrointestinal disorders are common examples of extra-systolic arrhythmias. In high temperatures extra-systoles are held to indicate severe toxemia; in convalescence a weak heart; in pneumonia or rheumatic fever they suggest cardiac complications.

Extra-systoles occur more frequently when the heart is beating quickly, and yet the regular automatic action of the heart is not permanently disturbed by the ordinary extra-systoles proceeding from either auricles or ventricles. Practically, most cases of irregular pulse appear to be instances of extra-systoles.

As the well-defined extra-systole is followed by a long pause, it appears to afford a compensation to the heart for the extra work it has done, giving it an opportunity for rest. Marey has therefore called it the *compensatory pause*. Engelmann explains its production as follows: In consequence of the extra-systole, the ventricle is still in the refractory* stage when the next physiological stimulus reaches it; this stimulus therefore has no effect. Thus the normal systole that would follow the extra-systole is missed. But the normal systole that comes after the compensatory pause (post-compensatory systole) occurs at or about the moment at which it would have occurred had no extra-systole preceded it. Thus the extra-systole does not really disturb the general rhythm of the heart. And so, if two or more physiological beats are missed experimentally under an electric stimulus, the heart-beats still continue to be rhythmic when the artificial stimulus is supplanted by the normal.

The subjective symptoms of extra-systole are (1) the feel of the extra thud in the chest and neck, or (2) the impression that the heart actually stops during the compensatory pause; (3) patients often, too, become giddy for a moment. Some patients notice a quick fluttering in the chest when an extra-systole occurs. Then in the long pause "it feels" as if the heart had stopped. To intensify the extra-systole, let the patient run around the room, then take a deep breath and hold it. Occasionally patients are not conscious of the cardiac irregularity. But if one counts the pulse in such cases it is well to remember that if the irregular beats occur without eventually losing their natural rhythm, they are almost certainly instances of extra-systoles.

The most important function, however, of cardiac tissue is *contractility*. It can be influenced in various ways, as by poisons, and by the nerves. It may be disturbed independently of other functions, and can be induced positively as well as negatively, *i. e.* increased or diminished. It is not a common form of arrhythmia, however.

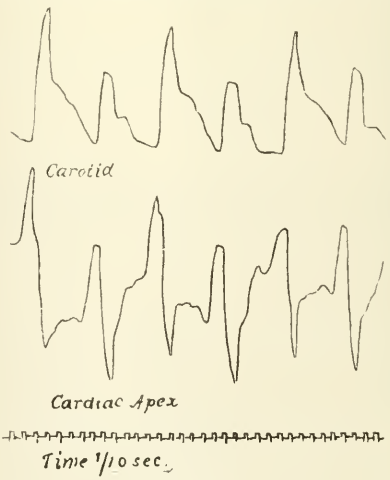

Fig. 4.—The Alternating Pulse—From a woman aged 33, with mitral stenosis, aortic regurgitation and failing compensation. Systolic blood pressure 220 mm. Hg.; diastolic 160 mm. Hg. By Stanton instrument with 12 cm. cuff. By courtesy of Dr. George Bachmann, Resident Physiologist of the Jefferson College Hospital, Philadelphia.

(3) Clinically, the "pulsus alternans" is an example of disturbed *contractility*. This alternating

*Marey discovered that the heart has a refractory stage or phase, when it cannot be excited, except by a very strong stimulus. This refractory phase begins just before the systole and continues for a short time after it.

pulse consists of the alternation of large and small beats. The astonishing regularity of its appearance should indicate to the physician that he is dealing with a case of alternating pulse rather than of extrasystole. Hurried movements around the room makes the alternation more evident. They differ from extra-systoles in that the pulsus alternans show a continuous alternation.

A variety of disturbed contractility has been described by MacKenzie under the name of *nodal arrhythmia* (Fig. 5) on the theory that the disturbance originates in the auriculo-ventricular node. This he proposes as a working hypothesis. To others it is known as the *permanently irregular pulse*, but inasmuch as this form of arrhythmia occasionally disappears, the latter term is inapplicable. Here the auricles and ventricles contract simultaneously (MacKenzie) or the ventricular precedes the auricular perhaps by only 1/10 of a second.

According to MacKenzie it is present in most cases of heart failure, and in a great many the immediate cardiac break-down is directly attributable

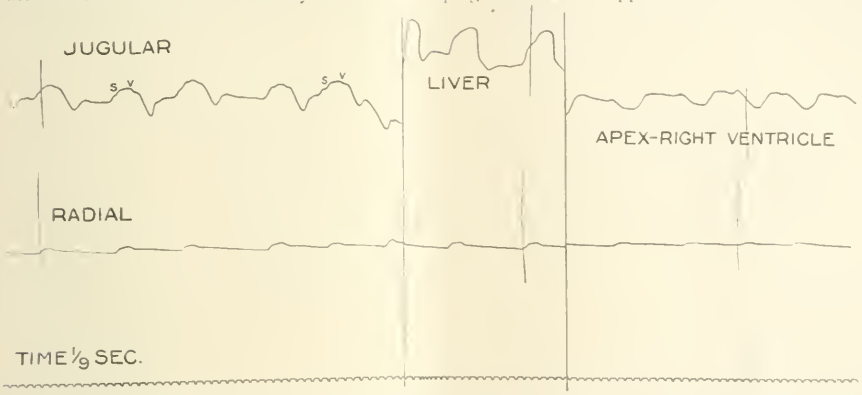

FIG. 5.—Absolutely Irregular (Nodal) Arrhythmia—This polygram was taken from a patient with a double mitral lesion, followed by a tricuspid regurgitation and auricular paralysis. In this case the absence of auricular waves in the jugular and apex tracings, the absolute irregularity in the radial and apex tracings, characterize this form of arrhythmia. The letter s indicates Bachmann's s wave, Hewlett's p wave, or MacKenzie's a wave.

to the inception by the heart of this abnormal rhythm.

The rhythm is invariably irregular. It may be slight, or pronounced, as in delirium cordis. Keith has found it chiefly among those who have cardiac sclerosis, by which he means rheumatic deposits in the heart. These hearts, according to him, show deposits of salts near the auriculo-ventricular bundle. These, he thinks, produces the early difficulty; the later is produced by secondary changes in these areas.

According to the law that the contraction starts at the most irritable part, this particular point is the one selected; or it may be due to distention of the auricle. Now as in these cases the ventricular systole is contemporaneous with or precedes the auricular by only, perhaps, 1/10 of a second, the normal order of events is reversed, so that there is a drain on the reserve force of the heart. And yet if the heart muscle is fairly sound, the organ may be able to cope with this difficulty successfully, for a while at least; but in proportion as the myocardium degenerates, or if the arrhymnia is complicated by the frequent pulse and dilatation, the outlook is bad.

MacKenzie from an experience of 600 cases distinguishes three classes.

1. Where the rate is not markedly increased.
2. Where the rate is greatly increased.
3. Where the nodal rhythm is transient and recurrent.

Where the rate is not markedly increased, patients may live for years, even up to the age of 70.

Where the rate is greatly increased, the patient usually has a sensation which he describes as something fluttering inside the left chest, but it is not palpitation. Also there is breathlessness, increasing up to dyspnea, edema of extremities, general dropsy, cyanosis and fullness of veins with pulsation. Acute dilatation of heart with pulsating liver are other signs. There may or may not be recovery. The young are apt to recover; the old less readily.

Where the condition is transient and the pulse beat is 200 or over, or where it is normal in rate or less, there may be recovery or the condition may become chronic.

MacKenzie finds that in the paroxysmal attacks patients may be relieved by a few deep breaths, slapping the chest, or applications of cold water to the chest, but he thinks that drugs in any case have little value and claims that digitalis has no effect. This is a rather pessimistic view, however.

In a case of MacKenzie's, one of mitral stenosis, which he thinks furnishes the best example of the permanently irregular arrhythmia, he found the tricuspid incompetent, inferior venæ cavæ much dilated, the sino-auricular node normal, but the auricular wall below it atrophied and fibrotic; tænia terminalis hypertrophied; His bundle stretched and Tawara's node flattened. Two-thirds of the left ventricle was fibrotic.

In *affections of conductivity* (5) the stimulus for contraction starts in the sinus, passes through the auricle, and then over the auriculo-ventricular bridge of primitive tissue to the ventricle. But this bridge may be so affected that the stimulus is delayed; it may not cross at all; or it may be blocked beyond the auriculo-ventricular node.

This constitutes the cause of the several varieties of "heart-block."* To recognize it clinically apart from the tracings, note the slow radial pulse, or a slow ventricular rate, while the veins in the neck pulsate more frequently, owing to the normal rate of the auricular contractions being retained.

*The name given by Gaskell in 1882 to this condition. *Journal of Physiology*, 1882, Vol. IV, p. 121

For example, if the pulse at the wrist is 34, each beat may correspond to 2, 3, or 4, auricular contractions. In health the conductivity as represented by the time occupied between auricular contractions and the carotid pulse (a-c) occupies 1/5 of a second; less, of course, however, in frequent action of the heart. But while this 1/5 of a second a-c interval may be considered normal, considerable lengthening of it may take place without much interference with the cardiac rhythm. But even in conductivity depressed to 2/5 of a second, the heart may beat regularly for years.

Depression of conductivity can be shown experimentally in the lower animals by passing a ligature between the auricle and ventricule (Gaskell) when the ventricle can be made to beat with the auricle; to respond to every second contraction, third, or fourth, etc.; or remain quiescent.

In complete heart block, the ventricle pursues one rhythm and the auricle another (see Fig. 6). There is, however, a very close relation between the permanently irregular pulse and heart block.

For nodal rhythm may be due to degeneration or irritation of the auriculo-ventricular node, though in a few cases it may be caused by a break between the sinus and the auriculo-ventricular node, on account of the atrophy of the auricle from long-continued distention. So that the causes of nodal rhythm and heart-block are closely allied. In fact, one may develop into the other. But pneumogastric stimulation may also cause heart-block.

The muscular bridge is sometimes crippled by syphilis, fibrosis, neoplasms, etc., but the cause may lie in changes in the base of the brain, and especially pressure on the nucleus of the pneumogastric.

Symptoms of heart-block are irregularity and slow ventricular rhythm. In some cases there is a sense of weakness, in others exertion brings on dyspnea. Sir W. T. Gairdner is said to have suffered from heart-block—but lived to 82. The syncopal attacks are due either to cerebral anemia induced by the slow actions or temporary stoppage of the ventricles. Most of them, in my experience, have been of an apoplectiform nature. A man will have a pulse of 70, and then an attack will lower it to 30, or even 20. According to MacKenzie the stimulus will once in a while go through, then the rate will be 70, perhaps then the stimulus failing, the blood will not reach the brain and the result will be a fainting attack. This would be a case of partial heart-block. Patients with this mild form of heart-block may live 10 to 20 years. When the patient is liable to syncopal attacks, his term of life is uncertain, and he is apt to die suddenly in an attack. One of my patients with partial heart-block has lived more than eight years, but he has had no syncopal attack during this time.

And yet we occasionally hear of cases where after repeated attacks of syncope and long continued slow pulse, the conducting power is restored, and the rate becomes normal. Such cases should encourage us. The cause may be in the pneumogastric, and 1/60 grain of a atropine may cause it to disappear.

Errors in conductivity are easily made out by polygrams, or they may be determined by the inharmonious action of the radial or apex and jugular.

Of this form of arrhythmia, due to loss of or defective conductivity, there are three varieties.

1. Partial heart-block, where there is incomplete dissociation, the impulse being occasionally carried through.

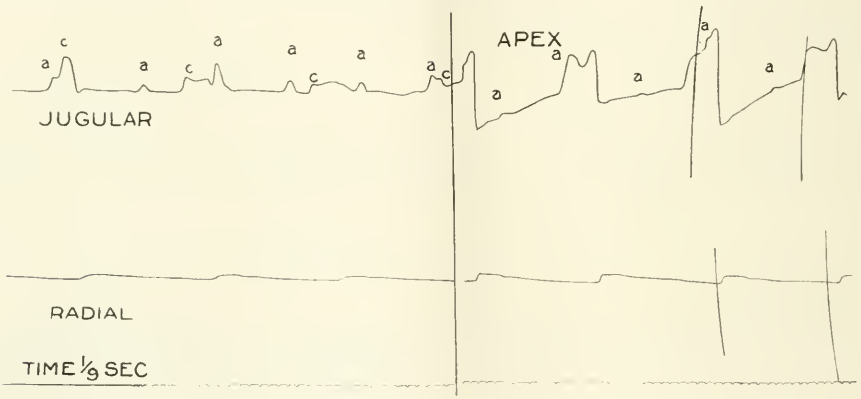

Fig. 6.—Adams-Stokes' Syndrome with Complete Auriculo-Ventricular Dissociation (Heart-Block)—This patient suffered from attacks of syncope and vertigo due to entire loss of auricular-ventricular conductivity. In the jugular tracing the waves marked a represent auricular contractions, and those marked c the carotid pulse. There are 64 auricular contractions per minute, and 38 ventricular. The auricular rhythm, as shown in the jugular and apex tracings, bears no relation to the ventricular rhythm, so that the case is one of complete heart-block.

2. The complete form, where the auricular contraction bears no relation to the ventricular contraction.

3. The Adams-Stokes syndrome, where dissociation is combined with syncopal attacks (Fig. 6).

I have refrained from discussing abnormalities of excitation and tonicity because, as already said, we possess as yet no clinical criteria for recognizing them. Over-excitability has, however, much to do with the production of extra-systoles, and can intensify nodal rhythm; and the lack of tonicity produces dilatation.

So far as treatment is concerned, we are taught by these recent studies that better methods of diagnosis lead up to better methods of treatment.

In the matter of (1) disturbed rhythmicity, in the first type discussed, we see that there are certain normal variations that do not merit treatment; that functional disturbances should be traced back to their cause, and the underlying conditions treated; while the disturbance may be brought about by over-dosing with digitalis or its congeners, where the line of treatment is apparent.

(2) Extra-systolic arrhythmias may also have a functional cause, as when due to reflexes from the gastrointestinal tract, as in indicanuria; also in the coffee and tobacco heart, when the therapeutic indications are plain. When due to high blood pressure plenty of out-door exercise is indicated (MacKenzie).

(3) In errors of contractility and in nodal rhythm the ataxic conditions being due to myocardial diseases, adherent pericardium, dosing by digitalis, asphyxia, etc., the therapeutic indications are for a very intelligent dosage with heart stimulants, or vasomotor drugs; carefully regulated diet, perhaps baths, exercises, etc.; while in loss of conductivity as well as in nodal rhythm, the possibility of syphilis must ever be kept in mind, and the importance of treatment by mercurials.

Patients with mild arrhythmias, whether young or old, should not be unnecessarily alarmed; young people especially; but older people should be forewarned. As a rule baths have a soothing effect on arrhythmia.

In conclusion, however, I must add that while the polygraph has enabled us to make more exact diagnoses, we should not altogether pin our faith on polygrams without careful study, remembering always that to be truthful representations of actual conditions, they must be taken by an experienced hand.

But polygrams are so necessary in the diagnosis of arrhythmias, that no well-equipped hospital should be without a good polygraphic instrument. Polygrams should be taken of every arrhythmic case, as far as practicable, certainly whenever there is a venous pulse. Up to the present time we are lacking in a good portable instrument. It is to be hoped that one will soon be devised.

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THE CAUSE OF TREMBLES AND MILK-SICKNESS.*

By E. L. MOSELEY,

SANDUSKY, OHIO.

Trembles and milksickness are due to aluminum phosphate. In Ohio and Illinois animals get this substance by eating white snakeroot, in New Mexico by eating the rayless goldenrod.

The proof, briefly stated, is as follows: "Aluminum, although, like silica, everywhere present in the soil, is only in exceptional instances taken up by plants," Strasburger. We have found considerable quantities of aluminum phosphate in the leaves of white snakeroot, *Eupatorium ageratoides*, and the stems of the rayless goldenrod, *Isocoma heterophylla*. Aluminum phosphate placed in the usual food of rabbits from day to day produces the same effects as feeding either of these weeds. The effects of feeding white snakeroot to various animals are identical with the symptoms of "trembles." Not only is their behavior affected in the same way, but the macroscopic and microscopic alteration of the organs are the same. Aluminum was found in the milk each day after a cow began eating the white snakeroot and this milk produced trembles in cats and rabbits. Aluminum was found in the urine, kidneys, liver, and muscles of rabbits fed with white snakeroot and the meat of such rabbits, whether raw or cooked, produced trembles in cats.

In the northern states, wherever trembles prevails, the white snakeroot grows abundantly. We know of a number of cases of trembles following the eating of this weed by animals in the woods, and we believe that in every case of trembles investigation carefully made would show that they had eaten it. On the other hand, they may eat small amounts without serious effects. The weed grows in many places where trembles is unknown, but in these places better-tasting plants are so much more abundant that white snakeroot forms but an insignificant part of their food. Commonly in these places the white snakeroot shows no signs of browsing. Millions of animals in the northern states are pastured where white snakeroot does not grow. We do not know of a single case of trembles ever occurring among them.

The Bureau of Plant Industry of the U. S. Department of Agriculture failed to obtain such results in their experiments with white snakeroot because they used aqueous extracts and aluminum phosphate is not soluble in water, though readily soluble in dilute acid, like that of the stomach. The only experiment in which they actually fed the weed is described in two lines, in their bulletin of sixteen pages, "The Supposed Relationship of White Snakeroot to Milksickness or Trembles," as follows: "A lamb weighing about 25 kilos, when fed 58 grams of the fresh plant, showed merely some diarrheal symptoms." This quantity would probably not kill a full-grown rabbit, although a much smaller weight of dry leaves will do so.

Inasmuch as the value of our earlier experiments described in the *Ohio Naturalist* for February and March, 1906, has been questioned by the Bureau of Plant Industry, before giving an account of our later ones, I wish to present as evidence that aluminum is the cause of trembles and milksickness some statements whose correctness in no way depends upon our experiments upon animals. This evidence may be verified without the trouble of experimentation by any physician familiar with the disease or who will take the trouble to look up the symptoms described by Professors Edwin O. Jordan and N. M. Harris, of the University of Chicago, in their paper, "The Cause of Milksickness or Trembles," published in the *Journal of the American Medical Association*, May 23, 1908, and compare them with the general action of aluminum, as given in Cushny's "Pharmacology," third edition, page 701. The latter is based upon experiments by Paul Siem in Germany, described in a pamphlet entitled "Ueber die Wirkung des Aluminiums und des Berylliums auf den thierischen Organismus." In order to make the comparison more satisfactory, I quote in full what Cushny says on the subject: "Aluminum has a very remarkable general action when it obtains access to the blood. In Siem's experiments on animals the sodium-aluminum lactate or tartrate induced a very slow intoxication, mammals never dying from the effects sooner than one or two weeks after the intravenous injection of the salts. In frogs the symptoms were those of a descending paralysis of the central nervous system, the heart and the peripheral nerves and muscles being little affected. In mammals the first symptoms appeared only after three to five days [this was where the poison was injected daily in small doses] and consisted in constipation,

*Read before the Erie County (Ohio) Medical Society, March, 1909.

rapid loss of weight, weakness, torpor, and vomiting; marked abnormalities in movement and sensation were observed later, such as tremor, jerking movements, clonic convulsions, paresis of the hind legs, anesthesia of the mouth and throat, and lessened sensation all over the body. Before death, diarrhea often set in, and albuminuria was generally present. The mucous membrane of the stomach and bowel was found swollen and congested, the kidney and liver had often undergone fatty degeneration, and hemorrhages were found in the renal cortex. Aluminum was found in the urine.

"Like the other members of the heavy metal series, aluminum therefore acts on the bowel and kidney in general poisoning, while many of the symptoms point to a direct action on the brain. Dollken has recently confirmed Siem's results, and showed that the nerve cells and fibers of the cord and medulla undergo degeneration, particularly those of the lower cranial nerves."

Now, these effects of the injection of aluminum, remarkable as they are, are the same as the effects of milksickness and trembles. The "constipation, weakness, torpor and vomiting" are familiar to all who have seen persons or carnivorous animals affected with the disease. The "tremor, clonic convulsions, and paresis of the hind legs" are striking features of the "trembles" in animals. As to "loss of weight," Mr. Louis Quinn, who has lost more than a thousand dollars' worth of stock from trembles, says: "The hide of a cow that has been sick for two weeks with trembles will not weigh within forty per cent. of a normal cowhide." Concerning anesthesia, he says: "Salt placed on the nostrils of a cow calls forth no response." "Cattle in which trembles proves fatal live on an average hardly a week after they are first seen to be affected, but the time differs considerably; a few live about two weeks." Sheep live less than four days after the disease is first noticed. Siem's experiments were with cats, dogs, and rabbits.

For our knowledge of the pathological anatomy and histology in "trembles" we are indebted to the article by Jordan and Harris, referred to above. Not only did they find all the lesions which Cushny mentions on Siem's authority, but many others which are mentioned in Siem's pamphlet on the action of aluminum.

Feeding Eupatorium Ageratoides.—Our experiments have been made in the fall and winter, with plants that grew in the vicinity of Sandusky, Ohio, in 1905 and 1908, and in 1906 in the case of one rabbit. We found the weed effective each of these years. Much of our material was gathered after hard frosts. The greater prevalence of trembles in dry seasons is probably due to the animals being harder pressed for food. In the fall, however, after transpiration has been going on all summer, the leaves should contain more aluminum phosphate than earlier in the season, and this, together with the fact that the white snakeroot remains green after most plants have withered accounts for the greater prevalence of trembles late in the year.

Plants from seven woods representing a variety of soils, have been used in our experiments, all proving effective. In 1908, we fed quite a number of rabbits with white snakeroot for the express purpose of testing the relative strength of the plants growing in different soils. We had thought that plants from woods which were deemed quite safe as pasture might fail to produce serious effects, but our experiments did not accord with this supposition. Plants from woods where trembles have often originated seemed most effective, but the difference was not great and may have been due merely to individual differences in the rabbits that were fed.

Although season and locality make little difference, at least so far as shown by our experiments, the part of the plant used makes a great difference. A rabbit when fed with thirty grams of stems appeared not half so much affected as another of the same size after it had eaten about four grams of leaves. Another rabbit fed with fifty grams of stems, in the course of about six days, showed less effect than five grams of leaves produce in any rabbit. After a few days this rabbit was fed fifty grams more of stems with slight effect. We conclude that the leaves are more than ten times as effective as the stems. They contain more than ten times the quantity of aluminum phosphate.

Effect of Milk.—One of the most remarkable characteristics of "trembles" and milksickness is the readiness with which animals convey the malady to their offspring by the milk, the mother oftentimes showing but little effect. Before we had discovered the inertness of the stems we fed fifty grams of stems and leaves of Eupatorium in the course of four days to a rabbit with four unweened young, resulting in weakness, trembling, stupor, and dullness of eyes in all of them, the mother being affected first and quite as strongly as any of them. Respirations were greatly accelerated, at one time 175 and at another about 200 a minute in the mother.

A cow affected with tuberculosis was fed with leaves of Eupatorium gathered December 6, ten ounces a day from Monday to Thursday, and 20 ounces on Friday. She showed no effect except such as might easily have escaped notice. Monday she drank 28 lbs. of water, Tuesday, 40 lbs., Wednesday, 48 lbs., Thursday, 60 lbs., Friday, 43 lbs. and Saturday, 49 lbs. On Wednesday, a cow of about the same size, in the same barn, but not fed any Eupatorium, drank 30 lbs. The respirations were usually 26 to 28 per minute, but Friday, when double the usual amount of the weed was fed, 34. Possibly this was due to her having some exercise that day, although some hours before the respirations were counted. Her temperature ranged from 101.3° to 103.4°. On Thursday, she seemed nervous and we noticed quivering of the muscles along the jugular furrow. We looked for the same movement in other cows, but could not see it. Friday, we saw a twitching of a thigh muscle. Her eyes showed some effect, the sclerotic being congested. There was no constipation or diarrhea or loss of appetite. Besides the bran and middlings with which the Eupatorium leaves were mixed, she had plenty of clover hay.

Although this cow was given only 60 ounces of the weed altogether, and showed no serious effects herself, the milk had a decided effect on the animals to which it was given. The quantity of milk at first was 5 pints a day, rich in cream, but later less than 4 pints. Two cats and several rabbits were supplied with it. One of the cats had been the subject of previous experiments but had recovered. Within 12 hours the milk caused prominent trembling again. Another cat not previously experimented on, was kept with the first, but did not drink so much of the milk. It was not affected, or at least not strongly affected, so soon, but after two or three days the effect on the first cat diminished and on the second

increased so that when held up all four of her feet trembled rapidly. She showed stiffness of the hind legs when walking and inability to climb upon a horizontal board. Her eyes were reddened and there was some vomiting. Both the cats seemed stupid and tired.

Most of the rabbits to which milk was given were those which had recovered from the effects of previous experiments. The milk set them trembling again. The urine contained a large amount of albumin. One fresh rabbit, weighing 1,800 grams, was given milk drawn 3 days after the cow had eaten the last of the Eupatorium. Nearly a quart was consumed in about 3 days, causing a slight backward and forward motion of the body, quivering of the loins, trembling of the legs when the animal was held up by the ears, respirations somewhat accelerated, diminished activity, eyes not so wide open as normally, and 75 grams loss in weight. The urine contained granular casts and a little albumin, indicating nephritis. Two days after the milk had been consumed the animal showed improvement and gained day by day.

A small amount of butter was made from the milk and given to three rabbits, producing so far as it went the same effects as the milk.

Five samples of milk drawn on as many days after the cow began eating the Eupatorium were burned in platinum dishes and the ashes found to contain aluminum.

Effect of Meat.—Another characteristic of "trembles" is that the meat of animals which have died of it, whether "raw or boiled," will cause trembles in animals that eat it. The author of Bulletin No. 121, of the Bureau of Plant Industry, after quoting this from Graff, says, "but there is evidently some mistake, as he states on page 361, that 'I boiled a large quantity of the beef in pure water for several hours, and afterwards evaporated the liquid thus obtained to the consistence of cream. Although this extract contained a large quantity of gelatinous matter, with some of the other constituents of the flesh, yet, on being given in large quantities, no perceptible effect was produced.'" The mistake was on the part of the writer of the bulletin in concluding that if an aqueous extract of boiled meat could do no harm, neither could the boiled meat itself. We have steeped the leaves of white snakeroot in hot water for hours, but after passing the extract through filter paper could find no aluminum in it. The leached leaves, dried and fed to a rabbit, produced the same effect as leaves from which nothing had been extracted, but leaves treated with dilute hydrochloric acid and then washed and dried had no effect.

The young rabbits which were poisoned by their mother's milk did not die from that cause, but when they were recovering were accidentally killed by a dog several days after their mother had eaten the last of the white snakeroot. They were kept cold until the next day when two of them were cooked and fed to a large and vigorous tom cat, causing trembling of various parts, vomiting, dullness, and slight increase in respirations. A week after the cooked meat was fed he had recovered from the effects and was fed with the raw meat of a rabbit that had died after being fed Eupatorium, the same symptoms being reproduced but with greater intensity and no vomiting noticed. There was some constipation and the eyes were dull. He would not jump upon a box where his food was placed, as he had been accustomed to do, and when allowed to grasp a projecting board with his forefeet, he seemed unable to climb upon it or to do so more than once or twice.

In 1905 we produced trembles in several cats, and the death of one of them by feeding them the raw meat of rabbits which had died after eating Eupatorium, also trembles in cats and a dog by giving them meat from a lamb which had died of trembles after being fed this weed. (See *Ohio Naturalist*, March, 1906.) We attribute the smaller effect of the cooked meat used in the experiment not to the fact that it was cooked but that the animals from which it was taken had not received with their food enough aluminum phosphate to kill them.

Effect of White Snakeroot on Rabbits.—The symptoms described for the milk, together with thirst, are those which follow feeding the weed itself to rabbits, but if the feeding is continued they become more serious. In some rabbits the respirations continue more rapid than normal until the day of death, when they are slow. In other rabbits, after a few days of acceleration, they continue slow for many days. One recovered after its respirations had become as low as 32 a minute, although for three days in the earlier part of the experiment they were 92 to 102. A little exercise makes the animal pant longer than a normal rabbit, and even when at rest the breathing is irregular. The characteristic back and forth motion of the body, when the animal is at rest is not synchronous with the breathing. Exercise increases the trembling. After they have become strongly affected sensation is much reduced. They can be handled with little remonstrance. In some of them touching the hind leg, when the animal is held up, causes quivering. If the hind leg is pushed into a different position, the animal is likely to leave it in that position.

Progressive loss of weight has been so generally noticed in rabbits under the influence of Eupatorium that where the balance has failed to show it we have attributed the apparent exception to the retention of more material in the bladder and the alimentary canal, a condition shown not only by post mortem examination, but by bulging of the abdomen and diminution of the amount of feces and urine passed. The same explanation probably applies to cats when they have increased in weight. The appetite in rabbits continues good during the greater part of the experiment, but loss of flesh may be noticed by feeling of the back.

Effect of the Rayless Goldenrod on a Rabbit.—In December we received from Professor E. O. Wooton, of the New Mexico Agricultural College, about three ounces of stems with a few leaves of the Rayless goldenrod, *Isocoma heterophylla*. This is the plant which the ranchmen claim causes "trembles" among their cattle. We analyzed a sample of ash from the stems of this and one from the leaves of Eupatorium and a third from timothy hay at the same time, using the same method and reagents from the same bottles. In the timothy we found a trace of aluminum phosphate, too small to weigh, but perhaps one or two per cent. as much as in each of the others. From ten grams of Isocoma stems we obtained .007 gram of aluminum phosphate and from ten grams of Eupatorium leaves .0047 gram. Later we discovered that aluminum phosphate after being strongly heated is difficult to dissolve with hydrochloric acid, so instead of reducing the leaves to ashes we made an extract with dilute hydrochloric acid and destroyed the organic matter in this extract with potassium chlorate. In this way

we obtained much more aluminum phosphate than before from the Eupatorium leaves.

About forty grams of the Isocoma were fed in the course of eleven days to a vigorous rabbit weighing 5 lbs., 4 oz., in the same room where three rabbits were being fed with Eupatorium and two with aluminum phosphate. The effect was the same, but the supply of the weed was exhausted before death was produced. At times the trembling was more pronounced than at any time in any of the other rabbits, perhaps because the animal to start with was the largest and strongest among them. The respirations before and after the experiment were between 70 and 80 a minute, but during the experiment mostly between 80 and 104. He showed no thirst. His abdomen became enlarged and on the eighth day he weighed eleven ounces more than at the beginning of the experiment, no feces or urine having been observed for quite a while. The next day he had lost seven ounces and the following day twelve ounces more, so that he then weighed half a pound less than at the beginning of the experiment.

Effects of Feeding Aluminum Phosphate.—The phosphate used in our experiments was freshly prepared by adding a solution of disodic hydric phosphate to a solution of aluminum chloride and washing the precipitate on the filter paper. This was kept moist and given to rabbits in bread, middlings, oatmeal, or milk. The effects were so similar to those produced by feeding the leaves of *Eupatorium ageratoides* that it is difficult to be sure of any differences. The same trembling, torpor, loss of weight, and other effects already described for rabbits poisoned with Eupatorium were observed in those which received aluminum phosphate in place of Eupatorium. There seemed to be less thirst and more enlargement of the abdomen produced by constipation. Other salts in the Eupatorium doubtless increase the thirst and may prevent constipation.

Post mortem examinations showed no differences. The same parts were strongly injected, the same parts moderately injected; the same odor of acetone, the same condition of heart, liver, kidneys, bladder, and the rest. The urine contained albumin and granular casts. Microscopic examination showed the same tissues affected and in the same way, so that the description of the pathological histology of rabbits that died after eating Eupatorium applies also to those that died after eating food in which aluminum phosphate was placed. Aluminum was found in the liver and urine, the only parts examined for it. A cat fed with meat, without the viscera, of a small rabbit which had died after taking a little aluminum phosphate each day for twenty-three days, showed trembling, increased respiration, reddened eyes, and constipation.

Four rabbits of the same litter, eight weeks old, were fed in the same room, two with Eupatorium leaves, 2½ grams a day for the pair, the other two with aluminum phosphate, about .007 gram a day for the pair. All were well supplied with good food. On the thirteenth day of the experiment one of each pair died. The other one of the two fed the Eupatorium died two days earlier, and the other one taking aluminum phosphate twelve days later. This and other experiments indicate that the animal fed with Eupatorium leaves is more likely to die within a few days than one which receives a small amount of aluminum phosphate with its daily food. Other salts in the Eupatorium may tend to produce diarrhea and thus lessen the strength of the animal.

Aluminum chloride was tried on three rabbits and produced in two of them some of the effects of aluminum phosphate, but seemed considerably less potent than the same quantity when changed to a phosphate.

Some of the animals developed a taste for aluminum phosphate so that they would take first that part of the food in which it was placed. When the feeding was stopped and the animal given time to recover from its effects, it could endure more than an inexperienced rabbit. Those that had recovered from the effects of taking Eupatorium, or milk from the cow that had eaten it, were able to endure more aluminum phosphate than fresh rabbits. We think that, in whatever form it is given, the animal recovering from its effects can endure more of it the next time, whether given in the same or a different form. This might not be true after a long interval. Some of the young animals that survived the experiments made upon them were stunted in growth.

The quantity of aluminum phosphate in the milk drawn two days after the cow was first given any Eupatorium was found to be about .07 gram per liter. While our experiments in feeding the milk and the artificially prepared phosphate were not made in such a way as to admit of exact quantitative comparisons we are safe in saying that the quantity of aluminum phosphate required to produce the same effect as the milk is not a great deal more or less than the quantity which the milk contained. In one gram of leaves we found about .003 gram of aluminum phosphate and our experiments show that one gram of leaves is more effective than .002 gram, but less effective than .005 gram, of artificially prepared aluminum phosphate.

Other Metals in White Snakeroot.—Most of our analyses of the ashes of *Eupatorium ageratoides* were of weeds gathered November 1 in the eastern part of Sandusky County, Ohio, where the soil is calcareous and where trembles is more prevalent than in any other place we know of. They were dried like hay. Of the dry leaves the ash forms 7 or 8 per cent., of the stems, about 4 per cent. The quantity of potassium was not determined; calcium oxide, 1.8 per cent. of leaves, 0.9 per cent. of stems; magnesium oxide, 1 per cent. of leaves, 0.2 or 0.3 per cent. of stems; ferric oxide, less than 0.1 per cent. of the leaves. These with the aluminum were the only metals found in the hydrochloric-acid solution. Iron phosphate occurring in considerable quantity and the general action of iron when injected into the blood being similar to that of aluminum, some experiments were made in feeding iron phosphate prepared in the manner described for aluminum phosphate. A rabbit that had been taking .003 gram daily of the latter was given in addition .003 gram daily of the former and the symptoms already observed seemed to be increased, but experiments with fresh rabbits failed to show much, if any, effect of the iron. One taking daily .003 gram of each showed much less effect than another of the same litter, taking daily .006 gram of aluminum phosphate. A third taking daily .006 gram of iron phosphate remained very active and apparently well, although the breathing was rapid and a tremulous motion was noticed in the muscles of the jaw. The milk of the cow fed with Eupatorium contained about the usual amount of iron.

As magnesium compounds constitute something like a third of the ash, we thought at first that these might be responsible for the effects of the weed. Considerable time was spent in determining the quantity of magnesia in the milk of different

days, but it was found to be little, if any, above the amount in good milk. Rabbits fed with magnesium nitrate representing the quantity of magnesia occurring in poisonous doses of the weed showed no effect.

It is therefore improbable that any of the inorganic constituents of *Eupatorium ageratoides* other than aluminum are absorbed into the blood in sufficient quantity to produce any noticeable general action. Their presence, however, is not without significance. They give the weed an unpleasant taste, so that animals having good pasture will not eat much of it. They doubtless produce thirst and probably produce diarrhea in many animals. The percentage of magnesium compounds may be higher in weeds growing in the region where our samples were collected than in many other regions. The cattle there when affected with trembles have diarrhea in "eight cases out of ten." The sheep, however, are constipated. People having milksickness are constipated, but they have not eaten the weed itself. Cattle in New Mexico are said to be constipated as a rule. In the rayless goldenrod stems received from New Mexico we found about one-sixth as much magnesia as in the leaves of Eupatorium.

Pathological Anatomy.—The behavior of animals of different species naturally presents some points of difference under the influence of drugs as it does when they are normal, but in the effect of aluminum on the organs of dogs, cats, and rabbits, Siem found so much in common that one description would do for all. Our autopsies have been mainly with rabbits. In them death is preceded by irregular breathing and in some at least by kicking and struggling. The cat died very quietly. The rabbit dies with muscles contracted, head drawn back and neck shortened, legs straightened, the hind legs extended back, the fore legs out and a little forward. In a rabbit examined half an hour after death, an auricle was still beating.

On opening the cavities there is in some, at least, an odor of acetone. The peritoneal cavity in rabbits usually contains but little free liquid, but in one which was chloroformed after several days' feeding of Eupatorium we found about half an ounce of straw-colored liquid. In the lamb which died in four days after it began eating Eupatorium leaves, the peritoneal cavity contained several ounces of liquid. In a cat, which was fed the meat of rabbits that died from the effects of Eupatorium, December 14 to 19, but survived until January 2, the peritoneal cavity contained two ounces or more of a perfectly clear amber-colored liquid of a slightly acid reaction In rabbits, litmus paper pressed against the moist peritoneum turns blue. In some of the rabbits the pleural cavity contained a little liquid, but liquid in the pericardial cavity was more common and noticeable. It was light straw colored and alkaline.

The bladder is more or less distended, the stomach and cecum full of food, and sometimes the colon contains gas. The small intestine contains no food or contains it only in a small part of its length.

The following parts show injection: Meninges, heart muscle, diaphragm, small intestine (ileum less than duodenum), the cecum slightly, the stomach, and usually the bladder. The colon is scarcely, if at all, injected.

The right auricle and ventricle are distended with blood, the left auricle contains some blood but always less than the right; the left ventricle in some cases is empty, in others it contains some blood but always much less than the right.

The inside of the stomach does not usually show conspicuous lesions, but minute extravasations in some parts of the mucous membrane. The small intestine shows marked injection inside and outside. It contains considerable yellowish mucus.

The liver is dark colored and commonly somewhat enlarged, the weight ranging from less than 4 to more than 6 per cent. of the weight of the body. The gall-bladder is filled with bile.

The kidneys on section show congestion and in some of the animals there are minute hemorrhages in the cortex. Generally they are enlarged, averaging in small rabbits rather more than 1.3 per cent. of the body weight, while those of a small normal rabbit weighed .8 per cent. of the body weight.

In the lamb the kidneys weighed 50.3 grams, or about double the normal for an animal of its size. Microscopic examination showed congestion and granular changes in the cells.

In most of the rabbits the urine contained albumin and granular casts, but in some, both were absent. Jordan and Harris apparently did not have opportunity to make careful examination of the urine, but Dr. B. F. Ward, assistant state veterinarian of Illinois, wrote me that horses affected with trembles appeared to have nephritis.

Pathological Histology.—The organs of three rabbits that died from eating Eupatorium were put in formalin and sent to Dr. Walter H. Rieger, pathologist of the Charity Hospital, Cleveland, for microscopic examination. His report follows:

"Brain: The only pathological condition found in the cerebrum and cerebellum was a congestion of all the capillaries. In the brain substance there was no discernible change.

"Lungs: Acute passive congestion; few blood cells out in the air spaces.

"Heart: No change; muscle somewhat congested, otherwise negative.

"Stomach and Intestines: Acute passive congestion; no other change.

"Liver and Kidneys: I will describe these together, as they show similar changes. A marked congestion of all the blood-vessels and the condition of 'cloudy swelling' in both the liver and kidney cells; this means that the cells have undergone a slight granular degeneration. The nuclei in these cells do not take the stain as well as they should, owing to this condition within the cell. Hence, the liver and kidneys suffer more than any other organ."

After sending Dr. Rieger the organs reported on above and those of a rabbit that had been poisoned with artificially prepared aluminum phosphate, I asked him if I should send unlabeled the organs of the next animal that died and let him decide whether it had been poisoned by eating the weed or by the phosphate inserted in good food. He replied, "I think it would be a pretty difficult task, as from my examinations I can see no marked differences." The next animal died from the effects of artificially prepared phosphate and the organs were sent unlabeled. Dr. Rieger was unable to tell in which way it had been poisoned.

I am indebted to many persons for assistance in ascertaining the facts presented in this paper. The help of four of my former pupils has been highly appreciated; Dr. Walter H. Rieger, now pathologist of Charity Hospital, Cleveland, is entirely responsible for the pathological histology; Dr. Fred Schoepfle, of Sandusky, has examined the urine for

albumin and casts, and August Guenther, Ph.D., now professor of physiology in the University of Nebraska, and Dr. Henry Schoepfle, of Sandusky, as well as the two doctors first mentioned, have assisted in autopsies and in other ways. I am also indebted to a number of other physicians and veterinarians of Erie County, Ohio, and quite as much to a number of my pupils who are not yet doctors.

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X-RAY DIAGNOSIS.*

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It shall be my endeavor in this paper to place before you the exact status of present-day Roentgen diagnosis, to outline its possibilities and to define its limitations. It should be clearly understood in the beginning that Roentgenology is a specialty of medicine and as such demands that the operator shall be a clinician of the first rank; the mere possession of the apparatus no more makes him an expert than would a kit of tools make him a mechanic. Outside of a thorough knowledge of medicine, as a whole, he must possess an exact acquaintance with the structural relations of the human body, not only the anatomy of the text-books, but what may be termed "*x*-ray anatomy." It should never be forgotten that what we are viewing is not the thing itself but its shadow, and as the shadow, say of a coin, would be either a disc, an ellipse or a line, according as it was held in relation to the source of illumination, so also are differing pictures obtained of the same human structures when viewed from different angles. The Roentgenologist must be master also of that branch of electricity which concerns induction and the management of currents of exceeding high voltage. He must know something of the physics of matter in its radiant state. He must be expert in the handling of his photographic material, and last, but not least, when he has obtained a perfect plate he must know what the shadows upon it mean. The latter is by far the most difficult part of all this highly technical work and can be learned only by experience. Roentgenography is only twelve years old, but it has made great advances in the last few years, mainly due to improvements in apparatus, technique and to the better interpretations of the plate brought about by comparisons, microscopical, pathological and post-mortem. The man behind the gun counts for very much, but he should not go after the Royal Bengal tiger with a pop-gun. If one is to do efficient *x*-ray work he must deliver into his tube a voltage rarely in excess of 300,000, but it must carry as large an amperage as the tube will stand. This means that it will take from ten to twenty kilowatts in the primary of the induction coil to do the fastest and the best radiography.

There are technical reasons why long exposures produce misleading and blurred pictures, and in just those cases where the *x*-ray is most valuable speed is an absolute essential to correct diagnosis. For abdominal and thoracic work plates can have no longer an exposure than the time wherein the patient can hold his breath; therefore if the apparatus be inefficient and incidentally the operator (for the personal equation is an important factor in this work), the results can only be disappointing or misleading. Good chest plates can be taken in a second; moving pictures of the heart in action have been secured and this means, of course, that exposures must have been made in a small fraction of a second. Plates for *x*-ray work are exceedingly sensitive to ordinary light and are difficult to develop without stain or fogging, and as we are depending on shadows alone it is essential that no extraneous ones are introduced to cloud either the picture or our judgment of it. The total depravity of all inanimate things is most surely shown in the behavior of the *x*-ray tube. A good one is, like a virtuous woman, more to be valued than rubies. What a tube will do under apparently trivial variations of vacuum, inductance, interruptance and current is more than any man can predict, and the greatest skill is required to get and keep it in tune with the generator.

I have touched briefly upon the technical side of this work because many physicians think that all that is necessary to do efficient *x*-ray work is to get a small static machine, a single tube, connect them up and set them going. One might with as good a show of reason tackle a face presentation with no knowledge of obstetrics, armed only with a pair of dressing forceps. As in other highly technical divisions of science, there is the popular conception and the expert appreciation, so it is of Roentgenology. Even among the medical profession it is considered mainly as a diagnostic agent in disturbed relationships of the osseous framework chiefly because fractures and dislocations make such evident and contrasting radiographic pictures. It is thought of also as standing alone in its positive findings, needing no anamnesis nor any corroboration. Neither of these conceptions are true. Its possibilities cover any pathological condition which alters tissue densities, and its limitations make it subservient to the history of the case, make it often only corroborative and simply an aid to other diagnostic investigations. Let it be borne in mind that Roentgenography is simply a study in relative densities and that superposed structures project their shadows onto one plane. It is true that this obstacle may be largely overcome by stereoradioscopy, but it is the greatest bar to the ready interpretation of the plate. There is no substance which is so dense as to be absolutely opaque to the ray and none of such rarity as to be absolutely transparent. Between these extremes it may be seen that by proper manipulation of current, tube and plate great differences in structure may be brought out and slight differences in density made manifest. Fat, muscle, tendon and ligament all show, as well as the bony structures, on a good plate, but of course the greater the difference in density the greater is the contrast in the shadows.

Taking up in detail *x*-ray diagnoses, let us begin with the easier ones. Metallic foreign bodies are relatively so much denser than the tissues in which they are imbedded that their detection is the simplest matter possible. Their exact location may be determined to the fraction of an inch relative to the surface from which they must be approached. Their removal may be equally easy or so hedged about with difficulties as to render any attempt unadvisable. We have in the *x*-ray a probe which is exact, clean and painless and is sure to succeed even if the most careful search by other methods has proved a failure. In no part of the body is it more important to be sure of the presence or absence of a foreign body than in the eye. All suspected cases should be radiographed and if the foreign body be

*Read at a meeting of the Tioga County (N. Y.) Medical Society.

found an immediate attempt should be made to remove it before a firm exudate has formed around it. To wait until the inflammation subsides in the hope of determining its position by the ophthalmoscope consumes valuable time and menaces the safety not only of the injured eye but its fellow as well. It is possible that the foreign body has gone completely through the eye. The radiogram will tell you if this be the case and then no surgical intervention is necessary unless, of course, the eye has been hopelessly disorganized. It is an axiom in ophthalmology that a foreign body in the eye, sooner or later, gives rise to sympathetic inflammation in the other and that the foreign body or the eye containing it must be removed. The technique of localization is exceedingly simple and its findings absolutely accurate. Two pictures are taken from different angles with two known factors, the distance of the tube from the plate and the position of the indicator. Where the latter touches the skin is marked by a cross. By taking a tracing from the two negatives, substituting for the lines of light two fine cords, their upper ends occupying the place of the tube in its first and second position, their lower ends placed on the two shadows of the foreign body, it is evident that the cords must cross at the point where, relative to the indicator, the foreign body rests. All that remains is to measure from indicator to this crossing. We now know in what direction and how deep it lies. If we decide to go after it we cut down directly upon it without dissection and make our wound no larger and no deeper than through which the foreign body may be made to emerge.

Diseases of the bones always present alterations in their radiographic appearances. Taking the picture is easy. Its interpretation is often difficult, but there is always alteration of structure and consequently of density. When the periosteum is irritated or inflamed a good radiogram will present various phases of alteration which throw light not only on the kind of irritation, but the time which it has been active. Diseases of the bone substance show marked changes. Osteomyelitis gives a mottled appearance; carcinoma, areas of rarefaction. Sarcomas are of two kinds: the giant-celled showing erosion of bone and cartilage, the spindle-celled, fusiform dilatation of the shaft of the bone with less transition of light and shade. Tuberculosis shows breaking down of bone substance, separation of periosteum and loss of detail in the cancellous structure. In the diseases of the joints the diagnosis of "rheumatism" is often a cloak behind which much diagnostic incapacity hides itself. This term should be limited to the inflammatory type which is simply the arthritic expression of an acute systemic infection. Applied to the chronic varieties it is just about as accurate a diagnosis as would be "threatened with a fever."

Types of this great class of joint diseases can be readily differentiated and divided into separate clinical entities which, except for the one common factor of joint envolvement, they are. Briefly these may be divided into: (1) Villous Arthritis—This is due largely to strain or trauma and is a proliferation of the synovia or a protrusion into the joint of the periarticular fat. This is often monarticular and almost invariably in the knee joint. There are no constitutional symptoms. (2) Atrophic Arthritis—This is polyarticular, most usually of the wrist and hands, and there is swelling and pain. The individual is badly nourished and the disease progressive. The Röentgenogram shows erosion and loss of cartilage and bone and a diminution in it of the lime salts. (3) Hypertrophic Arthritis or Osteoarthritis—This occurs in well nourished individuals, is often monarticular and insidious in its onset. Here we have thickening of cartilage, overgrowth of bone and increase in the lime salts. (4) The Infectious Arthritides—These may follow gonnorrhea, scarlatina, typhoid fever, pneumonia, influenza, tonsillitis, erysipelas or dysentery. These arthritides show a fibrous hyperplasia around the joints but almost never atrophy or hypertrophy of the articular surfaces proper; (5) Gouty arthritis, this gives a characteristic Röentgen picture in which are shown the tophi and the early loss of tissue in the shaft of the bone; (6) Tuberculous arthritis, this is too often diagnosed as rheumatism. An *x*-ray picture will clear up the diagnosis at once, will show the erosion of the bone and cartilage and the periarticular infiltration. Many a case of so-called lumbago turns out to be an infectious or hypertrophic spondylitis. Fractures and dislocations are the A. B. C. of *x*-ray work, but I am going somewhat into detail because this part of the subject, perhaps may interest you most. To begin with, whenever possible, the *x*-ray should be used in every case of fracture. Some urge its use in complicated cases only, but the difficulty with this plan is that one can never tell whether a fracture is complicated or not until a radiogram is taken. I have seen cases where union seemed perfect and where no deformity or shortening followed, but where function was greatly impaired, owing to a loose splinter of bone in the muscles. The *x*-ray furnishes a more accurate and detailed picture of a fracture than can be obtained in any other way. In some cases the diagnosis of a fracture can be made only after an *x*-ray examination, while in others which simulate fracture it can be shown that none exists. In severe sprains where the parts are much swollen it may be difficult or impossible, without the ray, to determine whether or not a fracture is present. Cases are frequent of Pott's fracture diagnosed as strain, and I had a case where strain of the elbow-joint was diagnosed and the two competent men who made this diagnosis were surprised when the radiogram showed fracture longitudinally of the humerus between the condyles. There is a saying, "A bad sprain is worse than a broken bone." A new light is thrown on this adage by *x*-ray examination, as it often shows a fracture which had gone unrecognized by other methods.

In certain cases it is difficult to determine by ordinary means, whether there is a dislocation or to differentiate it from a fracture. Moreover, these two conditions may be coexistent, and if occurring close together the diagnostic difficulties are multiplied. These problems are easily solved by a Röentgenogram. Time will not permit me to take up particular fractures and dislocations, but in dismissing this phase of the subject I want to impress upon you its value in all cases and particularly in those obscure injuries occurring around and in the wrist joint, the sprains, fractures and chipping off of small fragments which lead to impairment or loss of function. This is a matter of vital importance to those who depend upon their hands as a means of livelihood. Lastly, in this connection, beware of the fractures which result from trivial causes like an arm, for instance, which snaps when throwing a stone; this is suspicious of disease, and not infrequently malignant disease of the bone.

Of the more difficult Röentgen diagnoses, biliary

calculi, perhaps, stands at the head. It requires that the apparatus shall be powerful and the technique faultless, but it can be done. Vesical, ureteral, and renal calculi present less pronounced difficulties. In general, the ease with which calculi may be recognized depend upon their size, location and chemical composition. They are the more readily detected in proportion to the amount of the inorganic salts which they contain. Pure uric-acid calculi are almost as readily permeable by the ray as are the surrounding tissues, and consequently may be seen only with difficulty. Fortunately, pure uric-acid concretions are very rare. Again, calculi can be more readily detected in young or thin subjects, as thickness is one of the obstructions offered to the ray. Notwithstanding all the difficulties they may be overcome by proper apparatus and technique, and the percentage of error, even in gallstone cases, is less than 3 per cent. So much stress has been laid upon the surgical side of Röentgen diagnosis that we are apt to forget that it has a medical side as well.

For the detection of any trouble in the thoracic cavity it exceeds in accuracy any other method, and in some cases it is indispensable. In the prebacillary stage of tuberculosis it offers a ready means of diagnosis when auscultation and percussion give only negative findings. In pleurisy, with or without effusion; in emphysema, hydrothorax, empyema, mediastinal tumors or enlarged glands charactertistic pictures are presented which can hardly be misinterpreted. Certain diseases of the heart which modify its size or position show clearly on the plate, and the differentiation may be surely made between hypertrophy, dilatation, and pericarditis with effusion. Abnormalities in the great blood-vessels, aneurysm, calcification, or tortuosity of the aorta give each its own picture.

Below the diaphragm .r-ray work until recently has been confined to the detection of hepatic, renal, and vesical calculi, but improved methods have made possible the determination of the area of the spleen, the upper border and size of the liver and the position of the left kidney. The form and position of the stomach, possibly growths within it, gastroptosis, enteroptosis, the progress of digestion, and the rate of peristalsis, all may be determined.

The skull itself has been radiographed; the size, position, and healthfulness of the sinuses offer no difficulties, and even tumors and hemorrhages inside the cranial cavity, have been made out and the diagnosis confirmed by operation. I have necessarily been exceedingly brief in this sketchy outline of the possibilities of .r-ray diagnosis, but it is a truthful and fairly accurate statement of the present-day status of what is to me the most wonderful and beautiful thing in medicine.

CEREBRAL HEMORRHAGE FOLLOWING ARTERIOSCLEROTIC GRANULAR NEPHRITIS MISTAKEN FOR CEREBRAL EMBOLISM.*

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THE main purpose in presenting the clinical and autopsy findings of the following case is to demonstrate an error in diagnosis consecutive to a heart lesion of more frequent occurrence than is commonly supposed.

*Read before the Section on Medicine of the New York Academy of Medicine, March 16, 1909.

M. C., widow, 45, English, was admitted to the Metropolitan Hospital, New York City, October 23, 1908, and died therein January 24, 1909.

Family history was negative. Occupation, housework. Drank beer. Use of tobacco, drug habits and venereal history negative. Measles, parotitis, and pertussis in childhood. Health always excellent until two months ago when upon crossing the street she suddenly lost the use of the right arm and leg with complete unconsciousness. She was brought into the hospital in this condition and since then to the day of her death was confined to the bed.

Physical Examination.—Pupils reacted to light and accommodation. Expression was melancholic. No facial paralysis that could be detected. Tongue deviated slightly to the left. With the exception of a few coarse mucous râles at the bases of the lungs there were no abnormal signs in the thorax.

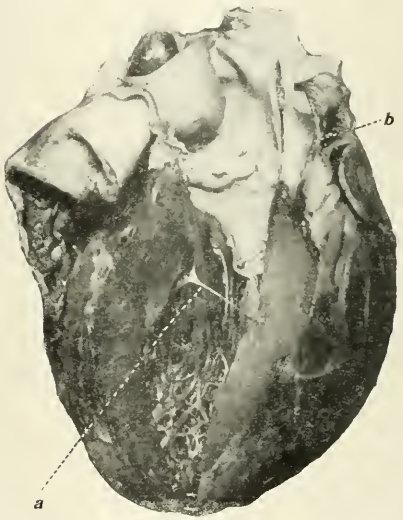

FIG. 1.—The heart, one-half natural size; *a*, An aberrant chorda tendinea, bisecting the left ventricle 5 cm. below the aortic valve; *b*, The normal aortic valve.

Heart.—Apex three fingers in breadth in the sixth interspace. Line of dullness to the right, extended slightly beyond the right sternal line, and to the left, from the third rib to the sixth interspace and two centimeters outside the midclavicular line. Auscultation at the aortic valve gave a loud, double murmur not unpleasant in timbre. This murmur was transmitted into the arteries of the neck. Accentuation of the second pulmonic sound. No thrill upon palpation over precardiac region. The free margin of the liver was felt at the lower border of the ribs. The spleen was not palpable. Paralysis of the right arm with paresis of the right leg. No sensory disturbances. No atrophies. The patellar reflexes were exaggerated, being greater on the right side. Ankle clonus on the right side. Babinsky negative. Very slight edema over the lower half of both tibias.

Bedside Notes.—Incontinence of urine. Constipation. Marked dyspnea and cardiac asthmatic attacks. Patient constantly craved for fresh air. Ap-

petite poor. Slept well up to December 24, when she became very wakeful and disturbed by the increasing asthmatic attacks. Gradually delirium set in with singultus, incoherent speech, and attempts to get out of bed. Constantly complained of pain over the precordial region.

Throughout the pulse was slow (64—68), regular, full, and nonintermittent. Temperature under 98° F. and once recorded as low as 96.4°. Respiration normal.

Uranalysis.—Pale yellow, alkaline, sp. gr. 1,010, large amount, slight traces of albumin, no sugar. Urea 0.011 gm. per c.c. No casts. Bladder epithelium, triple phosphates, calcium oxalate crystals, and large quantities of mucus were present.

Death due to convulsions, January 24, 1909.

Clinical Diagnosis.—Endocarditis of the aortic

FIG. . *A*, Outer surface of the right kidney, capsule removed; *B*, Cut surface of the left kidney (two-thirds natural size).

valve with embolism of the left middle cerebral artery.

Autopsy Record.—Body excessively pale and emaciated. Post-mortem rigor present. Hypostatic congestion of dependent portions of body. Finger tips and face cyanotic. Pupils evenly dilated 3 mm. Eyes slightly divergent. No marks on external surface of body. Slight edema over both tibias.

The circumference of the middle of the right leg was 24 cm.; left, 24½ cm.; right thigh, 31 cm.; left, 31 cm.; right forearm, 15 cm.; left, 18½ cm.; right arm over middle of the biceps, 18 cm.; left, 20 cm.

Abdominal cavity contained about 500 c.c. of a clear transudate. Abdominal organs in normal position. Diaphragm right side at the sixth rib; left, sixth interspace.

Pleuræ normal. Pleural cavities contained small quantity of a pale, clear transudate. Left lung showed passive congestion and chronic bronchitis in both lobes. At the base of the lower lobe was a small hemorrhagic infarct. Right lung showed same as left in middle and lower lobes.

Pericardium was normal. Slight amount of pale, clear transudates in pericardial sac. Heart weighed 625 gm. Endocardium was smooth, glistening, and transparent throughout. All valves were normal. Heart muscle was a light reddish brown color streaked with yellow. Left ventricle 3 cm., right 5 to 6 mm.; left auricle 1 to 4 mm., right 1 to 2 mm. Bisecting the left ventricle at its midplane (see Fig. 1) was an aberrant chorda tendinea 5 cm. below the aortic valve. Where the same was attached to the walls of the ventricle there did not appear to be any evidence of a present or past endocarditis. This chorda tendinea was 1 mm. in thickness and in every respect similar to the other normal chordæ tendineæ.

Liver weight 1,205 gm.; edges sharp, of tough leathery consistency and a dark yellowish brown color. Lobules definable. Spleen dark mahogany brown color. Trabeculæ increased.

The kidneys (see Fig. 2). Left, weight 80 gm. Dark mahogany brown color, very firm in consistency. Capsule thickened and firmly adherent. External surface coarsely granular and studded with miliary cysts. Cortex 2 to 3 mm. thick. Markings entirely effaced. Blood-vessels arteriosclerotic. Pelvis normal. Right kidney weighed 69 gm. and in all other respects was similar to the left. Adrenals normal.

Pancreas, stomach, and intestines normal. The entire vagina, both anterior and posterior walls, showed a chronic ulcerative vaginitis. The uterus and ovaries were normal. Bladder showed chronic cystitis.

Brain.—Dura mater and pia normal. The pial spaces over the frontal lobes were wider than usual and the frontal convolutions appeared slightly atrophic. The blood-vessels at the base of the brain composing the circle of Willis and their cortical branches showed advanced arteriosclerosis and atheroma; there were no abnormal anatomical distribution of the same.

Horizontal section through the central gray ganglion at their midplane in the right hemisphere showed recent hemorrhage in the putamen just bordering upon the external capsule, measuring about 2 cm. in length and 1 cm. in breadth. The anterior limb of the internal capsule was totally destroyed by encephalomalacia. At the knee of the internal capsule was a small recent hemorrhage about 3 mm. x 1 mm. The anterior nucleus of the optic thalamus showed a small hemorrhage about 4 mm. x 1 mm. and there was a small area of softening in the mesial nucleus.

In the left hemisphere at the same midplane of the central ganglion immediately opposite the knee of the internal capsule located in the globus pallidus was a recent hemorrhage averaging about 1 cm. in diameter. Likewise in the putamen another averaging 3 cm. x 1 cm. lying directly against the external capsule. At the lateral nucleus of the optic thalamus and pressing upon the posterior limb of the internal capsule was a recent hemorrhage about ½ cm. in diameter. Balance of the brain appeared normal.

Diagnosis.—Advanced arteriosclerotic nephritis; compensatory hypertrophy and fatty degeneration

of the heart with muscular insufficiency of the mitral valve; aberrant chorda tendinea bisecting the left ventricle; cyanotic induration of spleen and liver; chronic ulcerative vaginitis, chronic cystitis; chronic bronchitis with passive congestion and edema of the lungs; and cerebral hemorrhage and encephalomalacia due to advanced arteriosclerosis with obliterative endarteritis.

I desire to express my thanks to Mr. Brush, the official photographer of the Metropolitan Hospital, for the excellent photographs furnished in this case.

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A NOTE ON THE BENEDICT METHOD OF QUANTITATIVE ESTIMATIONS OF SUGAR IN THE URINE.*

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Recognizing that a method for the quantitative estimations of glucose in the urine for office use is certainly to be desired, and that such a method should be (*a*) rapid, (*b*) easy of execution, and (*c*) approximately accurate, it was considered worth while calling attention to a procedure which fulfills these requirements, together with some critical remarks on its application. In an admirable paper S. R. Benedict[1] has called attention to a modification of the old Fehling method of both qualitative and quantitative estimation of sugar in the urine, and he has pointed out, in a convincing manner, the advantages of using sodium carbonate instead of sodium hydroxide in the alkaline solution.

This, however, was shown about the same time by Ivar Bang,[2] who used salts in making titrations for estimating the sugar content. The technique of this method need not be entered into here. Bang pointed out that the copper hydroxide in the presence of potassium sulphocyanate, when reduced by glucose, forms a white salt of cuprous sulphocyanate, which, however, is insoluble in an excess of cyanate solution. Benedict showed that by precipitating the white cuprous sulphocyanate the end reaction was sharp and absolute, being especially distinct because, toward the end of the titration the white precipitate makes an excellent contrast with the greenish solution. This will be referred to below.

Rudisch and Celler,[3] also recognizing the convenience of employing an excess of potassium sulphocyanate (in 50 per cent. concentration) to keep the cuprous sulphocyanate in solution, advocate a method of using the original Fehling solutions for titrating to a colorless solution. According to them the method requires one titration only, and is accurate within 0.25 per cent. This also will be discussed below

The method under consideration here is a combination of these two, the technique, however, being simplified. In offering a clinical method for estimating sugar quantities in the urine, to be done in the office, it is certainly sufficient and entirely satisfactory if the results of titration show (*a*) a limit of error of not more than one-half of one per cent. as compared with polariscopic readings, and (*b*) accuracy in the readings of titration to one-twentieth (.05) of a cubic centimeter. These conditions have been easily met in the method here offered. In the majority of titrations the variations from the polariscopic readings have been from 0.20 to 0.25 per cent., or easily within the limitations of the "individual equation."

Discussion of Methods.—The chief disadvantages of the methods most commonly used may be summed up briefly as follows:

1. The Pavy method[4] is unsatisfactory because of the loss of ammonia by boiling during the titration process, and the wide variations in any two given methods, due to reoxidation.

2. The Fermentation Method.—Einhorn or Lohnstein saccharimeters require twenty-four hours to decide results, require controls, and one of them necessitates the use of a thermostat. They are, besides, not uniform.

3. Roberts' method[5] of measuring specific gravity before and after fermentation, though on the whole very satisfactory, also requires twenty-four hours for the determination.

4. The Polariscope.—This is by far the simplest method, but the cost of such an apparatus is prohibitive for office work, and besides the presence of levorotatory substances, such as levulose, β-oxybutyric acid and other less important bodies may invalidate the readings.

5. Ivar Bang's Method.—This is too complicated and besides has the objection, as pointed out by Benedict, of the use of hydroxylamin; also necessitating the employment of three solutions.

6. Fehling's Method.—This requires three or more flasks; too much time is consumed, and especially so in deciding the exact point of the end reaction which, further, is often not definite.

7. Rudisch-Celler Modification of the Fehling Method.—This method has much to recommend it, but the chief objection which can be urged is that unless the reaction is carried out very rapidly there are evidences of reoxidation, thus making the readings inaccurate, and for this reason, in unskilled hands, no two titrations are the same. This reoxidation is readily seen by leaving the solutions which have been decolorized standing, when after a few minutes there appears a definite greenish tinge, which later becomes blue, eventually returning to the original deep blue color.

8. The only objection which can be made to the original Benedict method lies in the so-called "bumping" which occurs when the white salt of cuprous sulphocyanate is precipitated. To obviate this Benedict recommends that absorbent cotton be introduced and stirred about with a glass rod. It has been found, however, that this does not always act satisfactorily, and when some of the solution is lost through bumping the results of titration are obviously erroneous.

Author's Modification.—Apparatus:

One 10 c.c. burette graduated in 1/20 c.c. divisions.
Two 5 c.c. measuring pipettes.
Two Erlenmeyer flasks of 100 c.c. capacity each.
Graduate, Bunsen flame or alcohol lamp, etc.

(Benedict Solutions):

(*a*) Crystallized copper sulphate, 69.30 grams.
Distilled water ad 1,000 c.c.

(*b*) Crystallized Rochelle salt, 346 grams.
Pure anhydrous sodium carbonate, 200 grams.
Distilled water ad 1,000 c.c.

The urine is diluted with an equal amount of water, or dilutions of one to four or to eight may

*From the Clinical Laboratory of the Johns Hopkins Hospital and University.

be used.* Five c.c. of a mixture of equal amounts of copper and of alkaline solutions, *carefully measured,* are run into each flask and approximately 25 c.c. of a 35 per cent. solution of potassium sulphocyanate are added to each flask. Extra amounts of anhydrous sodium carbonate, as recommended by Benedict, are not absolutely essential.

The following uniform technique of titration has been found to be most desirable: The blue solution is brought to a brisk boil which is continued throughout the titration. As soon as boiling begins the sugar solution is added slowly, drop by drop, boiling continuously, until the blue solution turns a lighter color. The nozzle of the burette is now held out of the steam coming from the flask, which is then boiled for *one minute by the watch.* The sugar solution is now added in amounts of one to three drops at a time, and the boiling is continued briskly for *one minute* between additions. The end reaction, which is sharp, is evident when the solution becomes colorless, or takes on a faint golden tinge, this latter ensuring entire disappearance of any greenish color remaining.

The second flask can naturally be titrated more rapidly than the first. The average of two readings should be taken in estimating the quantity of the glucose present, and the estimations are made by considering that 20 c.c. of mixed copper and alkaline solutions are reduced by 0.073 grams of pure glucose.

The Advantages of the Method.—Besides possessing all the advantages of the Rudisch and of the Benedict methods, there is (1) no loss of copper solutions, through bumping. (2) Very little reoxidation, as compared with the Rudisch method, the flasks on standing twenty-four hours showing only a greenish tinge. Bang proved besides that reoxidation during the boiling process is of insignificant amount. (3) Titration readings differing by no more than 0.05 c.c.; certainly the smallest practical limit for a clinical method. (4) Reaction carried out in a flask in such a manner as to make it most simple and easy of manipulation.

Remarks.—The one objection to this method which, however, is applicable to others requiring the use of copper solutions for reduction lies in the fact that if boiling is prolonged too much such bodies as creatinin, creatin, uric acid, phosphates, glycuronic acid, etc. (as pointed out by H. MacLean[6]), if present in sufficient amounts, will effect partial reduction and so invalidate the readings. This is especially marked with the Benedict solutions, as shown by Benedict,[7] in which the reduction to hydroxide is more rapid because of lessened dehydrating properties of the carbonate as compared with the hydroxide. The discussion of this question, however, does not belong here. These reducing bodies do not effect the reaction before three to six minutes of boiling, and normal urines require two to three minutes boiling to effect any reduction.

As MacLean has shown, creatinin, if present in sufficiently large amounts, can mask the presence of a small amount of glucose.

As in most other methods, albumin if present should first be removed from the urine, and chloroform should be avoided as a preservative, carbolic acid being quite satisfactory in this connection.

I am much indebted, especially to Dr. T. R. Boggs, for valuable suggestions, and to Dr. R. S. Morris for courtesies extended in the completion of this work.

*This is merely arbitrary, the calculations thus being more easily made

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Modern Ideas on Teaching of Therapeutics and Pharmacodynamics.—M. V. Tyrode, writing on this subject in the *Boston Medical and Surgical Journal* of April 1, 1909, divides the treatment of disease into four classes: (1) Physical, including surgery, hydrotherapeutics, massage, gymnastics, *x*-rays, Finsen rays, and radium; (2) physical, dealing with mental suggestion in the waking, hypnoidal, or hypnotic states; (3) the dietetic, including changes in the character of the diet, and (4) the chemical, or mechanical, which deals with drugs in the old sense of the word and with organ preparations, sera and antitoxins. The course in the latter division should include one in materia medica, chiefly laboratory work, and one in pharmacodynamics—taught by lectures, recitations, and conferences. Besides the practical therapeutics taught in the clinical courses in the various specialties, there should be a general course on therapeutics, taking up the subject from the point of view of diseases, reviewing and comparing different methods in the particular affections. Part of this work could be done didactically and part clinically in hospital wards. There should be electives and post-graduate courses in every department, although the teachers in the different branches might be attached to special divisions, yet there should be a special organization of the men teaching therapeutics in the different branches in order to secure thorough cooperation.

The Influence of Ovarian Secretion on the Mammary Glands.—L. Bouchacourt says that the correlation that exists between the mammary glands and the ovaries is a striking example of the relations between different organs in the body. After a study of these relations he gives these conclusions: It is probable that the mammary development at puberty takes place under the influence of an ovarian secretion. Many facts go to show that these glands secrete a substance unfavorable to the mammary function. These are the insufficiency of the ovaries accompanying hypertrophy of the breasts of pathological nature; the relative repose of the ovaries during pregnancy while the breasts are increasing in size; ovarian removal produces congestion; a natural menopause may produce the same symptoms; pregnancy during lactation has an unfavorable influence on lactation; ovarian castration during lactation increases and prolongs lactation; menstruation during lactation diminishes secretion. Practical results from these facts may be deduced: the nursing woman should be in a condition of sexual repose. Menstruation will indicate that lactation should cease. At the menstrual period the nursing woman should receive special supportive nutrition, and some nursings may be replaced by the bottle. A new pregnancy during lactation should be the signal for a gradual introduction of artificial feeding.—*Le Journal de Médecine de Paris.*

Aseptic Sloughing of Uterine Fibromyomata.—B. Auché and R. Brandes say that the name of true sloughing fibromata should be reserved for tumors that slough under the influence of microbian invasion. The authors have made careful microscopical examinations of five sloughing fibromata removed, to determine the type of degeneration which had taken place, and whether microbes were present. Sections were examined and cultures made from the tumors. They conclude that in the absence of any microbes phenomena of alteration become manifest in the interstitial tissues of fibromyomatous nodules. These result from circulatory changes. These lesions should be distinguished from those produced by microbian invasion. The authors believe that we may sufficiently distinguish these two types of slough by the presence or absence of septic sloughs.—*Journal de Médecine de Bordeaux.*

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THE EFFICIENCY OF THE BODY AS A MACHINE.

At this period of the year, when the young men of the country are preparing themselves for athletic contests, when the account of track meets, Marathon races, and crew contests are filling the daily press, and when thousands are in regular systematic preparation for such contests, the subject of the results of training upon the human body and of the reason for the resulting increased ability to carry on its work is of interest. We all know that a trained athlete can work longer and more efficiently than a novice, but the question as to whether this is due to an increase in the size of his muscles or to an improvement of their power per gram weight is a matter still open to discussion.

In this connection a Bulletin recently published by the U. S. Department of Agriculture (Bulletin No. 208 of the office of experimental stations) setting forth the results of a long series of experiments carried on by Dr. Benedict and Mr. Carpenter is of no small interest. The work was done in Wesleyan University with the remarkable "respiration calorimeter," which has contributed so much in the hands of Atwater and Benedict to an increase in our knowledge of metabolism. The method consisted in placing different men in the calorimeter and measuring carefully the heat produced by them during a definite period of time. This was designated "heat produced during rest." Besides this, the subjects at other times, also in the calorimeter, rode for several hours on the bicycle ergometer, an apparatus built on the plan of a bicycle, with an electrical attachment which registered the exact amount of work done. The ergs of energy actually used to run the bicycle were then calculated as calories of heat and recorded as "heat equivalent of work done." At the same time the amount of heat produced by the subject while working was recorded by the respiration calorimeter. This was designated as "heat produced." The difference between the heat produced during one hour of the working period and that recorded during an hour of rest gives the amount of energy expended by the subject in driving the bicycle against resistance. The ratio therefore between the heat equivalent of the work done, as shown by the ergometer, and the difference between the resting and working heat production, or the energy expended, gives the efficiency of the muscular effort or the efficiency of man as a machine.

In their experiments the investigators studied men of various types—a trained college athlete, untrained students not athletic, and a professional bicyclist. The results of these experiments were surprisingly uniform. Though in a definite time the professional rider accomplished more work than the amateur athlete, and the latter more than the untrained student, each increase of work done was accomplished by a corresponding amount of energy expended and the efficiency coefficients of the different men were practically equal—for the athlete 21.5 per cent., for the untrained student from 19.7 to 21.2 per cent., and for the professional from 20.7 to 21.3 per cent.

From these statistics certain things are definitely shown. The human body is a machine of such a degree of efficiency that one-fifth of the energy expended by it can be utilized as work, and that this efficiency is constant in men of all types. The longest and most thorough training does not change this ratio. The professional athlete, if he is able to do more work than the novice, does it not because his muscles are of such a quality that he can get more work out of them for the same amount of energy, but because he is able to put more energy in the shape of tissue change into the action. It would seem then that training, besides preparing the heart to stand greater strain, acts to increase the subject's power of using up his tissues and by giving him more muscle tissue to use rather than by teaching him to conserve his energies. To adopt a metaphor from the mechanical world, the professional has a more powerful engine because he is able to use more fuel, not because he wastes less steam.

FLIES AND MILK CONTAMINATION.

The most striking feature of modern scientific research has been the conclusion generally reached that insects are largely responsible for the spread of destructive epidemic and of some endemic diseases. To the mosquito has been traced the rôle of disseminator of malaria and yellow fever. The rat flea is regarded by many authorities as responsible for the widespread propagation of plague, and sleeping sickness is conveyed to the human subject by means of a fly. This list, of course, does not exhaust the number of insect borne diseases, and indeed it is shrewdly suspected that members of the insect tribe have much to do with the spread of most tropical maladies.

Up to a comparatively recent time the common house fly was looked upon only as a nuisance and no one thought it to be a mischievous agent in the conveyance of certain diseases. But now war is being declared and waged against it, for the reason that it has been proven a prominent factor in the spread of more than one dangerous malady. That typhoid fever is not infrequently carried from place to place by the agency of flies has been demonstrated sufficiently clearly to allow it to be stated as a fact. That flies sowed the germs of typhoid fever broadcast during the Spanish-American war was abundantly proved. This view of the dangerous possi-

bilities of flies was confirmed during the Boer war to the satisfaction of those who made a study of the subject, and now few will be found to deny that typhoid fever is often spread far and wide by these innumerable and persistent pests.

Another fly borne affection of a deadly nature is epidemic diarrhea, and the evidence in support of the contention that flies are largely concerned in the dissemination of infantile diarrhea, especially in urban districts, is so convincing as to be practically irrefragable. But this is almost wholly, after all, a question of a pure milk supply, for it is by contaminating milk that flies play their part in spreading epidemic infantile diarrhea. There can be no doubt that if milk is effectually protected against flies diarrhea among young town children would be much less prevalent than it is now. Dr. J. T. C. Nash, writing in the *Lancet*, December 5, 1908, demonstrated by means of experiments undertaken by himself the close connection between flies and epidemic diarrhea. The results of his experiments with exposed and protected milk proved that a marked and rapid deterioration of milk exposed to flies took place, there being in the course of twenty-four hours approximately 40,000,000 more bacteria per cubic centimeter in the exposed milk, and ten times as many organisms capable of growing on agar at the body temperature. In round numbers, the exposed milk showed 700,000 bacteria per cubic centimeter capable of growing at the body temperature, against only 70,000 bacteria in the case of milk protected from flies.

In all large cities there are in the hot weather an immense number of flies. Furthermore, milk in the poor districts is never properly protected. The consequence is that flies contaminate the milk to a fearful extent. The greater the number of the flies the greater the milk pollution, and in fly ridden districts infantile diarrhea of an acute and virulent type is almost certain to prevail unless extreme care be taken to protect milk.

It would undoubtedly be a very difficult and perhaps an impossible task to keep flies down to such small numbers that they would be no source of danger to human life. But a well conducted war against flies could but result in a considerable diminution of their number, with a correspondingly satisfactory outcome so far as infantile diarrhea is concerned. In the meantime milk sellers and mothers can effect much by displaying great care in the protection of milk. Unfortunately many people are lamentably ignorant in regard to the bad results which are certain to follow carelessness in protecting the milk supply and need education both by example and by precept. Medical and lay journals should lend their aid in furthering this object.

A New Method of Estimating Blood-pressure.

Most modern instruments for measuring blood-pressure consist of a pneumatic cuff to compress a blood-vessel and a manometer to register the amount of pressure exerted. The time of taking the manometer reading is decided upon either by a certain amplitude of excursions of a pulse tracing if the graphic method is used, or more frequently by feeling for the return of the radial pulse after it has been obliterated by an excess of pressure in the cuff. In the *Münchener medizinische Wochenschrift* for April 6, 1909, Schrumf and Zabel describe their experience with a new method of determining the time of taking the manometric reading, a method proposed a few years ago by a Russian physician, Korotkoff. It consists in auscultating the brachial artery above the pneumatic cuff, while the pressure in the latter slowly sinks from a height that much exceeds the systolic pressure existing in the vessel. At a certain point a distinct sound may be heard over the vessels, which is followed by a number of other sounds, which finally disappear with a drop in the pressure inside the cuff. The pressure when the first sound is heard, as registered by the manometer, answers to the systolic pressure in the vessels; the diastolic pressure is measured by the reading taken when the last sound may still be perceived. The authors have compared this method with the others now in vogue and consider it quite superior to them. The graphic method involves the use of complicated and expensive apparatus that easily gets out of order; the palpation method does not seem to give the true blood-pressure as exactly as Korotkoff's method. It would seem easier too to designate the moment of measuring blood-pressure by the occurrence of the sound that by palpating the radial pulse, the figures obtained by different observers being much more in agreement when the former method was used; the first light pulse wave seemed to escape the observers much more frequently than the first sound heard over the artery. The authors recommend Korotkoff's method, therefore, as the one that leaves least room for subjective differences. The fact that it requires no other apparatus, in addition to a cuff and a manometer, than a stethoscope or a phonendoscope, with one of which every physician is provided, is, of course, a strong point in its favor, if the accuracy of its results is further corroborated.

Animal Tuberculosis.

The Bureau of Animal Industry, Department of Agriculture, calls attention to the increase of tuberculosis among live stock, as shown by the examination of animals at the slaughtering houses. The increased efficiency of inspection is, no doubt, the explanation for a part of this rise in the number of affected cases; but it is folly to accept this as the only explanation. Nearly 1 per cent. of cattle and over 2 per cent. of hogs have been found to be tuberculous when slaughtered, and in Washington about 17 per cent. of the dairy cattle reacted to tuberculin tests. It is estimated that throughout the country at least 10 per cent. of dairy cows have the disease. Considering the question entirely from a business standpoint, the Bureau points to the losses suffered by breeders who have tuberculous cows in their herds, and cites the loss in sales to Argentina, which country requires that all cattle imported shall be subjected to the tuberculin test upon arrival. As a consequence exporters in the United States have had the test made on cattle intended for shipment, and in some of the herds nearly 50 per cent. of the cattle have been found to be diseased, and have been refused. The large packing houses now prefer to buy their cattle subject to post-mortem examination, and the reason for this is found in the figures from abattoirs where Federal inspection is maintained.

During the last year ten billions of pounds of meat were inspected and forty-six millions were condemned, nearly three-fourths because of tuberculosis. Sooner or later, therefore, the economic loss will fall upon the producer of diseased cattle; and in the realization of this lies the best hope for stamping out the plague.

Meningitis in Pneumonia.

The occurrence of meningitis in pneumonia, manifested by clinical signs and symptoms of this complication, has been noted by most systematic writers on the subject. Thus Osler says in his "Practice of Medicine" that 8 per cent. of the fatal cases he had seen in a Montreal hospital had this complication. It was not always recognized during life, not being as a rule localized to the base of the brain. Recently it has been shown that pneumonia is very frequently accompanied by the presence of the pneumococcus in the general circulation, and this fact has led Liebermeister (*Münchener medizinische Wochenschrift,* April 13, 1909,) to suspect that involvement of the meninges is an even more frequent occurrence than is usually thought. He has accordingly made special examinations of the spinal cord in cases of death from pneumonia and records that changes characteristic of the inflammation of the meninges were found in one-third of all the bodies examined. Clinically, often no symptoms were observed leading to the suspicion of meningitis, and even at the autopsies the usual macroscopical examination of the spinal cord seldom showed any changes. Careful histological study, however, disclosed the existence of this serious complication. Liebermeister points out the fact that his investigations obviate in a large degree the necessity of falling back upon such a lame conclusion as the occurrence of "functional meningismus" in order to explain the frequent nervous symptoms of pneumonia; such symptoms often enough are due to real organic lesions produced by the pneumococci or their toxins in the central nervous system.

News of the Week.

Far Eastern Association of Tropical Medicine.—The first biennial meeting of this association will open at Manila, on Sunday afternoon, March 6, 1910, continuing throughout the week, and closing with a business session at Baguio, Benguet, the summer capital of the Philippines, on Monday, March 14, 1910. The committee on the program, appointed at the sixth annual meeting of the Philippine Islands Medical Association, has adopted the following outline for the sessions: March 6, Opening session; March 7, Protozoölogy, Helminthology; March 8, Cholera, Plague, and Leprosy; March 9, Surgery and Obstetrics; Diseases of Children; March 10, Fevers in the Tropics, including malaria, typhoid, etc.; March 11, Dysenteries, Beriberi; March 12, En Route to Baguio; At Baguio; March 13, Tuberculosis; March 14, Climate, Hygiene, and Sanitation; Business session. A suitable social program will be arranged also. In order that the committee on arrangements may as soon as possible receive information concerning the possible attendance and the material available for the program, it is requested that all those expecting to attend or to contribute papers communicate with Dr. E. R. Whitmore, Secretary-Treasurer of the Philippine Branch of the Far Eastern Association of Tropical Medicine, Manila, P. I. The meetings will be held under the presidency of Dr. Paul C. Freer of the Bureau of Science of Manila.

Conditions at the Canal Zone.—The Department of Sanitation reports that during the month of March, 1909, the death rate among the total number of employees was 8.76 per thousand, as compared to 37.44 for 1906, 40.23 for 1907, and 12.47 for 1908. Among the civil population of the Canal Zone, both employees and nonemployees, the rate for March, 1909, was 11.67, which again compares favorably with the rates for preceding years, which were 52.14 for 1906, 37.85 for 1907, and 17.29 for 1908. There are at present in the Canal Zone, 12,290 white employees, the total force being 43,825. The white employees from the United States number 5,179, and among these there was but one death during the month, making an annual rate of 2.31 per thousand. Including women and children there are 8,398 Americans on the isthmus connected with Canal Commission and with the Panama Railroad, and among these the deaths were only four, an annual death rate of 5.72, two of these deaths being from violence. During the month no death occurred from dysentery among the force, and the cases and deaths from malaria were decreased. There were no cases of yellow fever, smallpox, or plague. The sick rate was 20.60 per thousand, which is remarkably low. Dr. Gorgas calls attention to the low cost per capita of patients in the hospitals, $1.05. This figure includes every expense except that of building. As regards sanitation it is reported that conditions have been very satisfactory during the month for the destruction of mosquito life, as there has been very little rain. Nevertheless the larvæ are quite numerous in the streams which are contaminated with sewage at this time of year, and are also numerous in pools in the territory where the work of sanitation has not been done. The preventive measures taken to eradicate typhoid in the vicinity of the Gatun watershed have been effective, and no further cases have been reported. During the month 1,761 rats were killed, and a large number of baits poisoned with arsenic were eaten. The general draining of swamps and wet ground has been continued and conditions throughout the Zone are eminently satisfactory.

The Bull Memorial.—The committee appointed six weeks or so ago to consider plans for a fitting memorial to Dr. William T. Bull, is unanimously in favor of the creation of a large fund for conducting original research under the auspices of the College of Physicians and Surgeons. The secretary, Dr. John B. Walker, has issued appeals for contributions to this fund, which it is hoped may amount to $500,000. By intrusting this memorial fund to the College of Physicians and Surgeons, the necessity of equipping laboratories for the work will be obviated, and the entire income can be used for salaries and the direct cost of supplies. Contributions should be sent to Mr. George C. Clark, the Lincoln Trust Company, New York.

Dr. Hugh Angus Stewart has been appointed Adjunct Professor of Pathology at the College of Physicians and Surgeons, New York. Dr. Stewart is a graduate of the University of Edinburgh. He will take up his new duties in the fall.

Dr. David Lieberthal of Chicago has resigned

his position as Professor of Skin and Venereal Diseases in the Illinois Medical College.

Dr. Isaac A. Abt, having accepted the Professorship of Pediatrics in the Northwestern University Medical School, Chicago, with Dr. Frank X. Walls, has resigned his position as Associate Professor of Pediatrics in Rush Medical College. Dr. Carl Wagner, Chicago, has been appointed attending surgeon to the Columbia Hospital. Dr. William R. Parkes of Evanston, Ill., has been elected President of the Evanston Anti-Tuberculosis Association.

Jefferson Reunion.—Plans have been completed for the entertainment of the Alumni of the Jefferson Medical College at the next Commencement, June 7, which has been set aside as Alumni Day, and reunions of several classes will be held. At 3:30 P.M., Prof. W. W. Keen will hold a public clinic in the Jefferson Hospital amphitheater. At 7 P.M., the regular annual meeting of the Association will be called at the Bellevue-Stratford for the election of officers and transaction of business and this will be followed by the annual banquet at 8 o'clock. The subscription ($5) to the banquet should be forwarded at once to Dr. A. Heineberg, 1327 Pine street, Philadelphia.

The Oyster Trade.—The Board of Food and Drug Inspection of the Department of Agriculture will hold a hearing in Washington, on May 20, in order to obtain from dealers and others information as to the necessary regulations covering the growing, handling, and shipping of oysters. Particular emphasis is placed on the following points on which information is needed: the prevention of contamination of oyster beds; the practice of "floating" oysters in brackish water; the length of washing necessary before shipment; the method of shipment; and the sanitary precautions to be observed in reference to oyster houses.

Increase of Rabies.—Two interesting facts are noted in the Bulletin of the New York State Department of Health. One is the increase in cases of rabies in the State, the other the decrease in the deaths from typhoid fever. During 1908, the heads of 315 dogs were examined at the State Veterinary College, while during the first two and a half months of 1909, 177 were examined, a rate of 840 a year. During 1908, the death rate from typhoid fever was 16 per 100,000 population, the lowest ever recorded in the State. For the ten years preceding the average rate was 21.6.

Prison Doctors.—At the suggestion of Coroner Harburger, the jury in an inquest on the case of a man who died from a fractured skull in the Jefferson Market Court prison recently, included in its verdict a recommendation that surgeons be assigned by the proper authorities to each committing Magistrate's court and to each court prison, to examine every prisoner arraigned or committed.

Death Rate in New York.—During the week ending May 1, 1909, there were 1,521 deaths in New York City, a rate of 17.69 per thousand. This is an increase of twenty-one deaths over the corresponding week of last year, when the rate was 17.38. The increase occurred in the mortality from diphtheria, bronchitis, and tuberculosis. There was also an increase in the number of deaths in institutions and in tenements and among infants under one year of age. Whooping cough caused thirteen deaths during the week and influenza fourteen.

Commencement Exercises of Illinois Medical College were held April 30, when degrees were conferred on a class of thirty-one by Dr. J. F. Burkholder. Dr. William F. Rittenhouse delivered the Doctorate Address.

The Kansas Medical College.—Dr. W. E. McVey was, on April 24, elected Dean of the Medical Faculty of the Kansas Medical College, the medical department of Washburn University, to succeed Dr. W. S. Lindsay who has held the office for the past three years. Dr. McVey occupies the chair of Rhinology, Laryngology, and Diseases of the Chest in the medical faculty. At the commencement exercises of the school, held on April 28, the degree of M.D. was conferred upon seventeen graduates.

Cocaine Law in Pennsylvania.—The Governor of Pennsylvania has signed the bill passed by the last Legislature imposing a fine of $500 and two years' imprisonment for the sale or giving away of cocaine or any derivative or compound of cocaine except upon the prescription of a licensed physician, and prohibiting the possession of any such substance by others than physicians, druggists, dentists, and veterinarians, except as purchased on a physician's prescription.

Against Adulteration or Misbranding of Drugs.—Governor Stuart has signed a bill passed by the Pennsylvania Legislature at its recent session prohibiting the sale of adulterated or misbranded drugs. A drug is deemed adulterated if it differ in strength, quality, or purity from the standards laid down in the United States Pharmacopeia, the National Formulary, or the American Homeopathic Pharmacopeia.

State Insane Asylum Site.—A new site for the State Insane Asylum, for which an appropriation was made by the last Legislature, has been selected at Farmingdale, Long Island. It is understood that there will be no opposition to the location of the asylum in this district, as there was in the other places suggested.

Enlarging Flower Hospital.—Plans have been filed with the Building Department for the purposed addition to the Flower Hospital and Homeopathic Medical College, New York. The addition will be an annex to the present dispensary and will contain clinic rooms and a diet kitchen, as well as rooms for the professors of the college and the hospital physicians.

Home for Sick Babies.—The problem of obtaining facilities for the proper care of sick babies during the summer months has been partially solved in McKeesport, Pa., where a wealthy resident has placed his own home at the disposal of the Salvation Army during the coming summer to be used for housing the babies and their mothers. The house will accommodate twenty-five children at a time.

"Smiling Joe."—In July, 1905, there was admitted to the Sea Breeze Hospital a small boy, suffering from tuberculosis of the spine, whose picture, showing him strapped to a board, has gone from one end of the country to the other. With the caption "Smiling Joe" the appeal of this picture has been felt by all, and many a donation to the hospital has been due to it. On the 14th of April, nearly four years after his admission, Dr. Ely, the attending surgeon, recommended "Smiling Joe's" discharge, with the note that he was "cured, with a very slight deformity." The Association for Im-

proving the Condition of the Poor now has the quarter of a million dollars necessary for the erection of a hospital at Sea Breeze, for which the city has promised to donate the land.

The Litchfield County (Conn.) Medical Association at its one hundred and forty-fifth annual meeting, on April 27, elected the following officers: *President*, Dr. S. G. Howd of Winsted; *Vice-President*, Dr. G. H. Wright of New Milford; *Secretary*, Dr. F. H. Lee of Canaan; *Committee on Membership*, Drs. Goodwin, Page, and Swett; *State Councilor*, Dr. E. H. Welch of Winsted.

The Berkshire District (Mass.) Medical Society held its annual meeting at North Adams on April 29. The following officers were elected: *President*, Dr. Harry B. Holmes of Adams; *Vice-President*, Dr. Clifford S. Chapin of Great Barrington; *Secretary and Treasurer*, Dr. I. F. S. Dodd of Pittsfield.

The Middlesex North District (Mass.) Medical Society at its annual meeting, recently, elected the following officers for the ensuing year: *President*, Dr. C. A. Viles; *Vice-President*, Dr. O. P. Porter; *Secretary*, Dr. A. R. Gardner; *Treasurer*, Dr. T. B. Smith; *Librarian*, Dr. P. J. Meehan.

The Worcester North District (Mass.) Medical Society held its fifty-first annual meeting at Fitchburg on April 27. The following officers were elected: *President*, Dr. E. L. Fiske; *Vice-President*, Dr. W. N. Cowles; *Secretary*, Dr. Walter F. Sawyer; *Treasurer*, Dr. F. H. Thompson, Jr.

The East St. Louis (Mo.) Medical Society, at a meeting held on April 26, elected the following officers for the ensuing year: *President*, Dr. O. J. Culbertson; *Vice-President*, Dr. R. S. Stanton; *Secretary and Treasurer*, Dr. U. S. Short.

The Brockton (Mass.) Medical Society held its annual meeting on April 20, when the following officers were elected for the ensuing year: *President*, Dr. W. P. Safford; *Vice-President*, Dr. E. C. Frost; *Secretary*, Dr. R. A. Elliott; *Treasurer*, Dr. E. E. Goodwin; *Librarian*, Dr. D. E. Brown.

The Manitoba Medical Association will hold its annual meeting at Brandon, Man., on June 22 and 23. Among other important matters to be considered are the questions of interprovincial registration and of the registration of the vital statistics.

The Rhode Island Medical Society.—The date of the annual meeting of this society has been changed to Tuesday, June 1. The meeting will be held at Providence.

Central Illinois District Medical Society.—The following officers were elected at the annual meeting of this Society, held in Pana, April 27: *President*, Dr. D. W. Deal, Springfield; *Vice-Presidents*, Drs. Franklin A. Martin, Tower Hill, and J. William H. Sparling, Moweaqua; *Secretary*, Dr. Charles Burgess, Pana; *Treasurer*, Dr. John N. Nelms, Taylorville; *Censors*, Drs. Everett J. Brown, Decatur, John D. Polk, Litchfield, and Louis F. Brown, Hillsboro.

Illinois State Medical Society.—The fifty-ninth annual meeting of this Society will be held at Quincy, May 18, 19, and 20, under the Presidency of Dr. J. W. Pettit of Ottawa. An interesting social and scientific program has been arranged, and it is predicted that the attendance will be large.

Ohio State Medical Society.—The sixty-fourth annual meeting of this society was held in Cincinnati on May 5, 6, and 7, under the presidency of Dr. D. R. Silver of Sidney. The election of officers resulted as follows: *President*, Dr. W. H. Snyder of Toledo; *Vice-Presidents*, Drs. H. R. Geyer of Zanesville, A. D. Rudy of Lima, O. N. Wiseman of Zanesville, and C. A. Hough of Lebanon; *Secretary*, H. J. H. Upham of Columbus; *Treasurer*, James A. Duncan of Toledo. The next annual meeting will be held in Toledo.

Obituary Notes.—Dr. Burr L. Houghton of Brooklyn, N. Y., died suddenly of apoplexy at his home on May 1, aged 55 years. Dr. Houghton was graduated from the New York Homeopathic College in 1887.

Dr. James Warren Freeman, for thirty years a practitioner of Saginaw, Mich., died at his home, on May 3, aged 81 years. Dr. Freeman was graduated from the Albany Medical College, N. Y., in 1864.

Passed Assistant Surgeon James P. De Bruler, medical officer of the United States gunboat *Paducah*, died aboard that vessel at San Juan, Porto Rico, on May 7, aged 32 years.

Dr. W. B. Wall of Redlands, Cal., died on April 21, after a short illness, aged 79 years. Dr. Wall was graduated from the Jefferson Medical College, Philadelphia, in 1853.

Dr. Henry E. Pressly of Birmingham, Ala., died on April 22, at Due West, S. C., after a long illness. He was graduated from Bellevue Hospital Medical College in 1899, and practised in Birmingham until his health failed.

Dr. C. A. Landrum of De Funiak Springs, Fla., died at his home on April 23. He was graduated from Tulane University in 1876.

Dr. Manuel Amador, first president of the Republic of Panama, died at his home in that country, after a lingering illness, on May 2, aged 74 years. Dr. Amador, a Colombian by birth, settled in Panama in the early sixties and soon became the leading physician on the Isthmus. In 1869, against his inclination, he was elected president of the State of Panamá, but before he could take office a revolution drove his party from power. He resumed the practice of medicine and became chief physician of the Panama Railroad Company and the Pacific Mail Steamship Company. Much of the success of the movement which secured the independence of Panama in 1903, was attributed to Dr. Amador, and in 1904 he was elected president of the newly established republic.

Dr. Charles J. Sharrets of Bayside, Long Island, died at his home, on May 7, of a complication of diseases, at the age of 54 years. Dr. Sharrets was graduated from the College of Physicians and Surgeons, New York, in 1880, and had been for many years connected with the Metropolitan Life Insurance Company.

Dr. Samuel M. Plush died at Arcola, Pa., on May 4, at the age of 68 years. He was a veteran of the Civil War, an inventor, and a pioneer in the development of the Bell Telephone Company. He was a graduate of Ursinus College and of the medical department of the University of Pennsylvania in the class of 1876, and he was for many years expert electrician to the Western Union Telegraph Company.

Dr. William Howard Finn died at Philadelphia on May 5 at the age of 74 years. He was graduated from Bucknell College and in 1863 from the medical department of Harvard College. He served as a surgeon during the Civil War and was for a time in charge of a hospital ship.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

INFANT MORTALITY WITHIN AND WITHOUT THE WORKHOUSES —SLEEPING SICKNESS—HENOCH'S PURPURA—CYSTIC CHANGE IN BRAIN—RESEARCH DEFENCE—OBITUARY.

LONDON, April 23, 1909.

THE Local Government Board has now issued a return concerning the infant mortality in workhouses and in it distinctly traverses the minority report of the Royal Poor Law Commission, which estimated the death rate in workhouses as two or three times greater than that of infants born outside. The new memorandum admits that it would be surprising if the children of the general population had not a better chance of life than the offspring of mothers who found a temporary refuge in Poor Law institutions, but to ascertain the precise difference would be extremely difficult. The statistics put forward in the minority report are pronounced of little value on account of the inadequacy of the materials and the conjectural elements which entered the calculations. The Local Government Board understands that few, if any, of the returns were furnished to the compilers of the minority report later than July or August, 1908, yet the statistics purport to give the life history for twelve months, *i.e.* up to December, 1908, of the infants born up to December, 1907. The Local Government Board's comment on this is that "though these statistics are thus open to question, in addition to the fact that they are admitted to be imperfect, the authors of the report have based upon them definite and sweeping assertions which would only be fully justifiable if they were supported by the most thorough enumeration of individual cases." The paper points out that the cause dominating the mortality of the workhouse-born infants is the type and character of the parents, and the evidence as to this is actually cited in the minority report itself, but its extent is omitted in considering the conclusions. In 1907 out of 2,653 births in metropolitan workhouses 60 per cent. were illegitimate, whereas out of 122,745 births outside only 3.75 per cent. were so. The inference is obvious and it is needless to labor the condition of the mothers and the prenatal influences. The death rate in 1907 was 42 per 1,000 in the first week, nearly double the rate in the general population, clearly due to prenatal and maternal conditions, quite independent of the wards, for in the second week of life the rate sank to 6.1 per cent. lower than the rate outside (6.4 per cent.). The instability of the workhouse population is pointed out by the Local Government Board as rendering some of the comparisons in the minority report with the general population quite valueless. Further, it is said that the comparisons between different workhouses are fallacious. "To take an extreme illustration, very different results might be expected in maternity wards where the mothers are healthy farmohuse servants, as compared with similar wards recruited from the slums, yet the importance of district mortality and morbidity, which is an essential factor of institutional statistics, has been disregarded" in the minority report. The signatories of the minority report say that they had not been able to obtain statistics of the comparative mortality of mothers in workhouses and hospitals or under domiciliary treatment. This, say the Local Government Board, calls for inquiry. If intended to suggest want of success in Poor Law institutions, there is no information to support such a suggestion. The Senior Medical Inspector of the board, who was on the Royal Commission, stated in evidence that in the maternity wards the Poor Law afforded an example of extraordinary success. Other evidence submitted to the commission certainly confirmed this. Further, the Local Government Board's memorandum shows that all the information available goes to prove the satisfactory condition of the wards and the nurseries.

Dr. Allan Kingborn, whose return from Africa I reported to you a fortnight ago, has already given a review of the expedition of himself and Mr Montgomery, sent out by the Liverpool Tropical School. Addressing the African Section of the Liverpool Chamber of Commerce on Monday, he said their twenty months' investigation extended over an enormous area. They found the *Glossina palpalis* was the transmitter of sleeping sickness, and that disease seemed to have begun in West Africa, but was carried elsewhere by the increased migration of the natives, especially by the extensive movements due to the foundation of the Congo State. In a very dry air the tsetse died quickly; it also needed shade. So when the river banks were cleared it disappeared. It could not flourish at an altitude above 4,000 feet and its presence was seasonal. In Rhodesia he thought isolation of cases would tend toward protecting the people, with the clearing of watering places, prohibiting fishing, and the use of canoes—measures that had been attempted with advantage. He would add international cooperation.

What is Henoch's purpura? The question suggests the inconvenience of such nomenclature which seems to be growing. No doubt there are instances in which a name has served a good purpose temporarily, but in most cases the sooner another term is agreed upon the better. The above question is raised anent a paper at the Royal Medical School by Dr. Porter Parkinson describing three cases of so-called Henoch's purpura. The first was a boy of eight with a purpuric rash over most of the body, pain and tenderness of abdomen in the epigastric and right iliac regions. The spleen could be felt. Albumin and a trace of blood and casts in the urine. Occasional vomiting. Two injections of horse serum were given without benefit, but the boy recovered and was discharged with the urine still albuminous. The second case was a boy of six with abdominal pain, but not tenderness, and vomiting, purpuric spots on the limbs. In hospital he was suddenly attacked with more pain and the left lumbar region was tender. Similar crises were repeated at intervals of two days. Blood was found in the stools, the face became puffy. In two months he began to improve. At first calcium chloride was given, later three injections of horse serum. Two groups of spots came out while he was taking calcium. The third case was also a boy of six under Dr. Botton's care, admitted with pain, bloody stools, measly nonpurpuric rash, and coryza. Next day vomiting, blood and mucus by rectum, abdomen distended, and on suspicion of intussusception the abdomen was opened, but only some flecks of lymph found in peritoneum and some evidence of peritonitis. Death next day. At the post mortem general peritonitis and on the small intestine about 13 extravasations the size of peas projecting from both inner and outer surfaces. A foot from the iliac valve was a larger hemorrhage. Near the splenic flexure diffuse hemorrhage, looking almost gangrenous. Dr Parkinson thought the diagnosis lay between measles and Henoch's purpura, the suspicion of intussusception not being verified. He favored purpura, though the absence of blood and albumin in the urine was unusual. He thought the case supported the view of Mr. Hugh Lett as stated in the "reports" of the Children's Society—that it is not wise to operate for intussusception in such cases unless a tumor is felt.

Mr. Hugh Lett thereupon spoke, remarking that the presence or absence of intussusception was a most important point. In one case which he had reported he operated on an intussusception which developed during the illness, but another intussusception occurred seventeen days later and the child died. He thought there should be no operation unless the characteristic sausage-shaped tumor could be felt. He had operated on 28 cases, but in every one he felt the tumor either from the abdomen or per rectum. In two of them he could not feel it without an anesthetic. In Henoch's purpura operation was a very serious proceeding, for hemorrhage from the wound had sometimes proved fatal. In a future case of undoubted intussusception with purpura he would try injection before operating.

Dr. Langmead said an extravasation of blood might simulate intussusception, and Dr. E. I. Spriggs said he had had such a case. Dr. E. Cautley said the term Henoch's purpura ought to be discontinued, for the disease was obviously purpura hæmorrhagica with abdominal symptoms, a view in which Dr Pernet also agreed, as do, I think, many others.

At the same meeting Dr. Edward Cautley showed the brain from a case of cerebral diplegic spasticity. The whole frontal and parietal regions had been converted into a bilateral cyst bounded mesially by a wall containing some cerebral tissue. As far as the history could be ascertained, the child had been healthy up to seven weeks of age, when an illness came on which seemed to have been meningitis or encephalitis. From the post mortem it looked as if the illness had been congenital, due to some developmental error in the prosencephalon. Dr. Langmead said that there

was a specimen in the museum of the Great Ormond St. Hospital which closely resembled this case and it showed some narrowing of the small cerebral blood-vessels.

Dr. G. Carpenter said he had neither seen nor read of such a case, but he had seen a locular cystic condition, which Dr. E. Jones reported as in his view due to syphilis. During life the child had been spastic, with head retraction and atrophic patches in its choroid.

The "Research Defense Society" started here promises to be successful, its object being to make known the good done to mankind through vivisection. At a meeting at the Royal Society of Medicine's house Mr. Stephen Paget gave a lecture to nurses to put them in a position to meet the prejudices sometimes manifested by patients. He referred to Harvey's work on the circulation and passed on to show how what we know of the processes of digestion and other functions was based on experimental investigation. A chart of the whole surface of the brain, indicating the province of the various parts, was now available, and it was possible to remove a tumor on the brain. He illustrated such a chart by a picture on the screen. Formerly, he continued, the use of certain glands was unknown. When surgery had so advanced as to make the removal of goiter possible it was soon found that excision of the gland was followed by a slowing down of life and the patient drifted into imbecility. So it was discovered that some cases of idiocy in children and long vitality in others were due to failure of the gland to supply its necessary secretions. That was the origin of myxedema and the successful treatment of this condition was brought about by Sir V. Horsley's experiments on monkeys and sheep (1884). In 1888 the grafting of glands from animals was tried with success, and then came the use of the gland's secretion, which brought the sufferer back from the myxedema, so that you could see, said the lecturer, in the pictures on the screen of the children in various stages, the soul, so to say, coming again into their faces. Passing on to germs, he told how Pasteur experiments on sheep had been the means of producing his first vaccine for anthrax, then how the discovery of tuberculin freed cows from tuberculosis, and similarly of how antitoxin protected horses from tetanus. The mortality of diphtheria had been reduced from 66 to 29 per cent. by its antitoxin. The latest triumph, perhaps, was the serum for cerebrospinal meningitis, reducing the mortality from 75 to 36 per cent. The cases of Malta fever, malaria, and yellow fever were also explained and illustrations thrown on the screen.

Mr. Simeon Snell, the leading ophthalmologist in the north of England, died on the 17th inst. at his home in Sheffield, where he was a J. P., surgeon to the Royal Infirmary, member of Council of the University, in which he had been professor of anatomy, consulting ophthalmic surgeon to various hospitals, and president of the literary, scientific, and medical societies. He qualified at the two London colleges in 1872-1873 and became F.R.C.S. Edin. in 1892. He made many contributions to his specialty during his long career, among them on miner's nystagmus, hygiene of the eye in childhood, reports for Government on dangers to eyes, accidents and diseases connected with occupations, etc. He also published an account of his method of cataract extractions without iridectomy, with an analysis of 300 operations. Mr. Snell was also a journalist. He founded and edited a Sheffield medical journal which was afterward called the *Quarterly Medical Journal*. Mr. Snell was president of the British Medical Association at the meeting held last summer in Sheffield.

Dr. Septimus Gibbon died on the 17th inst. in his eighty-fourth year. He was a Cambridge man (scholar of Clare) and took his B.A. in 1849 and M.B. in 1851, following also medical classes at St. Bartholomew's Hospital, where he afterward lectured on natural philosophy, having taken the M.R.C.P. in 1852. At Cambridge he had served as resident at Addenbrooke Hospital. Afterward he was physician to the British Hospital at Smyrna and for some time assistant physician to the London Hospital. Abandoning medical practice for the sanitary service, he became Medical Officer of Health for Holborn.

Dr. Henry Stilwell died on the 12th inst., aged seventy-three. He was for forty-five years medical superintendent of Moorcroft Lunatic Asylum, devoting most of his life to this work, and being regarded by all his brethren as an efficient organizer and acute yet careful alienist, whose opinion was of the greatest value in difficult cases.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

THE GERMAN MEDICAL PROFESSION AND SOCIAL MEDICINE—WORKINGMEN'S INSURANCE—THE FIGHT AGAINST TUBERCULOSIS—THE PREVENTION OF VENEREAL DISEASE—DEATH OF R. VON RENVERS.

BERLIN, April 24, 1909.

THE manner in which German physicians have endeavored to fulfill their social duties may be very well studied by consulting the report of the activity of the Seminar for Social Medicine, presented by Peyser at the meeting of the Berlin branch of the Union of German Physicians. It may be supposed that the State takes interest in the education of physicians, so far as social medicine is concerned; the truth is, however, that German universities are very weak in this respect. The Union of German Physicians has attempted to correct matters by forming a Social Science Seminar for the doctors and the medical students of Berlin. In the report for 1908 a series of lectures are mentioned, presented before the Seminar, which had for their subject the position of the physician as an expert in workingmen's insurance questions. The members of the seminar were acquainted with the usual proceedings that take place in the consideration of the claims of workingmen under the insurance laws. At the end of the year 1908 another series of lectures were held dealing with the activity of physicians in relation to workingmen's insurance. The course consisted of eight lectures, after which the students took part in the deliberations of the courts occupied with questions arising out of the insurance laws; the members of the seminar were afterward shown the practical duties of physicians in this connection, the manner of filling out certificates, etc. For the graduate physicians there was held another series of lectures dealing with the relations of the physician to the business of the commonwealth in which he works; the care of the poor and the various other branches of charity work were here considered. The Berlin organizations for fighting fire, for relieving emergency cases of sickness, and for transporting sick people were visited by the members of the seminar.

The insurance organizations of Berlin have developed a new system of fighting tuberculosis, which is at present used only experimentally, so that the results may be compared with those previously attained. The object in view is to save the healthy members of the workingmen's class from being infected by workingmen suffering from tuberculosis. As soon as the fact becomes known that a tuberculous patient lives in any dwelling, a special physician is sent to visit the house. He gives proper advice as to the selection of the rooms for the patient, sees that he is provided with a separate bed, without any expense on his side; the dwelling is kept clean and properly fumigated, if necessary, and occasionally additional rooms are hired, if the patient cannot be properly isolated in the existing conditions. The workingmen living in the same rooms are examined from time to time, and in case the disease develops in any of them immediate treatment is begun. There exists very thorough cooperation between the work of this organization and all other organizations occupied with fighting tuberculosis among the masses of the population. As a rule the patients are treated by their own physicians, but in case sanitarium treatment or the use of tuberculin is required the insurance organization supplies these.

The German Society for the Prevention of Venereal Disease has recently held its annual meeting, at which the work of the year was discussed by the members. A number of circulars have been issued by the society dealing with the question of preventing the spread of venereal disease, special circulars intended for women and for parents having been issued. These circulars are either distributed gratis or sold at a nominal price, and contain information in regard to the prophylaxis of venereal disease, written in a popular form so as to be intelligible to the lay public. A number of lectures have also been delivered before the students of the higher institutions of learning, this method of reaching the youth of the nation having proved quite successful. Dr. Gräser of the German Sailors' Hospital at Naples has been awarded a prize for a brochure dealing with the prevention of venereal disease and intended especially for distribution among seafaring people. Dr. Zinsser of Cologne lectured on the new regulations of the Prussian Government dealing with the question of prostitution. These regula-

tions permitted prostitutes to engage private physicians for the treatment of venereal disease, thus excusing them from obligatory stay in special hospitals established for the purpose. Apparently this permission has been but little availed of by the patients of this class, who preferred to stay in such hospitals instead of undergoing private ambulatory treatment. However, final judgment in reference to the working of the new regulations cannot yet be passed; though the experience with them has been unfavorable in Berlin, better success seemed to have been attained with ambulatory treatment in other cities, such as Essen.

On the 22d of March occurred the death of the Director of the Moabit Hospital, Dr. R. von Renvers. He probably had the most extensive medical practice in the city of Berlin, his imposing personal appearance, his confidence-inspiring manners, and his sure medical sense having made him extremely popular. He took part in a great many medical undertakings concerned with social and sanitary medicine, among them in the attempt to prevent the spread of tuberculosis by the methods described above. He was president of the Prussian Central Committee for Postgraduate Instruction and superintended also the activities of the governmental organizations occupied with similar work

THE EPILEPTIC VOICE.

To the Editor of the Medical Record:

Sir:—The London letter in your issue of May 8 reports that Dr. Alfred E. Russell considers epileptic fits to be analogous to fainting fits, and minor epilepsy to be due to the cardiovascular nervous mechanism, by which the loss of consciousness becomes more sudden. This is in opposition to the view that there is some organic brain lesion underlying all varieties of epilepsy.

The existence of the "epileptic voice" (Clark and Scripture, "The Epileptic Voice Sign, Medical Record, Oct. 31, 1908) indicates that there must be some anatomical lesion. This peculiar voice is invariably found in every case of epilepsy, recent or ancient, light or severe, with or without bromides. The patient is never conscious of it himself; it cannot be imitated successfully by a normal person. The trained ear can distinguish its negligent monotony at once from the strained monotony of the stutterer and from the tired monotony of the neurasthenic. It can never be confused with the flexible voice of the hysterical person, and can serve for differential diagnosis in such cases. The only close resemblance we have found is with the voice of early paralytic hemiplegia. For epilepsy, as well as for this last disease, we must assume some underlying structural defect of the brain.

E. W. Scripture, M.D.

87 Madison Avenue.

Progress of Medical Science.

Boston Medical and Surgical Journal, April 29, 1909

Treatment of Obstruction of the Lacrymal Duct.—J. C. Berry says that in infants ordinary cases of dacrocystitis call for only nasal cleanliness, boric acid eye wash and slight pressure over the sac, while more persistent cases may call for nasal aspiration or possibly the passage of the lacrymal probe. Obstruction is sometimes due to membranous closure of the nasal end of the canal. Intranasal inspection is always prudent and at times necessary when probing the duct. The seton is a remedial measure of great promise in certain rebellious cases. In adults the ideal treatment is by gradual dilatation, avoiding violence to the membrane of the canal, but if this proves unsuccessful we must divide the structure and dilate rapidly and fully. Dilation beyond 2 mm. is rarely necessary. Forced dilation to 4 mm. exposes the eye to contamination and lessens the propulsion power of the sac. The leaden style can be employed to advantage between treatments, reducing the frequency of probing and favoring absorption of the hypertrophied tissue by continuous pressure. Acute cases of inflammation of the sac can be aborted if seen early, the treatment being to wash out the sac, inject argyrol, and follow with hot strips of lead and opium, observing general antiphlogistic measures. If phlegmon occurs, the passage of the probe should be delayed until swelling and induration subside.

Intermittent Hydronephrosis.—D. F. Jones reviews some of the recent literature on this subject and reports four personal cases. The following have been found to be the causes of this condition. Valve formation at the opening of the pelvis into the ureter, oblique insertion or high insertion of the ureter into the pelvis, stricture, twists or angulations of the ureter, flexure over abnormal vessels or pressure upon the ureter by abnormal vessels, pressure by the normal vessels of the kidney, tumors of the bladder or renal pelvis, stone in the pelvis, pressure by new growths or inflammatory masses along the course of the ureter, adhesions along the ureter, uterine prolapse, renal injuries, and scoliosis. Symptoms in a given case are pain, nausea, and vomiting, constant desire to pass water, and possibly a tumor. Increase in the amount of urine voided after an attack of pain is a fact of much significance. Cystoscopy may be of value in diagnosis. Operation which may relieve the condition are aspiration, fixation of a movable kidney, nephrotomy, nephrectomy. Modern surgery has had recourse to conservative plastic procedures, several of which are described in this well-written and finely illustrated paper.

New York Medical Journal, May 1, 1909.

The Toxic Secondaries of Chronic Tonsillar Disease. A. R. Elliott declares that many grave and fatal infections enter the body through the tonsils, such as endocarditis, rheumatism, scarlet fever, tuberculosis, etc., and in addition to these specific processes other less virulent and nonspecific organisms may become established there and poison the body with their toxins. When the latter once gain access to the circulation they exert certain catalytic and hemolytic, which, if the toxemia is long continued, may eventuate in organic degenerative changes or abnormal blood states. The most common secondary from chronic tonsillitis is anemia of the simple type. Many tonsils in these patients contain crypts plugged with all sorts of débris, which soon becomes cheesy and foul smelling. Another condition frequently associated with chronic tonsil disease is rheumatism. Absorption of septic toxins from the tonsils may so lower the vital resistance to infections that the individual becomes liable to certain minor infections, such as styes, furuncles, and acne. Also herpes and erythema have both been observed in connection with tonsil infections. Toxins in general exert a degenerative effect on body tissues and there is no doubt that Bright's disease, diabetes, arteriosclerosis, myocarditis, etc., are toxic secondaries produced by long-continued, low-grade toxemia. A chronic closed infection of the tonsil is just as noxious to the organism at large as similar processes elsewhere.

Treatment of Appendicitis.—Beverly Robinson says that it is very difficult to make a diagnosis between appendicitis and colitis. The best plan to follow is the following: (1) Rest in bed, and with rest in bed little or no voluntary movement while pains are acute, temperature elevated, and other general symptoms threatening or grave. (2) Ice bag, or, preferably, hot water bag, or poultices, or stupes with hot water and oil of turpentine and soap liniment; flannel covered, or not, with impermeable, *i.e.* oil silk, or rubber tissue. (3) Laxative enema with castor oil and oxgall, sometimes a little glycerine being added. Flaxseed tea should preferably be the menstrum of the enema. (4) A moderate amount of codeine every hour or two, by mouth, if pains seem to require it, from 1-20 to 1-10 or 1-5 grain. (5) In rare instances only are hypodermic injections of morphine to be given and then only for excessive pain not otherwise relieved. If to this treatment, whenever the stomach tolerates it, ten grains of salicin in cachets be added every two or four hours, we shall have a practical, rational, effective treatment of appendicitis. During acute stage only liquid food in small quantities and properly selected, should be permitted. Whenever an abscess is well defined it should be opened and drained. In this connection it should be remembered that very many perforated cases of appendicitis cause an abscess limited by protective false membrane, if not operated on too soon or ill advisedly. Of course, perforations will occasionally occur and then operation is immediately called for. But, says the author, up to date this diagnosis is never certain; only probable, and at most relatively infrequent.

Diagnosis and Differential Diagnosis of Appendicitis.—H. Fisher makes three varieties of the disease acute suppurative, acute catarrhal, and chronic catarrhal. With reference to palpation of the appendix he quotes certain authors who in a series of 800 normal individuals were able to palpate the organ in over 51 per cent. The author says that to obtain these results, the following conditions must be present: (1) The appendix must lie upon the apo-

neurosis of the psoas muscle and must run obliquely parallel to the same, otherwise it will in most cases be covered by the cecum. (2) The abdominal walls must not be so massive and rigid. (3) The psoas muscle must be relaxed by fixing the thigh. (4) The right index finger must be held transversely to the course of the psoas muscle, until one feels its sharp and rigid edge. By a slight to and fro movement the appendix will roll under the finger. Concerning the McBurney point the author quotes Lanz investigations on this point. The Lanz point is found by connecting the two superior anterior iliac spines by a line divided into exact thirds. The junction of the right with the middle third corresponds approximately to the base of the appendix. Lanz therefore concludes that: (1) The situation of the appendix—as far as its point of junction with the cecum is concerned—is much more constant than it was hitherto thought to be. (2) McBurney's point does not correspond to the situation of the appendix. (3) McBurney's point corresponds to the mesical side of the colon ascendens at a point five centimeters above the base of the appendix. (4) Lanz's point on the interspinal line is of greater importance to the determination of the vermiform appendix than McBurney's point. Notwithstanding Lanz's conclusions, the author believes that sensitiveness over McBurney's point is of great clinical significance. Diseased states to be considered in differential diagnosis are inflammatory lesions of the female genitalia, carcinoma of the colon, tuberculosis of the cecum, intestinal obstruction from various causes with beginning general peritonitis, inflammation of a Meckel's diverticulum, extrauterine pregnancy, typhoid fever, acute pancreatitis, lead colic, acute enterocolitis, etc.

Treatment of Acute Rheumatism at the Indianapolis City Hospital.—S. F. Earp thus describes the plan followed: The use of calomel is followed by a magnesium mixture (2 gallons of water containing 8 pounds Epsom salts, 3 pounds granulated sugar, 1½ pounds citric acid, 8 ounces aromatic sulphuric acid) until the bowels are freely opened, and they should then be kept open. The patient should take plenty of water. Thirty grains of sodium salicylate should be given each three hours until pain is relieved or there is unpleasant head symptoms. Then the dose is dropped to twenty grains, and when the joints can be used freely without pain or stiffness is continued fifteen grains four times a day for one week. When the patient considers himself well there are given ten grains three times a day for two weeks. Oil of wintergreen is applied to the joints twice a day, and they are dressed in cotton and oiled silk or rubber sheeting. If the patient has a subnormal pulse and lowered temperature, a moderate dose of strychnine is given every four hours. If the stomach seems rebellious to so much sodium salicylate, ice may be used in the mouth. Sodium chloride on the tongue and milk as a vehicle for the remedy. If the stomach cannot be controlled, the author has in several instances used sixty grains by the rectum. If the rectum is sensitive, and the fluid is not retained apply two inches above the sphincter muscle a two per cent. solution of cocaine.

Journal of the American Medical Association, May 1, 1909.

The Scope of Obstetrics.—B. C. Hirst says we have mastered the etiology and pathology of the puerperal infections to a great extent, as well as the physiology and pathology of conception and gestation. The point where we are weakest now is in the recognition and correction of the pathological consequences of the childbearing process. He thinks it practicable for the maternity hospital physician to look out for and remedy the injuries of the genital canal, malpositions of the uterus, pathological conditions of the broad ligaments, and appendages, lack of tonicity of the abdominal walls, and feeble support of the abdominal viscera, injuries of the coccyx, and impairment of function in the pelvic nerves, all of which are conditions that can be traced sometimes to childbirth. He thinks it would make a vast difference in the health of parturient women if this were done and a great amount of suffering would be saved, and that it would also save the specialty of gynecology from extinction, of which he thinks he sees present indications.

Phosphorus as Brain Food.—W. Koch has investigated the phosphorus content of the brain in health and disease and finds that even in conditions of extreme exhaustion, the brain is plentifully supplied, not only with phosphorus, but also with its special form of phosphorus, namely, lecithin. He concludes, therefore, that there is no evidence of any need to supply phosphorus to the brain in such conditions. The actual amount lost in the exhaustion of general paralysis can not, of course, be replaced on account of the inability of the central nervous system to regenerate. The phosphorus required for the growth of the brain is amply supplied by the phosphorus of our daily diet. If desired, the addition of phosphorus-rich foods, such as eggs, sweetbreads, liver, and some meats, can be made and meet further requirements, and will do far better in this way than dosing with drugs. The use of such foods, however, is limited by their richness and their tendency, on account of their fat contents, to disturb gastric digestion.

Tuberculous Joints.—H. J. Whitacre says that we must conclude that there is no one correct line of treatment for tuberculous joint disease, but that the method selected must depend on the nature and stage of the lesion, the age and social position of the patient, facilities for treatment, the individual experience of the physician in charge, and a combination of all available methods is sometimes called for. Rest, diet, favorable hygienic conditions, Bier's hyperemia, iodoform injections, vaccine therapy, and cutting operations all have their place and may all be used in various combinations. He details in full the technique used by him in tuberculosis of the joints, including thirteen cases in the knee, seven in the ankle, three in the elbow, one in the wrist, and one in the hip, twenty-five in all. His methods may be stated in a general way to consist in free opening of the joint. In the knee by transverse incision across the center of the patella, sawing through that bone and excising all tuberculous infected tissues in the synovial cavities and bone, going down to healthy tissues and filling any cavities left with iodoform mass after thorough cleansing with carbolic acid subsequently neutralized by alcohol. Decision as to the amount of bone involvement in these cases is a heavy responsibility and should not be made until a careful microscope study has insured its accuracy. The end of a bone must be seriously damaged before he would justify its removal. The preservation of a limb of normal length is considered by him a very important point. Drainage is used by him for six or seven days, the limb is put in a supporting splint which is removed in from three to five weeks. Bony union is slow and may not be complete for eight or twelve weeks after the operation. The after treatment is the same in case of the knee, ankle, joint, and wrist, though the details of the operation are, of course, modified by the needs of the case, and the passive exercise is begun a little earlier in the wrist, about three weeks after the operation. A complete analysis of the twenty-five cases is given. There were no fatalities, twelve patients are now completely cured, two have still a small sinus remaining with good function, one was lost sight of, there were three subsequent amputations, and in the remainder sufficient time has not elapsed to justify a final report.

The Philosophical Anatomy of the Tongue.—E. Souchon defines the aim of philosophical anatomy as the study of the reason of things, of the principles and general laws of anatomy, and the relation of cause and effect. It includes also, last but not least, the special features presented by organs and the endeavor to explain their reason, their why, and their wherefore. With this object in view, he takes up the tongue, remarking that this organ, the nose, and the skin are the only organs of special sense which perform other functions. It is the only organ except the heart which presents a base, a body, and an apex. It is the only organ which can be protruded out of the cavity which contains it. No other organ can assume such various shapes and is so movable. Other peculiarities are the differences of its papillæ in the anterior two-thirds and the posterior third. It is one of the organs which present a dual structure in accordance with its dual functions, motor and sensory. Its color varies more than that of any other organ. It is more solid than any other viscus, the only other muscular one being the heart, which is hollow rather than solid like the tongue. Its papillæ are really similar to those of other mucous membranes but larger and more specially developed. It is the only organ presenting the three kinds of nerves, i.e. a nerve of special sense; a nerve of ordinary sensation, the glossopharyngeal; and nerve of motion, the hypoglossal. There are other peculiarities, such as that the gustatory is the only nerve of special sense that is a hard nerve, the others, the olfactory, the optic, and the auditory, being remarkably soft nerves.

The Use of the X-Rays.—A. L. Gray reviews the history of the therapeutic use of the *x*-rays, showing

how it has been modified with our better knowledge of the agent and the conditions to which it can be applied. We have learned that the pathological conditions involving the epithelial structures can be influenced by the *x*-rays when sufficiently superficial to be reached by those which are active. Fibrous growths and lesions in which fibrous tissue involvement is largely present are very slightly affected unless the treatment is pushed to the point of actual burning or cautery. He believes that a satisfactory unit of quantity by which the *x* ray can be measured will soon be obtained. Every apparatus is a law to itself and there is no fixed rule that applies to all, but an operator can so study his instrument as to learn to a large extent its therapeutic capacities. From the facts now known he deduces the following conclusions: "First, malignant disease, while yet local, may be treated with the assurance of good results, provided the lesion is on the skin or very near the surface, and the age of the patient or condition of the general health is not such as to render the reparative powers too low. The treatment of deep-seated primary cancers should never be undertaken except in inoperable cases, or when the patient will not consent to surgical procedure. In these cases it is best to remove the diseased parts as radically as possible, and, if practicable, leave the wound open to be treated by the Roentgen method, and, if necessary, resort to a second plastic operation to close it. Second, such skin diseases as involve the epithelial and glandular structures are more or less amenable to treatment. Those involving the fibrous tissue of the corium respond with great difficulty, or not at all. Third, glandular enlargements, so long as they are due to gland-cell hyperplasia, will be greatly benefited by *x*-ray treatment; when the hyperplasia involves the connective tissue element very little result will ensue."

The Lancet, April 24, 1909.

Treatment of Bronchiectasis by the Continuous Inhalation of Oxygen (Stoker's Method).—W. P. Harringham describes his experience with this method in the case of a young man of twenty years. Oxygen was inhaled for six hours daily out of one of the bags devised by Stoker for this special purpose. The patient was kept under treatment for four months. The special features of the case were the large amount of fetid sputum and the general well being of the patient while taking the inhalations. The author says there is no more troublesome complaint to treat than this condition of bronchiectasis with offensive sputum. Oxygen inhalations are far more agreeable than are those of creosote which were tried in this case but without effect.

A Case of Anomalous Edema with Bright's Disease.—R. W. Walker reports the case of a woman of twenty-three years with a tumor in the right popliteal space and swelling of the leg below it. Eight years previously the right ankle began to swell and the swelling gradually spread up the leg. The enlargement behind the knee had begun five years before she was seen. In the meantime swelling had begun on the left side and gradually spread upward. During the eight years she had had good health except at times severe headaches. On examination the popliteal growth appeared like a pedunculated lipoma except that it pitted on firm pressure. No cause for it could be found. On admission to hospital there was no albumin in the urine, but on the third day later there was considerable together with hylaline and granular casts. The average daily output of urine was about twenty-six ounces. With rest in bed all the swellings would almost disappear and the popliteal enlargement as well but on resuming exercise all came back again. Finally she was put on a salt-free diet and it was noted that the swellings rapidly disappeared although she was exercising. On such a diet she continued free from the swelling although the urine contained albumin varying greatly from time to time in its amount. There was an entire absence of any cardiovascular changes throughout and the patient showed none of the anemia and cachexia so often seen in Bright's disease.

Epsom Salts as a Poison.—C. Fraser reports one case in which this familiar remedy gave unusual symptoms and adds notes of six other cases collected from literature. His own patient was a boy of three and a half years who during the absence of his mother had taken a heaped-up teaspoonful of Epsom salts thinking it was sugar. This dose was washed down with a glassful of milk. In a few minutes he was found retching and with mild griping pains in the abdomen. These symptoms continued for several hours when the boy presented a condition suggesting an acute irritant poison. Thirst was intense, scarcely any urine had been passed in twenty-four hours, and the bowels had not acted. The condition was later diagnosticated as acute peritonitis and laparotomy was deemed necessary and the child was removed to hospital. On opening the abdomen about a quart of blood-stained serum escaped but it was found sterile. The large bowel was found full of feces and gas and the small bowel contained greenish matter. The postoperative condition was critical for the first two days, but on the third day the bowels opened frequently, urine came more freely, and the general condition greatly improved. From that time on, recovery was uninterrupted. The author enumerates the symptom-complex which led to a diagnosis of peritonitis as against volvulus and intussusception. The prolonged constipation resulted doubtless from paralysis of the bowel. The author could find only six similar instances of poisoning following Epsom salts in the literature from 1841 to 1896.

Two Cases of Metrorrhagia at an Advanced Age, Not Due to Malignant Disease.—A. H. Lewis reports the cases, the first patient being a woman of 73 years with menopause at 53. Since then there had been no vaginal discharge till the spring of 1907 when there was an escape of blood lasting nine days, followed by a continuous stained discharge. On exploring the uterus a polyp was found and removed without incident. Microscopical examination showed a very adenomatous growth. Some of the glands were cystic and the stroma was infiltrated with inflammatory products, but it was decided that the tissue was benign. The second patient was a woman of 70 whose menopause came at 50. When first seen she had had a discharge for some eighteen months. Exploration revealed a polyp which the microscope showed similar to that of case 1. The author cautions against the acceptance of the diagnosis of benignancy in these cases unless it is confirmed by the microscope. Hemorrhage at this age generally means a malignant condition.

The Blood in Rickets.—L. Findlay presents his material in a largely tabulated form and we can quote only his conclusions. (1) In active and uncomplicated rickets anemia is not the rule and is to be regarded as exceptional and, when it occurs, due to adventitious causes. (2) On the contrary in rachitic children the amount of hemoglobin and the number of red cells in the author's cases were notably in excess of the normal average. (3) The red cells as a rule vary more in size than in normal individuals but otherwise there is no abnormality. (4) Nucleated red cells, polychromatophils, and myelocytes are of the rarest occurrence. (5) In rachitic subjects there is little characteristic change so far as the leucocytes are concerned. They may be normal, slightly increased or even diminished in number. The mononuclears more frequently than the polymorphs show an absolute increase in number per cubic millimeter.

British Medical Journal, April 17 and 24, 1909.

The Surgical Treatment of the Umbilical Cord.—This subject is considered by J. W. Ballantyne, who says that infection in the newborn through the umbilicus is more common than is realized, and he quotes one of the Berlin physicians, who says that 2 per cent. of infant mortality is referable to infection acquired as above stated. Under the author's supervision six different methods were tried on 16 infants. The plan which he claims alone fulfills the requirements of modern antisepsis was as follows: The cord was cut off flush with the skin of the umbilicus, and the skin surfaces were joined. With a scalpel a circular incision was made at the junction of the infant's skin with the sheath of the cord. The incision was gradually deepened till the vessels were approached; then by careful dissection the vessels were cleaned from the jelly of the cord and tied separately; next the cord was severed and finally the edges of the skin were freshened and united with silkworm gut or catgut. Ten minutes were required. No jaundice occurred in the four instances in which this plan was followed. Healing of the stumps was complete by the fourth day and the cicatrix retracted. The good results were evidently due to the removal of all the dead structures and the freshening of the cutaneous surfaces. No putrefaction whatever took place. The author anticipates and replies to certain objections which might be made against the method he commends.

Tetanus Occurring After Surgical Operations.—W. G. Richardson notes that in practically all such cases, blame has been laid on infected catgut used. But in one personal case, in which an elderly woman operated on for gallstones and who did well for a week, suddenly died from tetanus after two days' illness, the catgut was examined and pronounced sterile. By a logical process of reasoning the author gradually comes round to the thesis

that as all catgut used in surgery comes from the intestine of the sheep it may be that the disease from which patients suffer is not true tetanus after all. There is no evidence along the line of animal experimentation to show that tetanus can be communicated to animals from any catgut that has been used in operations. From following up the facts in connection with 21 cases the author has come to the following conclusions: There is a group of diseases among sheep, the symptoms of which are closely allied to tetanus, and the bacilli of which cannot be distinguished from those of tetanus. In these diseases the bacilli are normal inhabitants of the sheep's intestine, but at certain periods of the year they pass from the lumen of the bowel into the blood, where they become bacteriolized, and the liberated toxins give rise to the symptoms of the various diseases of the group. During these seasons the bacilli are found in the peritoneal cavity, but in no other part of the body. These diseases are endemic in certain portions of the British Islands, and it is in these portions and in these alone that all the 21 cases of supposed tetanus in the human subject occurred. More than 90 per cent. of the post-operative tetanus cases have followed operations involving the opening of the peritoneal cavity. He therefore suggests that the disease we call post-operative tetanus is not tetanus at all, but one of the sheep diseases, that it has no reference whatever to the catgut used, and that at the time of operation the patient is the host of the bacillus.

Loss of Hair in Exophthalmic Goiter.—H. G. Macleod reports one instance occurring in a girl of 28 years and presenting the usual features of the disease. In addition, there was marked alopecia at the back and top of the head. Later the forehead became affected, and finally the eyebrows and eyelashes commenced to fall off. No other cause than the exophthalmic goiter could be assigned for the alopecia.

Destruction of Sweat Glands by the Roentgen Rays.—A. H. Pirie has found that the application of the *x*-ray to areas over which the sweating is excessive destroys the sweat glands. Six seances are all that are required for the purpose, one each month, and the giving at each the maximum dose the skin will stand. The sweat glands are the glands most readily affected by the rays in the entire body, and are the most readily destroyed. By making efficient applications to the axillary region, not only are these glands destroyed, but the hairs also.

Ménière's Disease.—J. F. Horne refers to a paper by Syme on aural vertigo in the journal of April 10, and adds certain comments on symptoms observed in a personal attack and in cases under his own care. He says that most of the cases seen are the result of some congestive or inflammatory derangement of the auditory nerve, usually of the nerve terminals of the labyrinth. If due to this condition the watch on the affected mastoid will be heard very imperfectly or not at all. All cases of functional vertigo are not due to aural disease. Deafness is constant to a greater or less degree but is not an essential symptom. Treatment calls naturally for the removal of the cause. Quinine and salicylate of soda are avoided by the author, who considers strychnine the remedy par excellence alone or in conjunction with dilute hydrobromic acid with counterirritation behind the ear by a stimulating liniment or blister, followed later by galvanism. In one obstinate case relief was obtained from a seton worn behind the ear. Destruction of the labyrinth by radical operation should be reserved for the last resort.

How Much Fluid Does the Body Require?—Alex. Haig says that if a man leading an ordinary sedentary life not entailing visible perspiration, takes from fifty to sixty ounces of fluid per day, then a weight of 150 pounds apparently requires about fifty ounces of fluid, this amount being passed each day through the kidneys. The question he asks is, By how much may this be reduced before physiological difficulties are encountered? This amount, Haig thinks, is too large, and most people can do with less than 50 oz. daily. A greater quantity is more habit than necessity. Haig generally aims at 30 oz. This reduction is a great gain to a diseased or dilated heart. The total fluids in the body are reduced by several pints, and the weight falls a corresponding number of pounds. A dilated heart resembles a dilated bladder and is well known. The latter may lose all expulsive power. A heart thus enabled to get a more complete grasp on its contents saves a great expenditure of force in the course of twenty-four hours, while valves incompetent in the dilated condition may, even though diseased, become completely competent. Astonishing results have been noted by the author in patients on a dry diet. He goes on to specify certain diseased conditions in which a reduction of the fluid intake is beneficial. If the 30 ounces daily do not relieve thirst, fruit or extra water is permitted, but most patients can reduce to 30 ounces daily, or with fruit to a less amount for a time.

Note on the Pulsus Bigeminus.—E. E. Laslett presents some copies of pulse tracings showing a hitherto undescribed (he believes) form of jugular pulse associated with the pulsus bigeminus. His patient was a painter with uncompensated aortic disease. The tracings of the jugular and radial pulse when the pulsus bigeminus was present show the extra beats which were the cause of the bigaminal rhythm. The auricles contracted during the ventricular systole, and there was one large wave synchronous with the extra beat in the radial body. In such cases the increased size of the wave is due to the fact that the right auricle is unable to empty itself into the contracted ventricle, and therefore a larger quantity of blood is sent into the jugular veins. The unusual feature in this particular tracing lies in the fact that the combined wave commences distinctly beyond the middle line. That is, nearer to the postextra systolic auricular wave than to the preextra systolic. The author is unable to explain the peculiar rhythm. It is evident that the alternate auricular contractions failed to appear at the normal period, but whether the sinus rhythm remained regular or not it is impossible to say.

A Case of Heart Block with Fibrous Degeneration and Partial Obliteration of the Bundle of His.—B. Bramwell describes the case and appends copies of several pulse tracings. The patient was a man of 29, with a very slow pulse and a history of several febrile rheumatic attacks. Full account is given of his symptoms, which were of the typical character. Autopsy revealed a fibrous degeneration of the auriculoventricular bundle of His. A calcareous nodule was situated at the right end of the attachment of the anterior mitral flap, extending into the septum, invading and almost obliterating the bundle toward its auricular extremity. There was a general adherent pericarditis, with dilatation of all the cardiac cavities. The ventricles were hypertrophied. There was old endocarditis, with calcareous deposits in the aortic and mitral valves. In addition to the mitral changes above noted there was thickening of the tricuspid, with some dilatation of the orifice. The pulmonary cusps were slightly but uniformly thickened.

Münchener medizinische Wochenschrift, April 13, 1909.

Significance of Urobilin.—Hildebrandt concludes a lengthy article as follows: "Urobilin originates only from Bilirubin being produced by the action of reducing bacteria. This reduction takes place in the intestines and in rare cases in the bile passages, so that there are only enterogenous and cholangiogenous urobilinuria. If the liver is in a normal condition, urobilinuria may arise because of increased destruction of blood cells, which leads to a relative insufficiency of the liver. If blood destruction is not increased above normal, the presence of urobilin in the urine always signifies a disease of the liver parenchyma which has led to local obstruction to the formation and flow of bile; in such a case the insufficiency of the liver is absolute. Fever in itself does not cause an urobilinuria. If the gall-duct becomes completely obstructed, all urobilinuria disappears. In Laennec's liver cirrhosis the presence of urobilinuria shows that the disease begins in the parenchyma cells, the development of connective tissue being a secondary phenomenon. Hildebrandt calls attention to the importance of examining for urobilin in all urine analyses.

Deutsche medizinische Wochenschrift, April 8 *and* 22, 1909.

Retardation of Metabolism.—Staehelin says that retardation of various individual processes of metabolism as well as of the entire oxidation going on in the organism plays a much more important *rôle* in disease than is usually supposed. Even under normal circumstances the metabolism of one substance is very much retarded if another substance is fed which takes its place in the process. Thus carbohydrates and fats given together with proteid diminish the metabolism of the latter substance. This phenomenon is also present in pathological conditions such as diabetes, in which nitrogen products are but slowly excreted in the urine. The same thing takes place in certain cases of obesity. In gout the purin bodies are but slowly excreted, the nuclein metabolism being very much retarded in this disease, as well as in lead poisoning and in chronic alcoholism. The metabolism of carbohydrates is not only retarded in diabetes, but probably it is not as complete as in normal health. In cases in which the function of the thyroid gland is interfered with carbohydrate metabolism is likewise very much slower than normal. Any retarda-

tion in the metabolism of fat is very often coincident with severe somatic changes, because it leads to the diminution in the production of energy, that is necessary for carrying on the processes of life. This is exemplified in such a condition as cachexia strumipriva. Still more interesting is the fact that the organism possesses the power of accommodating its production of energy and its demand upon certain substances to the supply of such substance. Thus Chittenden's work has conclusively shown that this is the case with the proteids, which may be very much diminished in the food as compared with the customary quantities used. Many diabetics seem to adapt their production of energy to the amount of food supplied; this is shown by the fact that many such patients do not lose weight when their diet is very much limited by the exclusion of carbohydrates. The most interesting conclusion from all these facts is that retardation of metabolism is common to two conditions, namely, to the so-called diseases of metabolism on the one hand and to loss of glandular functions on the other. The study of the latter may therefore throw light upon such diseases. Practically retardation of purin metabolism in gout shows that purin free diet is a proper therapeutic procedure, while the capacity of diabetics to adapt themselves to low supply of food should teach us not to hesitate in diminishing their food whenever necessary in the therapy of diabetes.

Color Reaction in Syphilis.—Schürmann in a preliminary communication describes a color reaction which he has obtained with the sera of luetic patients. To 0.1 c.c. of serum he adds enough physiological saline solution to bring the quantity to 3 or 4 c.c., adds to this one drop of perhydrol, which serves as an oxidizer, and then mixes this fluid with 0.5 c.c. of the reagent. The latter contains 0.5 of phenol, 0.62 of 5 per cent. iron chloride solution and 34.5 c.c. of distilled water and is best prepared fresh for each examination. Normal blood serum shows a slight green ring at the junction of the two fluids, which disappears almost entirely on shaking. The mixture, too, remains clear and transparent. Syphilitic sera, on the other hand, show a dark brown color at the junction of the fluids, and on shaking the mixture appears very thick. The reaction occurs in from one to two minutes; any change in color or transparency occurring later is of no significance. Schürmann has corroborated the specificity of his test by performing parallel reactions according to Wassermann's method.

Specific Therapy and Wassermann's Reaction.—Purckhauer says that in general specific treatment of syphilis changes a positive Wassermann reaction into a negative one, but such results cannot be expected to take place in every individual case. Especially the positive reactions occurring in the tertiary stage of syphilis usually persist, although very thorough treatment has been carried out. Even if a negative reaction seemed to have followed specific treatment, the relation of the two is not necessarily a causal one, because changes in the reaction have been noted in the absence of treatment. It is, however, quite possible to use the Wassermann reaction as an index of treatment in early cases of syphilis; specific treatment must be persisted in in such cases, so as to keep the reaction negative, just as it has been before infection or in its early stages. There seems to be no question that early and thorough treatment can cure syphilitic infection absolutely; this is much more difficult, on the other hand, if the infection has been allowed to exist for some time with insufficient treatment or none at all. The persistence of a positive reaction should not always be looked upon as an indication for continuing specific treatment beyond reasonable time. There is no doubt that prolonged intermittent specific treatment is the proper procedure after a syphilitic infection. The introduction of Wassermann's reaction simply corroborated the truth of this conclusion long ago made from clinical observations. The rule should be to treat the infection as early as possible after the diagnosis, and to repeat the treatment at certain intervals, even though no symptoms of the disease are present. Purckhauer's conclusions are based upon the study of several thousand cases seen in Neisser's clinic at Breslau, complete statistical data being given in his paper.

Diagnosis and Treatment of Pancreatitis.—Dreesmann says that the diagnosis of pancreatitis would be made much more frequently if the possibility of the disease is always kept in mind. The disease is certainly not as rare as has been thought; chronic pancreatitis especially must frequently coexist with cholecystitis, enteritis, cholangitis, etc. The author has in one year observed six cases of acute and three of chronic pancreatitis, the diagnosis being made sure by operation in all the cases. The picture of acute pancreatitis is often very characteristic, beginning with colicky pains usually in an obese patient; intense central abdominal pain follows, accompanied by collapse and the vomiting of fluid containing bile. The temperature usually remains normal, while the pulse becomes frequent. These symptoms are followed by tympanites and by the development of ileus. Variations in all these symptoms are, of course, frequent. A tumor mass is but seldom palpable; if present it is felt in the epigastrium or in the region of the gall-bladder, if the head of the pancreas is affected. The blood picture does not help in the diagnosis. The examination of the feces is of importance, for steatorrhea speaks for pancreatic disease if icterus and enteritis may be excluded; a good corroborative finding consists in the presence of undigested meat fibers. The various tests for pancreatic disease cannot be at all considered as specific. Sugar appears but rarely in acute pancreatic disease. The presence of indican in the urine is of no significance, but calcium oxalate crystals and bile are very frequently present and are of some use in the diagnosis. The Cammidge reaction is a help in the diagnosis, but it is not at all as specific as has been claimed. Chronic pancreatitis does not produce such violent attacks of pain as the acute disease, yet often enough it is attended with paroxysms that are quite like those occurring with gallstones, the so-called recurrences after operations for gallstones are very often due to the development of chronic pancreatitis. Acute pancreatitis is usually a fatal disease, the free ferment of the gland being very destructive to the tissues of the peritoneal cavity. The indication, therefore, is to give an avenue of escape to the fluid containing the ferment, which, of course, is best done by operating and then draining the peritoneal cavity. The diagnosis at the operation is made on the presence of fat necrosis or even on the existence of a hemorrhagic exudate. Calcium chloride has been advised by many to be given before and after the operation to diminish the danger of post-operative hemorrhage. Of the 118 cases in the literature, 55 per cent. died; forty of the patients were treated by early operation and drainage, and of them only 20 per cent. succumbed. In chronic pancreatitis dietetic and medicinal treatment must be tried first. If this proves useless, surgical interference must be advised, and, as a rule, the operations upon the bile passages are the most beneficial. The pancreas itself may be decapsulated. On the whole, in both acute and chronic pancreatitis surgery offers much more hope for the patient than conservative treatment.

The Mechanism of Gastric Secretion.—Bickel says that the parenchymatous cells of the stomach are stimulated to activity by substances which circulate in the blood and which are of various origin. This function of the stomach is under control of the extragastric nervous system, impulses from which regulate the secretion by stimulating it or inhibiting it. This explanation of gastric secretion was corroborated by the author in experimenting with pouches isolated from the stomachs of dogs, these pouches being connected with the body only by several blood-vessels. Such nerveless stomachs secreted gastric juice after subcutaneous injections of foodstuffs or after food was introduced into the main stomach cavity. The substances which stimulated the nerveless stomach to secretion must have been contained in the foodstuffs or produced in them after their digestion in the large organ. These facts applied to clinical phenomena compel us to assume that there are two kinds of disturbances of gastric secretion, a gastrogeneous and a neurogenous one. Disturbances of neurogeneous origin may produce a hypersecretion or a hyposecretion of gastric juice, depending upon what set of nerve fibers, stimulating or inhibitory, have been excited by the cause of the disturbance. Experimentally, Bickel has produced hypersecretion by cutting all extragastric nerves in a dog. These facts show the *modus operandi* in the development of gastric disturbances, depending mostly upon general condition of the body or of the nervous system. They suggest too that psychic suggestive therapy has a very important place in the treatment of functional diseases of the stomach. On the other hand, the experimental evidence obtained with the nerveless stomach shows that dietetic treatment is the mainstay in handling gastric disturbances depending upon local changes.

Book Reviews.

Hoppe-Seyler's Handbuch der Physiologisch-und Pathologisch-Chemischen Analyse fur Aerzte und Studierende. Bearbeitet von Dr. H. Thierfelder, a. o. Professor und Vorsteher der chemischen Abteilung des physiologischen Instituts der Universität Berlin. Achte Auflage. Mit 19 Textfiguren und 1 Spectraltafel. Berlin: August Hirschwald, 1909.

Though over fifty years have elapsed since the first appearance of "Hoppe-Seyler," it is still a text-book of the utmost value, and every laboratory worker will welcome the eighth edition. The revision has been carried out by Professor Thierfelder, and its completeness is shown by the fact that the volume has swollen to quite an inordinate size, being over two hundred pages larger than the last edition, published in 1902. The editor has found it necessary to call to his assistance a number of other workers in the field of biological chemistry, who have taken up the revision of those portions of the book whose context has been the subject of their special studies. The subject matter has been brought down to the latter part of 1908, and it is interesting to note that a good many analytical methods recently published in this country have been included. The book still remains without a serious rival as the best laboratory guide to the analytical methods of biological chemistry.

Medical Reports of the Central London Throat and Ear Hospital. Vol. I. Pp. 134. London: Adlard & Son, 1909.

This book opens what bids fair to be a most valuable series of hospital reports. We note as of special suggestiveness, the papers by Dr. Dundas Grant on "The Retention of the Matrix in Operations for Cholesteatoma of the Middle Ear," Dr. Dan McKenzie on "Adenoids, Deformities of the Palate and Artificial Infant Feeding" and Dr. B. Kingsford on "A Review of Twenty Thousand Administrations of Anesthetics for Operation on the Throat and Nose."

Larynxtuberculose und Graviditaet von Dr. R. Sokolowsky, Koenigsberg. Halle: Carl Marhold, 1908.

This pamphlet presents the relations of pregnancy and laryngeal tuberculosis along the usual lines, and closes with a comprehensive bibliography. The general conclusion is that the prognosis of the laryngeal condition on the occurrence of pregnancy is most unfavorable except in case of laryngeal tuberculomata and when the first laryngeal manifestations come on during the latest weeks of pregnancy. In general the occurrence of pregnancy under the conditions of laryngeal tuberculosis calls for artificial emptying of the uterus.

Maladies des Organes Génito-Urinaires de l'Homme et de la Femme. Par R. Le Fur, Ancien Interne des Hôpitaux de Paris; et A. Siredey, Médecin de l'Hôpital Saint-Antoine. Avec 68 figures intercalées dans le texte. Paris: J. B. Baillière et Fils, 1907.

This is the twenty-second volume of Brouardel and Gilbert's System of Practice and Therapeutics; and it is the first time that we have seen the genitourinary disorders of both male and female treated in the same volume. The first part deals with urethritis in the male, in the female, and also in children. Prostatitis is next considered; then cystitis and other bladder disturbances, incontinence of urine, and urinary infection and intoxication. Orchitis and epididymitis are then discussed; and this section concludes that part of the volume which treats of the disorders of the male. The gynecological part has sections on menstruation, uterine congestion, infections, inflammations, tuberculosis, cancer, fibroids, and pelvic hematocele. It will be noticed that venereal diseases are not included in this volume.

The Body at Work. A Treatise on the Principles of Physiology. By Alex Hill, M.A., M.D., F.R.C.S., some time Master of Downing College, Cambridge. With 46 illustrations. London: Edward Arnold, 1908.

This book is not intended for either the physician or medical student, but for the ordinary educated layman who has not had preliminary training in biology, chemistry, and physics. The author describes the phenomena of life, and the principal conclusions which have been drawn as to their interdependence and as to their causes. Although the book is not put forth as an introduction to the systematic study of physiology, nor yet as an aid in the preparation for professional examinations; yet, we think that a medical student at the end of his first or second year would benefit greatly by a perusal of this admirably written volume. The author's style is particularly lucid and entertaining; while his recognized authority as a physiologist leaves nothing to be desired on the score of scientific accuracy. The author's statements are clean cut and dogmatic, expressed in forcible and spirited language; and the result is a definite and permanent impression on the reader's mind. The book is well printed, in large type, on thick unglazed paper of light weight, and contains sixteen chapters, as follows: Prolegomena; the basis of life; the unit of structure; the fluids of the body; internal secretions; digestion; respiration; the circulation; muscle; the nervous system; smell and taste; vision; hearing; skin-sensations; voice and speech. The only criticism that we have to make, is to express a doubt if the lay reader will understand all the terms employed, *e.g.*, Trichlorlactamide, benzoic alcohol, megacaryocytes, hemophilia, catechin, proteoses.

Tuberculosis of the Nose and Throat, by Lorenzo B. Lockard, M.D., Laryngologist to the Jewish Consumptives' Relief Society Sanatorium, etc. St. Louis: C. V. Mosby Medical Book and Publishing Co., 1909.

The work of Dr. Lockard reveals a vast amount of careful study and is a compendium of the present status of the tuberculosis question as involving the nose and throat. In these days of numerous special journals the text-book is rather a follower than a leader, yet it is a matter of great convenience, particularly to the special worker, to have all pertinent material sifted and collected as the author has done in this book. The illustrations, sixty-four of which are colored, are of unusual merit and not overcolored as is so often the case in representations of lesions on mucous membranes. The author says that complicating lesions of the throat occur in at least one-third of all persons with recognizable foci in the lungs. Autopsies on persons dying of consumption prove that nearly 50 per cent. have tuberculous lesions in the larynx. Experience demonstrates that the majority of such lesions are preventable, that of the lesions already existing one-half can be brought to the stage of arrest, and that in those too far advanced to be arrested, the more distressing symptoms can in the majority of instances be held in partial subjection. The author makes a plea for systematic examination of the larynx in every case of tuberculosis and a surrender of the all-too-common belief that laryngeal lesions are better left alone and that treatment of them will do more harm than good. It will be seen that he takes a hopeful view of the question and his book should be read carefully by all phthisiotherapists.

Les Autoplasties. Lèvres, Joues, Oreilles, Tronc, Membres. Par Ch. Nélaton, Agrégé à la Faculté de Médecine, Chirurgien de l'Hôpital Boucicaut; et L. Omeredanne, ancien Prosecteur de la Faculté, Chirurgien des Hôpitaux. Avec 291 figures dans le texte. Paris: G. Steinheil, Editeur, 1907.

This volume forms one of the valuable series of monographs now being published under the general editorship of Berger and Hartmann. It includes most of the autoplastic operations at present practiced (rhinoplasty is omitted) and is well and copiously illustrated. Cheiloplasty takes up more than half of the work; the other chapters are brief, but sufficient. At the end of the volume there is an unusually full and complete table of contents.

Primary Studies for Nurses. A Text-book for first-year Pupil Nurses. Containing Courses of Studies in Anatomy, Physiology, Hygiene, Bacteriology, Therapeutics and Materia Medica, Dietetics, and Invalid Cookery. By Charlotte A. Aikens, formerly Superintendent of Columbia Hospital, Pittsburg, and of the Iowa Methodist Hospital, Des Moines; late Director of Sibley Memorial Hospital, Washington, D. C.; Author of "Hospital Housekeeping" and "Hospital Training School Methods and the Head Nurse." Illustrated. Philadelphia and London: W. B. Saunders Company, 1909.

In this book the author brings together, in concise form, lessons on those subjects which the nurse needs as a groundwork for the more practical part of her professional education. At the same time the non-essentials are eliminated, with the result that the volume is of reasonable size and its contents are easy of assimilation. The book is well arranged, and should prove popular with first-year nurses, who will find here all they require on the subjects mentioned on the title page. Nurses in general are much more likely to derive benefit from the perusal of a volume such as this one, than they are from a more or less cursory and desultory dip into large and learned works for which they have neither the time nor the necessary preliminary education.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia; assisted by H. R. M. Landis, M.D., Assistant Physician to the Out-Patient Medical Department of the Jefferson Medical College Hospital. March 1, 1909. Philadelphia and New York: Lea and Febiger.

With this number, Progressive Medicine enters its eleventh year. The surgery of the head, neck, and throax, is presented by C. H. Frazier, and occupies about one hundred pages. R. H. Preble contributes the article on infectious diseases, including acute rheumatism, influenza, and croupous pneumonia. Diseases of Children is by F. M. Crandall; Rhinology and Laryngology, by D. B. Kyle, and Otology, by A. B. Duel. For the busy physician, Progressive Medicine is the ideal year-book; for it gives in readable form, the gist of all that is of value in the previous year's literature. What is of no value has been carefully weeded out, by competent hands, before the process of "boiling down" is commenced.

Text-Book of Gynecological Diagnosis. By Dr. Georg Winter, O.O. Professor and Director of the Kgl. Universitäts-Frauenklinik in Königsberg, Prussia. With the collaboration of Dr. Carl Ruge of Berlin, edited by John G. Clark, M.D., Professor of Gynecology, University of Pennsylvania. After the third revised German edition. Illustrated by four full-page plates and three hundred and forty-six text illustrations in black and colors. Philadelphia and London: J. B. Lippincott Company, 1909.

In this volume we have the foremost German work on gynecological diagnosis, admirably translated, and edited (with necessary emendations) by a well-known American gynecologist. The result is that this is the most complete work on gynecological diagnosis yet published. The book is divided into three parts, the first devoted to general diagnosis, the second to special diagnosis, and the third to analytical diagnosis. In the first part will be found sections on: External examination, internal examination, combined examination, rectal examination, examination of the genitalia through the bladder, method of using specula, the uterine sound, microscopic diagnosis, cystoscopy, bacteriological diagnosis, and radiography. Part two contains over five hundred pages, and forms the main part of the work. In this part will be found a thorough exposition of every possibility in gynecological diagnosis. In spite of the large amount of material, the arrangement is so orderly that the reader is never bewildered, and the wealth of detail never becomes burdensome. The third part contains only about fifty pages, in which are discussed: The causes of hemorrhage, of amenorrhea, of dysmenorrhea, and of sterility, and analytical diagnosis of abdominal tumors. This part, though brief, is valuable, and with the exception of the last section might be studied before the part dealing with special diagnosis. The book is very readable, and in this respect is unlike many translations. We have detected very few slips; the most important is probably the statement, on page 65, that the gonococcus is Gram positive; elsewhere on the same page it is (correctly) said to be decolorized by Gram's stain. The terms "craurosis" and "vaginism" are unusual, and "cagimismus" is also found in the text; but these are mere specks on a magnificent piece of work.

Hemorrhage and Transfusion. An Experimental and Clinical Research. By George W. Crile, A.M., M.D., Professor of Clinical Surgery, Western Reserve Medical College; Visiting Surgeon to the Private Ward Service of Lakeside Hospital, Cleveland, Ohio. New York and London: D. Appleton & Company, 1909.

This work, by one who has contributed so much of the utmost importance to experimental surgery, is not a text book in the ordinary sense, but is a report of a long series of experimental studies on the phenomena of hemorrhage in man and animals with a full account of the experimental findings and a running discussion from the literature of the subject illuminated by the writer's own conclusions. A special section is devoted to the treatment of hemorrhage and the effect of drugs, especially saline infusion. An interesting comparison is drawn between the effects of acute hemorrhage and shock on the composition of the blood, and the sequelæ of cerebral anemia due to rapid hemorrhage. The second part of the book takes up the question of transfusion, beginning with an historical introduction and followed by the protocols of numerous animal experiments, the author being careful to state that anesthesia was used in all cases in which pain was inflicted. Numerous charts illustrate the changes in blood pressure after various surgical procedures. The effect of transfusion on the urinary constituents in animals is also taken up. Another chapter deals with the remarkable regressions noted in animal tumors after transfusion with normal blood, the work having been done with the cooperation of Dr. S. P. Beebe of Cornell University Medical College. The remainder of the book is given up to reports of clinical cases in which transfusion has been done on human beings. The writer has not hesitated to insert the unfavorable as well as the favorable results which have been obtained by transfusion, and tells of some of the ill-effects which have resulted from transfusion in persons suffering from pernicious anemia and leukemia, and the inefficiency of the transfer of blood in human beings for the cure of carcinoma. Many remarkably successful cases are reported where transfusion was done, either for postoperative hemorrhage, or for continuous loss of blood from gastric or intestinal ulcerations. The work is a very valuable one and incidentally is a most admirable testimonial to the value of experimental work on animals in the advance of our surgical knowledge.

Frühdiagnose und Tuberkulose-Immunität unter Berücksichtigung der neuesten Forschungen: Konjunktival—und Kutan-Reaktion, Opsonie, etc., speziell der Therapie und Prognose der Tuberkulose. Ein Lehrbuch für Ärzte und Studierende. Von Dr. A. Wolff-Eisner, Berlin, Arzt f. innere Krankheiten u. Bakteriologe des stadt, allgemeinen Krankenhauses Friedrichshain-Berlin. Mit einem Vorwort von Geh. Med.-Rat Prof. Dr. H. Senator und Geh. Med.-Rat Prof. Dr. A. Wassermann. Mit 7 farbigen lith. Tafeln, 1 schwarzen Tafel, 14 Kurventafeln, zahlreichen Abbildungen und Kurven im Text. Zweite vermehrte Auflage. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1909.

The appearance within a year of a second edition of Wolff-Eisner's book on the diagnosis of tuberculosis by means of the tuberculin reactions is an evidence of the extraordinary interest of the practitioner of medicine in any procedure which promises a rapid and accurate diagnosis of this disease. The large amount of work which has been done with conjunctival and skin reactions induced by tuberculin is shown by the bibliographic summary of nearly six hundred papers, all of which have appeared within two years. The author considers, first, the method of early diagnosis of tuberculosis, physical examinations, the staining of sputum, and the diagnostic value of the opsonic index; and then turns to the field which he has made peculiarly his own, that of the reactions produced by the local applications of tuberculin. The third part is devoted to an attempted theoretical explanation of these reactions, and the fourth to a consideration of the value of these tests in prognosis and in hygiene. The volume contains a very complete review of all that is known on the diagnosis of tuberculosis, and while somewhat diffuse is the best résumé which we have on the subject. The colored illustrations are quite satisfactory and any one who desires complete information on the subject must consult this book.

Manual of Diseases of the Ear, Including Those of the Nose and Throat in Relation to the Ear. By Thomas Barr, M.D., and J. Stoddart Barr, M.B. Fourth Edition, revised and enlarged. Glasgow: James Maclehose & Sons, 1909.

The authors of this volume are respectively lecturer and assistant lecturer on otology in Glasgow University, and their opinions and methods may therefore be taken as representative of the subject of ear disease as seen through British eyes. There is much that is commendable in this volume, but the method of presentation is not one to encourage industry in the reader. This seems to be due to a too great interweaving of closely related ideas. No subject is fully discussed and finished in any particular section of the book, but bobs up unexpectedly here and there, thus giving a disjointed effect to the whole. Facial nerve paralysis, for instance, is touched upon in thirteen different places, and the labyrinth can be studied only by consulting some forty references in the index. However, the illustrations, 215 in number, are for the most part well done, and help one to a satisfactory understanding of the text. The three colored plates representing various pathological conditions of the drum membrane scarcely give the exact coloring, although they are correct in other details. Formulæ for use in treating nose, throat, and ear are generously supplied in an appendix. The chapters on treatment of the intracranial and vascular complications of purulent middle-ear disease, while good in the main, are scarcely exhaustive enough when we reflect how closely this branch of otology is being studied by aural surgeons.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held March 16, 1909.

DR. F. P. SOLLEY IN THE CHAIR.

A Case of Raynaud's Disease.—Dr. G. A. FRIEDMAN presented a woman, 23 years old, a Russian. Raynaud's disease had never appeared in another member of her family. She had had the ordinary diseases of childhood and had malarial fever five years ago. She denied syphilis. Her hands and feet were involved, and there was anesthesia of one portion of the face. She first noticed that the fingers of the right hand became white and deadlike; the motion was normal but the sensation was lost. The skin soon became blanched. On very warm days during the summer she did not perspire as other people did, and she did not change her underwear as often. The physical examination showed that the skin of the hands, feet, and face was dry and tense. There was a lack of elasticity of the skin, and it was impossible to raise it from the extremities. The skin was also icy cold. The temperature sense was lost, and the tactile sense perverted. The heart's action was normal. No thickening of the arteries could be noted. There was no sugar nor albumin in the urine, but there was an excess of urates. The radiograph showed a certain amount of absorption of the bones of the phalanges. The patient belonged to a neurotic family. She was not a neurasthenic. She had been in perfect health until eighteen years of age, when she had an attack of malaria, taking large doses of quinine. After that attack she developed her present condition. The condition of her four extremities was better during the summer months. The pain sense was lost, not only in the affected parts, but over the whole skin. The small arteries of the fundus oculi showed marked contraction. There was a slight anemia. There were no dyspeptic symptoms, but she did not enjoy her food. A striking feature was the lack of free hydrochloric acid in the stomach contents. Anidrosis was present. In the literature on Raynaud's disease, malaria was spoken of as one of the causes. In this case there was a spasm of the arterioles not only in the extremities, but in the vessels of the fundus oculi as well. Dr. Friedman briefly reviewed the literature of Raynaud's disease.

Dr. ARNOLD STURMDORF said that his interest in Raynaud's disease was purely a surgical one, and dated back eighteen years, when a patient was seen by Dr. Freeman and brought to Dr. Sturmdorf for the purpose of having the fingers amputated. Raynaud's disease was a generic term which presented many clinical pictures. When one studied the literature of the subject with care he must come to the conclusion that the pictures presented could not be the result of one and the same process. There was a slight circulatory disturbance and complete tissue destruction. When one studied the reports of cases he would find all sorts of conditions to deal with, especially in the dermatological field—scleroderma, leprosy, certain organic lesions involving the spinal cord, such as syringomyelia, and diseases of the blood-vessels; in fact, every part of the body might be involved. According to Raynaud's theory, this disease was the result of some irritative lesion, probably in the cord or brain, producing spasm of the blood vessels. The question now arose, What caused the irritation? What deprived the parts of nutrition? He thought that possibly an explanation might be found in a study of the effects of the juices from the ductless glands, especially the suprarenals.

Dr. B. ONUF said he had seen two cases in which he had been struck by a certain etiological factor; rheumatism occurred in both. This discovery led him to investigate this factor as a cause of Raynaud's disease, and he made a tabulation of the cases in which was considered the family history, the previous history, and the results of actual examination. His investigation was conducted with the point in view of establishing a relation of this disease to vascular innervation in general: also, the influence of syphilis, tuberculosis, and other diseases. Dr. Onuf gave the results of forty-three cases taken from the literature and of five of his own cases. With regard to the family history he found that in all cases the importance of the rheumatic element as a cause was confirmed. In four out of his own five cases the patients had had acute articular rheumatism, gout, or arthritis. In the fifth case there was a history of myalgia, and he was not certain whether this was rheumatic or not. The histories of the cases in the literature were very meager. The cases occurred more often in the neurotic families, and family heredity played a rôle. Very interesting points were brought out regarding the previous history; in twenty out of the forty-eight cases, or about 40 per cent., there were disturbances of the vascular innervation. This showed that vascular innervation and Raynaud's disease bore a close relationship one with the other. There was a history of rheumatism in ten out of the forty-eight cases, or about 20 per cent. There appeared a predominance of the cases of hysteria. Most important of all the exciting causes, it seemed to him, was the influence of cold or low temperatures, not acting locally, but generally; this exposure showed a reflex rather than a direct action. The next frequent cause appeared in the neurotic cases. Again, depressing factors were particularly important in producing these attacks. With regard to the frequency with which the parts were involved, the fingers and toes were mostly affected; then the forearms, legs, thighs, etc. Raynaud's disease, with asphyxia, gave a graver prognosis than the gangrenous form. Females were more often affected than males; among the forty-eight cases there were thirty females and fourteen males. Dr. Onuf then described some of the general characteristics of the disease.

A Case of Abscess (Pneumococcus) of the Lung.—Dr. R. H. HALSEY presented a man, 30 years old. Last June he complained of cough, and he expectorated an excessive amount of very foul sputum. Because of this he was unable to work, and was brought to the hospital. He had been perfectly well until one year before, in June, 1907, when he was relieved of an obstruction in the nose, a turbinate operation being performed. He took a general anesthetic. He left the hospital the day after the operation and was very miserable for some time. Two weeks after he developed a cough which had continued until the present time: with this cough was the very foul sputum. In January the amount of sputum expectorated was from 600 cc. to 650 c.c. in twenty-four hours. He had had different treatments, had gained ten pounds in weight, and was practically well, so far as his general condition was concerned. In January, in order to show the condition on the right side, namely, an abscess just below the third rib, and to guide the surgeon, an attempt was made to *x*-ray the chest and get a radiograph. This failed, and a second attempt was made. Two days after this last attempt the amount of sputum expectorated dropped from 650 cc. to less than 100 cc. It was thought that possibly this was the effect of the *x*-ray treatment, and several treatments had since been given. The sputum expectorated since was not so great. The pneumococcus, and not the tubercle bacillus, was found. The Calmette, von Pirquet, and the Morro tests all proved negative, thus ruling out any tuberculous infection.

A Case of Cerebral Hemorrhage Following Arteriosclerotic Granular Nephritis Mistaken for Cerebral Embolism; Microscopical and Gross Specimens Shown.—Dr. BOND STOW reported this case and presented the specimens. (See page 846.)

Dr. Theodore C. Janeway reported the case of a man with tuberculosis of the lungs, cirrhosis of the liver, normal kidneys, small heart, and a low blood pressure, who was suddenly seized with unilateral convulsions, hemiplegia and death within twenty-four hours. In this case one would have felt justified in stating that this was the result of a thrombus. At autopsy there was found a hemorrhage in the occipital lobe and in the posterior horn of the lateral ventricle.

Demonstration of a Practical Hospital Polygraph.—Dr. T. B. Barringer gave a demonstration of this instrument, which he had used in Bellevue Hospital with success.

Edema of the Lungs; a Suggestion for Treatment Based Upon Experiment.—Dr. Haven Emerson said that he had found in a course of experimental tests upon rabbits and cats that edema of the lungs, caused by acute cardiac failure resulting from the extreme peripheral vascular constriction in adrenalin poisoning, could be successfully treated by the use of artificial respiration. The physics of this procedure had much to recommend it as an effective means of assisting an obstructed pulmonary circulation. Ample respiratory movements materially assisted in the passage of blood from the right to the left heart, and as edema was often due simply to a failure of the right heart, artificial respiratory movements might be expected to serve as an effective adjuvant treatment to the usual stimulation with drugs. Only such cases were likely to be helped by such a procedure as were of acute occurrence, or had taken place as a result of some brief and removable increase in the burden of the circulation.

Edema of the Lungs Treated by Artificial Respiration.—Dr. T. B. Barringer, Jr., reported a case of edema of the lungs treated by artificial respiration. The patient was a woman, 47 years old, who had had for a number of years a well compensated mitral stenosis, arising from a rheumatic endocarditis. Early one morning an attack of cardiac insufficiency came on, accompanied by a rapid, irregular pulse, dyspnea, cyanosis, and marked pulmonary edema. Hypodermic stimulation was given and artificial respiration was carried out. During the employment of the artificial respiration the patient coughed up large mouthfuls of frothy, blood stained sputa, and at the end of an hour the pulse had slowed, and the signs of pulmonary edema had markedly decreased. In forty-eight hours the patient had entirely recovered.

Dr. Walter Mendelson said, in discussing Dr. Emerson's paper, that before entering into the question of the rational treatment of edema it might be well to first consider the causation of dyspnea and hence of edema. Normal respiration was interfered with as soon as the velocity of the blood current was slowed, or the normal pulmonary blood pressure altered. When the right ventricle was weakened a slowing of the current resulted in low blood pressure, and consequent dysponea and edema. Clinically, however, the most frequent heart condition leading to edema was an incompetent left ventricle with a hypertrophied right ventricle. In this case the blood was dammed back in the lungs by the ventricular incompetence, with a necessary slowing of the current and with a high blood pressure against which even the hypertrophied right ventricle contended in vain. Another very important element in the causation of dyspnea and edema was the turgescence of the pulmonary capillaries, with consequent rigidity of the lung, which occurred in pulmonary congestion, and upon which von Basch had laid so much stress. Here the lumen of each air vesicle was seriously encroached upon by the turgidly dilated capillaries. In considering the probable effect of artificial respiration upon these conditions one should sharply differentiate in his mind between the positive pressure respiration of the laboratory and the negative pressure respiration (Sylvester's method) which one was obliged to use clinically. It was easy to see how the pressure exerted by the bellows on the pulmonary pressure (laboratory) method would compress and empty the turgidly congested pulmonary vessels, thus accelerating the current and reducing the blood pressure to normal. Very different, however, might the condition be with the negative pressure (Sylvester's method). Here, when the bellows were raised and a negative pressure was obtained in the chest, the blood—and that, too, from both sides of the heart—as well as air was aspirated into the chest, and *a priori* the result obtained would depend on whether the mitral valve was competent or not. If it was competent, then the compression of the chest which followed the raising of the arms must tend by positive pressure to drive the blood in the natural direction of its current and by so much as it accelerates it to overcome the dyspnea or edema. Possibly another explanation might be advanced as to the effects of artificial respiration upon edema, namely, that the muscular exertion, by diverting blood from the lungs to the muscles, relieved the work of the heart, on the well known principle of Schott. In this way its effects might be ranged with those of cupping, mustard foot baths, and the use of vasodilators, etc.

Dr. N. R. Norton called to mind a case he saw years ago, where the resort to Dr. Emerson's method, for another purpose than the relief of edema of the lungs, appeared to have been productive of good. In 1896, at the Presbyterian Hospital, a woman was brought in suffering from acute carbolic acid poisoning; she was in collapse, and had edema of the glottis and lungs and central depression of respiration. Sylvester's method was used, as well as inhalations of nitrite of amyl. Because of the edema of the glottis, artificial respiration was employed, and inside of ten minute the cyanosis disappeared and the pulse came up to about 90. The use of the soluble sulphates by mouth, together with artificial respiration, was followed by the recovery of the patient.

Dr. S. J. Meltzer said he was inclined to believe that artificial respiration in pulmonary edema might be of value. Pulmonary edema had two factors which might prove dangerous. The greater danger was from the presence of fluid in the bronchi of the lungs, and this had the same effect upon the individual as the water in cases of drowning. In such cases artificial respiration was of value. The second danger was in the constant production of the edema, and how could one explain why artificial respiration was of value here? Dr. Meltzer said he thought he was the first one to observe and describe the production of edema by the use of adrenalin. He had had a great number of animals, rabbits, and not cats and dogs. Many of these rabbits with pulmonary edema he tried to save by artificial respiration, but he could not save one of them; the only ones that were saved were those who were not treated by artificial respiration. He did not believe that one was justified in coming to the conclusion that this method would help in all cases. In Dr. Emerson's paper mention was made of the production of edema by the use of adrenalin, and it was a fact that many consultants in this city advised the giving of adrenalin in pulmonary edema. In a discussion in Washington a few years ago he said he was surprised to hear a man say that patients with pulmonary edema, when given adrenalin, got well. They got well in spite of the adrenalin. Dr. Meltzer advised against the use of adrenalin in cases of pulmonary edema.

Stated Meeting, Held April 20, 1909

Dr. F. P. Solley in the Chair.

Specimen of a Large Mass of Tartar Containing Many Teeth.—Dr. C. N. B. Camac presented this peculiar specimen. The patient was a woman, 60 years old, who had

a tumor mass of the lower jaw, extending from the last molar to the canine tooth, about three inches. It was painless, moved readily, and was attached by a small pedicle. A number of physicians and surgeons had examined it and pronounced it to be a sarcoma. She at first refused operation, and was kept under observation for a time. The tumor did not grow larger. She finally consented to operation. When she was about to be moved to the operating room the house physician took hold of the mass and pulled it off. No bleeding followed this procedure. An examination of this mass showed it to be a collection of tartar containing many teeth. The chief interest in this case rested in the mistaken diagnosis. The absence of pain, the absence of bleeding after removal, and the absence of glandular enlargement were indications against the tumor being malignant.

Specimens of Mucous Cast.—Dr. Camac presented a very long mucous cast which was passed by a patient with a mucous colitis, complicated by carcinoma of the liver. He also presented another specimen which was passed by a patient suffering from a mucous colitis. The form of the cast was somewhat like that of a cast from the respiratory tract; it was knotted. This emphasizel the necessity of giving colonic irrigations when there were vomiting and attacks of indigestion. A point of interest in this case was the presence of chronic cardiac disease. The patient had a mitral stenosis and she had fearful experiences with her attacks of pain and vomiting. There was a certain amount of periodicity in these attacks; they usually occurred about 2 A.M. Many diagnoses had been made, among them being angina pectoris and gastric ulcer. Since she had received colonic irrigation she had been free from these attacks for three years.

The Clinical Index of the Thorax Associated with Pulmonary Tuberculosis.—Dr. Walter L. Niles read this paper. He said that until very recently almost all the textbooks on medicine and physical diagnosis had described the thorax associated with pulmonary tuberculosis as flat, a curious survival of a medical fallacy which had apparently persisted simply because no one had measured any considerable number of such patients. Most of the chests did appear flat, it was true, but taking measurements on a few would show that in most cases the flattening was not real and the appearance was an illusion. Hutchinson reported in 1897 his findings in 20 tuberculous chests, and was convinced that the average tuberculous chest was not abnormally flat, but was, on the contrary, abnormally round. Measurements of the diameters of the chest were made on an imaginary horizontal plane passing through the junction of the fourth costal cartilages with the sternum. Dividing the anteroposterior diameter by the transverse diameter gave the ratio which the former bore to the latter, and was called the "clinical index" of the chest. Hutchinson's first series of 20 cases of pulmonary tuberculosis, representing all stages of the disease, gave an average index of 78. He subsequently reported 350 cases collected by him from various observers which showed an average index of 79.7. Dr. Niles's report was based upon a study of 1022 measurements made on tuberculous patients in the Bellevue Hospital and the Cornell University dispensaries. The subjects examined belonged to several races, and included both sexes and all ages from 8 to 84 years, in all stages of the disease. The average clinical index of all the cases was 75.98. In order to remove all possibility of error through the inclusion of normal infantile chests, he had excluded all under 20 years of age, leaving 929 patients; these gave an average index of 76. Sex was practically no factor in modifying the indices of tuberculous chests. Separating his cases into stages of the disease, he found that, though the average indices of the second and third stages were slightly higher than that of the first stage cases, the difference was so slight that it might be disregarded. Classifying the cases by decades of life, it was shown that the higher indices after the fourth decade were probably accounted for by the emphysema which normally developed with advancing years. What was the cause of the abnormal relations of the diameters of the chest which existed in three-fourths of the individuals who later developed pulmonary tuberculosis? Hutchinson's conclusion that it was due to an arrest of development seemed to be well founded. It was a fair conclusion that the typical tuberculous chest was one which had been arrested in its development at or about puberty. High indexed chests were frequently associated with various forms of so-called degeneracy, which were really conditions of maldevelopment. If high indexed chests predisposed to pulmonary tuberculosis, as had been claimed, it was possible to lessen this predisposition by exercises which tended to produce an increase in the transverse diameter, such as climbing, swinging by the arms, and movements laterally from the body. It also created the presumption that it might not be best to prescribe for patients with pulmonary tuberculosis exercises which tended to develop deep chests. The following conclusions were offered: (1) The typical tuberculosis chest was more nearly round than the normal chest. (2) The increased index preceded the development of tubercle infection in the lungs. It was due to an arrest of development at or about puberty and predisposed to pulmonary tuberculosis. (3) Abnormally high indexed chests in children should be corrected by proper exercises.

Dr. Woods Hutchinson said that it was curious to see to what extent Dr. Niles's findings had disproved the former beliefs regarding the measurements of the tuberculous chests, and he was gratified that the results had substantiated his own. The only basis for the claim that tuberculous chests were flat was to be found in a statement and cut published in a textbook forty-five years ago; no measurements nor any proofs of the correctness of the assertion were offered. Until quite recently this false statement was accepted, but when measurements were taken the incorrectness of the statement was made apparent. In his first series of 20 cases of tuberculous chests he said he had the expectation of finding them "superhuman" chests, or flatter than normal, but in that series, and in the examinations subsequently made, he found that these chests were round, and not flat, and they were due to an arrest in development. Chest measurements by various observers on both sides of the Atlantic to the number of some 750 had now been obtained, but Dr. Niles's contribution was far the longest series and a most valuable addition to the science of medicine. The tuberculous chests, while originally somewhat high, gradually tended to become higher and higher through the action of the muscles of respiration. The deep, or well developed, or roomy chest noted in the racehorse or in quadrupedal life did not belong to the human being. In the newborn infant there was the roomy chest like the chest of a prizefighter, the round, expanded chest. It was the quadrupedal chest which was normal in the infant. It was shown that 20 per cent. of the cases were below the normal index and 18 per cent. were under 68. In the inmates of hospitals, asylums and almshouses the index was likely to be higher than in the well to do—about 72 or 73; this was about the same as was found among soldiers. In city gymnasia the index dropped to about 69. At Harvard and Yale colleges it was 68.6. The further "humanization" of the chest occurred as one went higher in human society. One of the greatest things of value in connection with the index was in connection with developing children; when a child's index was above what it should be, he should be regarded as below par and there should be begun vigorous treatment in the open air and abundant feeding. The many procedures which aimed at throwing out the chest were unnecessary and often injurious, for the healthy chest was flat; the tuberculous chest should be kept at rest.

Dr. C. N. B. Camac made a strong plea for more earnest attention to clinical detail in diagnosis, such as was shown in Dr. Niles's paper.

Dr. S. A. Knopf thought that too little stress was laid upon the value of breathing exercises in pulmonary tuberculosis. In the quiescent stage, when there was a great deal of mucus, he knew of no measure productive of better results than deep breathing; as the air entered the lungs it caused a detachment of this mucus, causing a more frequent expectoration. In the early stages of the disease any exercise taken that did not tire the patient, including the breathing exercise, was advantageous. As a prophylactic measure in badly developed children, he favored breathing exercises. Children who were obliged to sit still in school were much benefited by these exercises when they went out doors.

The Influence of Glycosuria and Diabetes in New York City Between 1902 and 1907, with a Report of Two Cases of Essential Pentosuria.—Dr. T. B. Barringer read this paper. He said that there were sixteen among 71,729 applicants for insurance in a certain company in which pentose was found. Subsequently he visited eleven of these and secured twenty-four-hour specimens of urine. Nine specimens were negative, the subjects having originally been affected with alimentary pentosuria. The insurance company's examinations had been made chiefly during the summer months, and had also shown an absence of pentose on the succeeding day, when a second analysis was made. The greater consumption of fruit containing pentose during the summer months explained the origin of these cases. Two of the men showed pentosuria on repeated examinations. The first was a dentist, thirty-seven years old, in excellent health. He generally showed about 0.5 per cent. of a reducing substance, estimated as dextrose, in the twenty-four hour urine, which was identified as a pentose, by means of Bial's test, the spectroscopic reaction, and the melting point of the osazon between 150° and 155° C. The second man was a clerk, seventeen years old, in good health, and he showed constantly about 0.3 per cent. of pentose. Dr. Barringer was unable to carry out any metabolism experiments on these cases or to investigate the members of their families. In summarizing he said that (1) the incidence of diabetes in New York City reached the surprising figure of 1,895 cases per 100,000 population. (2) A large proportion of the cases of transient glycosuria were harmless and did not cause death. (3) Diabetes generally began as a slight intermittently appearing glycosuria, which gradually became more and more marked, until finally it was constantly present.

Dr. Hart said that cases of pentosuria were exceedingly rare, and that he had seen but one case. The condition was not a dangerous one, and the chief interest was concerned with the diagnosis and in the possible rejection of such patients by life insurance companies.

Dr. Henry S. Stark asked how soon the diagnosis of diabetes could be made; of course, the sooner the better. In the early detection of diabetes, the hereditary tendency should always be considered. This was an important and valuable aid, and he wished to lay much emphasis upon it. Ten years ago Dr. Stark pointed out the necessity of having the urine of every individual over thirty-five years old examined, and this should be done as a routine matter, the same as one consulted the dentist. Personally, he was of the opinion that in 90 per cent. of the cases of diabetes the disease started as an alimentary or transitory glycosuria; this continued and might run into a permanent condition. With regard to pentosuria, seven years ago in a paper on "The Treatment of Diabetes" he asked what was its clinical significance. Reasoning by analogy, pentosuria must exist, and it was surprising that it had not been discovered before. He also had read a paper on "paradiabetes," an anomalous type of diabetes, which was the counterpart of paratyphoid; in this glucose was never discovered in the urine. In other words, in paradiabetes there were the subjective symptoms of diabetes, but there was found no glucose in the urine.

Dr. Barringer called attention to a paper written some time ago in which he followed twenty cases of transitory glycosuria; at the end of five years he found that one-half of them had escaped the disease. No sweeping deductions could be made, but he found that there were two types of glycosuria, the harmless and the diabetic. A large proportion of the cases of glycosuria did not develop diabetes. A great difficulty was encountered in attempting to determine which was the harmless and which the diabetic type. Any man with less than 1 per cent. of sugar in his urine should be given the glucose test, which should be repeated month after month until no reaction appeared; with each monthly appearance of glucose in the urine after this test, however, there should be a greater suspicion of the disease, true diabetes, being present.

SECTION ON SURGERY.

Stated Meeting, Held April 2, 1909.

Dr. John F. Erdmann, Chairman Pro Tem.

Large Gastric Ulcer, Hour-Glass Stomach, Adherent Pancreas Closing Extensive Defect in Posterior Wall; Gastroplasty.—Dr. W. S. Schley presented this patient, a woman twenty-nine years old, who was admitted to the hospital February 8 and was discharged March 18 of this year. Six months prior to admission she lost her appetite, had indigestion, and was run down from overwork. Soon she was unable to retain solid food and vomited regularly after meals. She had pain in the epigastrium and hypochondrium after eating, and she belched up much gas. At no time was there blood in the vomitus. She was in the Newport Hospital from September 14 to November. Since coming to New York the pain had continued and had been very severe at times. The bowels were constipated, the stools dark in color. For several weeks prior to her entrance to the hospital there had been no vomiting. The pains were worse at night and shooting to the left shoulder and hip, and were accompanied with some fever. The pain was worse when she stood or lay on the left side. When admitted she had thin and shrunken abdominal walls, with moderate epigastric tenderness, but marked tenderness over the left upper rectus with reflex spasm. There was no palpable mass. The gastric analyses showed diminished hydrochloric acid and diminished digestive power. At operation the anterior wall of the stomach was found adherent to the abdominal wall under the left rectus muscle by a dense old cicatrix an inch and a half in diameter. This was separated with the knife. The stomach showed a marked hour-glass contraction at this point. On releasing the stomach from the abdominal wall, an opening was found, two and a half inches in diameter, extending into the lesser curvature and gastrohepatic omentum, and through this the stomach interior could be easily explored, and extending from its margin down the posterior wall and nearly to the greater curvature was noted the continuation of the ulcer. The pancreas was found to be adherent to and closing in the greater ulcer area on the posterior wall of the stomach, as the abdominal wall had done in front. The cicatrizing ulcer area attached to the abdominal wall in front and the pancreas behind drew the two together, displacing the latter. The patient's condition and the adhesions and anatomical derangements seemed to indicate a gastroplastic closure with a gastroenterostomy if the closure by this scheme did not sufficiently enlarge the opening between the two stomach sections. The edges of the ulcer were excised and the opening closed at right

angles to the long axis at the upper end, and suturing over the lesser curvature it was necessary to include the investment of the pancreas and some pancreatic tissue in each stitch, as the stomach walls were closely adherent to the pancreas from this point downward, and a separation of the stomach from the pancreas would only have meant a still further enlargement of the already large defect. After the closure in this manner, it was found that three fingers could be invaginated through the opening. Her condition seemed to contraindicate any more prolonged work, and the abdominal wall was closed, leaving a very small cigarette drain to the upper end of the stomach. She made an uninterrupted recovery. The ulcer evidently started near the lesser curvature and extended down the anterior and posterior walls, becoming adherent before perforation.

Cysto-Meningo-Myelocele.—Dr. A. A. Berg presented this patient, nine months old, who was admitted to Mt. Sinai Hospital last December with a tumor in the upper part of the sacral region, the size of a small orange. The skin over it was normal. The tumor was not fixed. The center of the tumor was more thickened than was the periphery, and there was fluctuation. The legs were not paralyzed. There were no congenital deformities. Because of the increase in the size of the tumor, interference was called for. He cut down upon it with the idea of at least removing it and, if the child's condition permitted, to do a radical operation for the relief of the spina bifida. A large cystic tumor was exposed, filled with a clear, translucent fluid. The walls were much thickened, and at the margin of the sac were found some terminal filaments of nerve trunks. Inside of this sac was found a second tumor, cystic in nature, the size of a small crab-apple, the walls of which were formed by nerve trunks. It contained translucent material, which was evacuated. The child's condition became bad and, therefore, the external wound was rapidly closed after removing the redundant tissue. At present there was considerable thickening present. The defect in the spinal canal was about the size of a fifty-cent piece and was easily palpated. A radical operation could not be done.

Perforated Diverticulum of the Cecum.—Dr. A. A. Berg presented a man who had been at the Mt. Sinai Hospital under Dr. Brill's care during January. He was well up to one week before his admission, never having had any abdominal pain previous to that time. His bowels moved regularly. He first had pain in the right iliac region and a moderate temperature, and he vomited once or twice after taking medicine. It was believed that he had a subacute form of appendicitis. Upon opening the abdomen the omentum was found to be surrounded by moderately firm adhesions, and there was a tumor in the right iliac fossa, soft, but not impressing one as being of carcinomatous nature. The appendix was free and the ascending colon normal. In the external lateral wall of the cecum was found a perforation, the size of a lead pencil; through this opening was seen a dark mass, which was believed to be a neoplasm, at the ileocecal junction. An exsection of the intestine was made at this junction, and an anastomosis was established between the ileum and transverse colon. Whether this was a congenital diverticulum or not was difficult to say. This was a rare instance of a diverticulum in the cecum.

Dr. Clarence A. McWilliams said that this case showed that one should be most careful in making a diagnosis, and he recalled the case of a man who presented symptoms of an acute appendicitis, with a temperature of 103°, and with a mass in the appendical region. He cut down upon it and found that this mass consisted of a thickened cecum; the walls were about one-half an inch thick and there appeared to be a neoplasm. An excision was done, and the man died. The microscopical examination showed that this mass was simply an inflammation of the cecum, and the appendix was found to be normal. In the cecum were found four or five ulcerations. This was a case of acute typhlitis. In the future, in cases of this character, Dr. McWilliams said he would have sections examined before doing anything. An acute diverticulitis was a very puzzling affection, especially when in the lower part of the intestine.

Mesenteric Thrombosis with Gangrene of the Intestine.—Dr. A. A. Berg presented an Italian, who was brought to the hospital with the history that, five days prior, he had suffered with intense abdominal pain. He denied any venereal history, and he was not addicted to the alcohol habit, and did not use much tobacco. There was no etiological factor in the patient's history or in his physical condition at the time of admission to explain the conditions that were found. His chief complaint was the abdominal pain. His bowels had not moved in three days, and he had a slight elevation of temperature. No blood had appeared in his stools and he had not vomited. The abdomen was moderately distended and fairly rigid. Although he gave the impression of being a sick man, a diagnosis of acute abdominal disease was not clearly made out. The appendicular region was particularly tender. The blood count was low. The polymorphonuclears were practically normal. Attempts to move the bowels were unsuccessful. A diagnosis of intestinal obstruction from an unknown cause was made, and an exploratory incision was decided upon. The abdomen was found to be filled with a bloody serum. A purplish colored intestine was noted which corresponded to the terminal end of the ileum. The mesentery of the ileum was found to contain soft, firm glands. Thrombi were found in the veins. There was no pulsation in the vessels corresponding to the infected area. The superior mesenteric artery pulsated. An exsection of the intestine was performed, an anastomosis established, and an uninterrupted convalescence ensued.

Combined Tuberculosis and Carcinoma of the Stomach.—Dr. H. M. Lyle presented a man, forty years old, a porter. One brother and one sister died of pulmonary tuberculosis. He had lues sixteen years ago. He had a mild cough, with some expectoration. About five months ago he began to complain of a dull pain in the region of the stomach and a moderate amount of gaseous distention, which had continued to increase. About four months ago he began to vomit, and this had persisted. Vomiting always took place from three to four hours after eating. The vomitus was large in amount, consisting of stomach contents and undigested food. Constipation was marked and he lost flesh and strength. On admission he was found to be much emaciated, weighing about one hundred pounds. There was possibly an old tuberculous lesion at the right apex of the lung. A hard, firm mass, about the size of a walnut, was found in the epigastric region to the right of the median line. It moved with respiration. The lower border of the stomach was two fingers' breadth below the umbilicus. A partial gastrectomy with gastro-jejunostomy according to the plan of Billroth's second operation was performed. The parts removed included a portion of the duodenum, the pylorus, and a portion of the stomach, with corresponding glands. An uneventful recovery followed. He was now in good condition and at work. The pathologist reported the specimen to be a diffuse carcinoma of the stomach and tuberculosis of its mucosa.

Extensive Third-Rail Burn of the Back.—Dr. J. J. Moorhead presented a laborer who was working in a manhole repairing the "channel rail" of one of the surface roads, the current of about 250 volts being turned on. In some manner he fell against this charged rail, so that his back contacted at about the lower scapular level, his feet being grounded on concrete. He remained in that position several minutes, and when released was found

to have a third degree burn that practically escharred his back from the midscapular to the lower lumbar region, and it was said that the burn reached far enough to expose the underlying viscera. He suffered profoundly from shock and was unconscious, and his recovery was protracted; and even at this date, six years later, there was an unhealed area about 3 x 4 inches in the central portion of the scar. Some months later, when Dr. Moorhead saw him, he had a butterfly-shaped scar in the involved area, in the lower portion of which was a lumbar hernia. The scar had contracted enough at first almost to draw the wings of the scapulæ together, and spinal flexion was impossible; but by continued self-bending and manipulation of his back he so far recovered as to be able to resume some manual labor. He at no time developed a traumatic neurosis. An interesting point was that he had never had any skin grafting done.

Dr. George A. Peck of New Rochelle presented a man who had received 11,000 volts while working on the New Haven Railroad. He was made insensible. He presented a severe burn on his index finger and the space between it and the middle finger. These slight injuries from high voltage he considered very remarkable.

Phagedenic Ulceration of the Abdominal Wall.—Dr. H. A. Haubold showed, for Dr. Luckett, a patient who had an ulceration which involved an area of ten and a half by six and a half inches which was the result of what was now seen very rarely, hospital gangrene. This was cauterized, and healed without any grafting being done.

Spina Bifida Occulta.—Dr. Walter M. Brickner reported two cases in young women, both operative. In both the symptoms were limited to the left lower extremity. The first patient was a Swede, aged nineteen, who since her twelfth year had suffered from ulceration and bone necrosis, successively involving all the toes of the left foot. Recently there developed perforating ulcers of the sole and necrosis of corresponding metatarsal bones. Examination showed a congenital lipoma symmetrically situated over the lumbar spine and dissociated sensory paralysis (left side) corresponding to the fourth and fifth lumbar, and first, second, and third sacral cord segments. A diagnosis of spina bifida occulta was corroborated by skiagraph, which showed absence of the left lamina of the fourth lumbar arch. (A lesion at that level would involve the posterior nerve roots corresponding numerically to the cord segments mentioned.) The speaker operated in July, 1908. The lipoma was found unencapsulated, finely lobulated, and almost free from fibrous tissue—characteristics of congenital lipomata. Issuing from an opening to the left of the fourth lumbar spinous process was found a meningocele adherent to the surrounding fat and containing a bundle of nerve roots, sharply angulated near the apex of the sac. These were reduced into the spinal canal, the sac was ablated, the dural opening was sutured, and the hiatus was closed by fascia. Since the operation tactile sensibility had been completely restored, and the thermal and pain sense had improved; but the trophic ulcers, which had slowly healed, had recurred, and bone necrosis continued. There were never any motor, vesical, or rectal symptoms.

The second patient was a German, aged twenty-six, who had suffered since her nineteenth year with attacks of pain in the left leg and foot, followed by the spontaneous appearance of ulcers in the calf, heel, or sole, which suppurated and healed slowly. There had been ulceration and bone necrosis of all the toes of the left foot except the first, requiring their successive amputation. No motor, bladder, or rectal symptoms. Over the upper end of the sacrum was a slight, irregular, apparently fatty prominence, at the left extremity of which was a small collection of fine, short hairs. Both the prominence and the hairs would escape all but a close scrutiny. There was on the left side dissociated sensory paralysis corresponding to the fifth lumbar and first to fifth sacral cord segments. The *x*-ray showed a large hiatus at the site of the first sacral arch, most marked on the left side, and asymmetry of the fifth lumbar arch, which arch was complete, however. At operation, September, 1908, by Dr. Elsberg, the fat was found of the same characteristics as in the first case, but much less abundant. A triangle of the lumbar fascia over the upper end of the sacrum was circumcised and lifted up with a mass of connective and fibrous tissue beneath and adherent to it. This tissue was seen to lead down and be attached to the slightly bulging, pulsating dura mater, seen through the large hiatus in the bone. No opening was seen in the dura. It was incised, and the nerve roots within were found floating free. The dural incision was sutured, and the opening closed over by muscle. Since the operation there had been slight improvement in the sensory paralysis, but the patient still had attacks of pain in the extremity; there were now two superficial ulcers on the calf and a superficial plantar ulcer; and from time to time since the operation she had had partial incontinence of urine and feces. Charts and photographs of both cases, showing the lesions at various stages, the dissociated anesthesia, *x*-ray tracings, and steps of the operations, were projected on a screen, and reduced stereoscopic skiagraphs of the spine were exhibited.

Virchow, who coined the term spina bifida occulta, was credited with the first report of a case in 1875, but the speaker had found records of two earlier cases. He had accumulated reports of in all about eighty-five cases, not including doubtful or spurious cases or cases of spina bifida anterior—which, properly, were also "occult." Of the eighty-five cases, some were in fetuses, some in children, most in adolescents and young adults, a very few in older persons. About a dozen were operated upon, and these, with the postmortem studies of other cases, furnished the anatomical pictures of the spinal conditions. Heredity played no rôle and coincident congenital deformities were rarely found. A few cases presented no symptoms, but many of these were in children and not unlikely developed symptoms in adolescence. The common symptoms were: incontinence of urine or feces, or both, and, in the lower extremities, atrophies, palsies, clubfeet, joint weakness, disturbed reflexes, anesthesia, trophic ulcers (feet, legs, buttocks). The lesion being almost always in the median line, both lower extremities were ordinarily involved, and Brickner's cases were unusual in the laterality of the lesion and the symptoms. The development of the symptoms during adolescence was generally attributed to the unequal growth of the bones and of the spinal cord, causing traction at the site of the lesion. This would not, in itself, account for all the symptoms. In two cases perforating ulcers appeared at the age of two. The ulcers and dissociation of the sensory paralysis (the latter a point to which little attention had been given in the reported cases) spoke for a lesion in the cord itself. There was reason to believe that the cord lesion was, sometimes at least, congenital; although it was not unlikely that it might become aggravated secondarily during adolescence. The speaker believed also, from observation of his cases, that callus, which surrounded the ulcers, was not dependent upon pressure, but was itself a trophic disturbance. So, too, was the bone necrosis. These perforating ulcers were very obstinate and in several cases had called for amputation. The spina bifida was usually located in the lumbar, lumbosacral, or sacral regions, in a few cases in the dorsal spine. The local signs were one or more of the following: Scoliosis or other spinal deformity in many cases; a depression, usually covered by wrinkled or scarred skin, in which the bone cleft might be felt; radiating, thin scar tissue, usually adherent, frequently vascularized, sometimes marked by an angioma, through

this the cleft was often felt; a congenital lipoma; distinct hair-growth, either alone or in combination with one or more of the above (least often with lipoma). This hypertrichosis was found in most of the cases. There were various theories of its genesis and significance. It might not appear, and often did not develop prominence until puberty. It might be long enough to constitute a veritable "tail." The museum freak who exhibited as "the woman with the horse's mane" had an extensive bifidity of the dorsal spine. Recklinghausen suggested that hypertrichosis was probably significant of a concealed spina bifida. Many cases of lumbosacral hypertrichosis had been reported, before and since the advent of Roentgenography, in which no mention of a spina bifida occulta was made; but in the absence of skiagraphs in all these cases, Recklinghausen's suggestion was not diminished in value. However, Ornstein, who reported the first case of lumbosacral hypertrichosis, collected 30 cases; Geyl saw it in a father, son, and grandson; Butler saw it in three children of one mother; Pendleton reported an identical observation; and Parry reported two sisters with lumbosacral hair growth. The atavistic theory is no longer adhered to, but, even recently, Bruggia regarded hypertrichosis, lumbosacral or elsewhere, when not part of an evident fetal deformity, as a stigma of degeneracy; but in the case he illustrates in his book he recorded no examination of the spine. The spinal lesions, like the external manifestations, were various. The cases operated upon or autopsied indicate that there was a cleft in the vertebral arches, of various length and breadth, and that this was accompanied by one of the following conditions: (1) The cleft might give passage to a distinct meningocele. (In the lumbar region the sac was apt to contain the posterior roots of the cauda equina.) (2) The cleft was closed by a tough membrane, adherent to the overlying skin or nonencapsuled fate and connective tissue. (3) The membrane was perforated by a dense band, attached to the subcutaneous tissues without, and compressing the cord structures within. (4) Lipomatous tissue within the canal was concealed by this membrane. (5) The cleft disclosed the bulging dura mater. (6) An exostosis within the canal compromised the cord tissues. (7) A myofibrolipoma extended through the cleft into the canal, distorting and compressing the cord and its nerve roots. In two cases with the last condition the cauda equina and other nerve roots showed marked degeneration, and there was degeneration in various tracts of the cord itself. In another case the central canal was dilated. Symptomatically, spina bifida occulta and spina bifida were one. Diagnostically, they were to be separated. Anatomically, they also differed, but here, too, they presented some features in common: tumor tissue sometimes accompanied evident spina bifida; hypertrichosis occasionally did; a meningocele was sometimes partially, but not entirely, concealed by a congenital lipoma; and, lastly, there were reasons for believing that a spina bifida sometimes shrank and left only scar tissue or other index to a spina bifida occulta. The results of operation had been: In no case death. In one or two cases no improvement. In most cases cure or improvement of incontinence, locomotion, anesthesia. In no case had trophic ulcers been relieved, again indicating their origin in a lesion within the cord. From these few cases Brickner believed that operation was indicated in spina bifida occulta, even and especially in children with no symptoms. (Not every congenital lipoma over the spine concealed a spina bifida, however. In a child recently operated upon at Mt. Sinai Hospital nothing abnormal was found beneath the lipoma.) Though a cord lesion (gliosis or other) probably existed in many cases, it did not produce all the symptoms; and, too, early operation might obviate degenerative cord changes. It was suggested by the reader that it might be wise to always sufficiently explore the canal to expose any exostosis or concealed tumor tissue. When it produced symptoms, as it usually did, spina bifida occulta was a most distressing condition; and the only hope of relief lay in its early treatment. In many of the cases, as in both shown by the reader, symptoms had existed for years before their cause was recognized. In his brief survey of the clinical features of spina bifida occulta, Brickner chiefly attempted to renew attention to the existence of this type of deformity, and he urged a careful scrutiny of the back, and an *x*-ray picture in all cases in which there was incontinence of urine or feces, or in the lower extremities, motor, sensory or trophic disturbances, the cause of which was not otherwise evident.

Injury by Electricity.—Dr. J. J. MOORHEAD read this paper. He said that, in view of the widespread and increasing use of electricity, it was not surprising that electrical trauma was on the increase. Authoritative information as to the physical effects of electricity was very scanty, especially in the American literature. After defining some of the more common technical terms, he said that, for all practical purposes, it was enough to remember that the volt was the unit to express pressure, intensity, and electromotive force, and that the ampere denoted strength and current quality. An electrical conductor could conduct three sorts of current, viz., continuous, interrupted, and alternating. The contact might be of four kinds, viz., positive, partial, brushing, and arcing. The intensity might be low (reaching 100 volts), medium (400 to 600 volts), or high (1,000 volts and over). The duration of contact might be short (from 1 to 3 seconds), medium (from 5 to 8 seconds), and long (from 8 seconds upward). The average electrical pressure in electrical lighting was from 100 to 225 volts, direct, usually about 110 volts; in overhead and underground trolley systems from 250 to 275 volts; in overhead long haul railway systems, 11,000 volts. In the third-rail systems, like the local subway, the voltage was 550. The highest voltage transmitted by wire in this country was at Grand Rapids, Michigan, 100,000 volts. A voltage from 200 to 500 was usually not dangerous to life. In the electrocution of criminals from 1,300 to 2,000 volts were used, the average being 1,700 of the alternating type. The physical effects were mainly determined by the amount and duration of the current, the site, type, and area of contact, and the individual. In a general way, they were three in number—death, burns, and disturbances of the nervous systems. Death from electricity was usually sudden, and was best represented by the execution of criminals, lightning stroke and unexpected contact with highly charged materials, the body completing and short circuiting two conductors. Under such circumstances there might or might not be decided external evidences of what had occurred. At post-mortem such cases were surprisingly free from gross microscopical changes, and the most careful search of all the tissues had as yet failed to give any adequately uniform cause of death. The findings were not unlike those noted after drowning and suffocation. Observers appeared to have two main theories to account for death under such circumstances; one being that the heart muscle was paralyzed by a tetanic spasm analogous to that observable in skeletal muscles under high voltage; the other theory was that there was a definite cellular destruction, especially of the vital centers. Burns by electricity differed from those due to extremes of temperature only in origin, and might be of the usual first, second, and third degrees. Electrical burns were apparently less painful and produced less systemic shock than certain other burns. In the absence of direct destructive or inflammatory damage to the nerve fibers and the subsequent development of a more or less localized neuritis, the nervous effects were almost invariably those of the hystero-neurasthenic type, it being rare in his experience to find either neurosis separately as a sequence of electrical or other

form of trauma. Where direct damage to nerve tissue was absent or minor, the subsequent development of neurasthenia and hysterical symptoms was generally psychic in origin or dependent upon auto or hystero-suggestion, and the signs then presented were usually disproportionate to the actual physical damage sustained. Occasionally cases were recorded in which blindness and deafness and other special sense defects had been attributed to electrical contact or flashes, but all instances of this sort fell into the class of so-called "fright neuroses." Treatment presented no special problems and was directed toward the relief of shock, burns or neuroses. In conclusion he said there was no special form of physical effect inherent to electricity, inasmuch as every symptom could be paralleled in other forms of trauma; likewise, there was nothing pathognomonic in "electric shock."

Dr. John Woodman said he had never seen permanent disease of the nervous system resulting from electric shock, either of low or high tension. The burns healed kindly.

Tuberculosis of the Kidney.—Dr. Benjamin S. Barringer presented these specimens.

Case I.—This patient was twenty-seven years old and had had bladder disturbances four months previous to the time when seen. She had noticed cloudy urine for only a week. The cystoscopic examination showed the right ureteral orifice surrounded by red granulations, with a few submucous hemorrhages; this was non-contracting, and there were no ulcerations. The bladder was otherwise normal. This case was found to be one of unilateral kidney tuberculosis, in which nephrectomy was performed and in which apparently there was a complete involution of the tuberculous process, so far as the urinary organs were concerned. Two months after the nephrectomy the cystoscopic examination showed that the granulations around the right ureteral orifice had entirely disappeared, and normal mucous membrane closed the right ureter mouth. The kidney was almost entirely destroyed, and the kidney with the ureter was removed.

Case II.—This patient had a bladder capacity of 150 c.c. The urine was cloudy and contained pus and tubercle bacilli. The cystoscopic examination revealed the right ureter retracted to the right and much thickened; its orifice was small, irregular and surrounded by an area of pink granulations with a few tubercles. The left ureter and the rest of the bladder appeared normal. The right kidney was almost completely destroyed by the tuberculous process. Four weeks after the nephrectomy the patient was convalescing. The cystoscopic picture was one that could not be mistaken for anything but an old tuberculous process, with extensive kidney destruction.

Case III.—This patient was a man, thirty-five years old, married, and who had had gonorrhea four years ago. One and a half months later he was unable to urinate, and had to be catheterized. Since then he had had bladder irritation, weakness of the back, lost flesh, had night sweats, and frequent urination. The cystoscopic examination revealed moderate congestion and a cystitis at the base of the bladder. The right ureteral orifice was open, rigid, and was surrounded by slight congestion, with a small ulceration at one angle. The left ureteral orifice was slightly congested, contracting regularly every ten to twelve seconds, with urine issuing. The urine was cloudy, and contained pus cells and tubercle bacilli. One year later the patient returned with a left tuberculous epididymitis. An examination of the nephrectomized kidney showed complete destruction of kidney tissue, with large cavity formation. The patient died on the second day after the operation from heart failure. In this case the cystoscopic picture gave no index of the extent of kidney involvement. The cystoscopic picture of the diseased ureter was but rarely seen with conditions other than renal tuberculosis.

Philadelphia Neurological Society

At a stated meeting held April 23, Dr. A. A. Eshner reported "A Case of Undiagnosticated Brain Abscess," and he exhibited the specimen. The patient had been a woman thirty-five years old, who gave a history of ear disease and complained of severe headache, together with nausea, vomiting, sleeplessness, pain in the back and legs, chills, fever, and sweating. There was, however, no paralysis, no discharge from the ear, no local tenderness, and the reflexes were normal. The Widal test yielded a negative reaction and the urine contained albumin and tube casts. The white blood cells numbered 10,000 in the cu. mm. The case was at first looked on as one of typhoid fever, and later as one of uremia. Death occurred somewhat abruptly, and postmortem examination disclosed an abscess in the temporal lobe of the left cerebral hemisphere, with caries of the adjacent temporal bone and suppuration in the internal ear. Dr. Alfred Gordon reported "A Case of Focal Epilepsy Due to Varicose Cerebral Veins; Operation; Recovery," and he demonstrated the patient. The case occurred in a man, 26 years old, who had been having at rather frequent intervals epileptiform attacks in part of Jacksonian character since the age of four. The attacks began in the left leg and invaded other portions of the body. Sometimes they were attended with loss of consciousness and at other times they were not. An osteoplastic flap was turned back, the dura incised and varicose veins disclosed on exposure of the upper portion of the motor area. The enlarged veins were ligated and excised. No convulsion had occurred in the more than two months that had elapsed since the operation, although palsy of the left upper extremity followed, with ataxia in this member and loss of stereognostic sense. Gradual improvement in the paralysis was taking place. Dr. George E. Price exhibited for Dr. Francis X. Dercum a girl, about 11 years old, who two years earlier, after exposure to cold, was seized with paralysis in both lower extremities, loss of control of the sphincters, lessened, followed by exaggerated, reflexes. Under rest, good feeding, massage, and graduated exercises, a considerable measure of improvement had taken place, so that the patient was able to walk and run quite well. Dr. S. D. Ingham reported "A Case of Cerebrospinal Syphilis with Internal Hydrocephalus, Causing Symptoms of Cerebellar Tumor." A striking symptom was the staggering gait, with a tendency to fall backward. After death a gumma was found obstructing the foramen of Magendie and the aqueduct of Sylvius, causing dilatation of the lateral ventricle. Dr. John H. W. Rhein reported "A Case of Spastic Paraplegia (Little's Disease?) without Demonstrable Lesions of the Pyramidal Tracts," and he demonstrated the microscopic sections. The patient had been a man, 64 years old, who had had spastic paralysis in the lower extremities since infancy. No lesion was found after death. He attributed the spasticity to the loss of inhibitory impulses normally conveyed from the cerebral cortex by reason of the fineness in size or smallness in number of the fibers from the motor area. Drs. Charles K. Mills and William G. Spiller presented a communication entitled "Symptoms of Disseminated Sclerosis produced by Arterial Sclerosis." The patient was an elderly woman who presented coarse intention tremor of the hands and shaking of the head, with scanning speech, but without nystagmus or exaggeration of reflexes. After death no sclerosis of the cerebrospinal system was found, but only the lesions of arteriosclerosis. Dr. Alfred Gordon presented a communication entitled "Histological Changes in the Spinal Cord in Pernicious Anemia, with Report of a Case of Diffuse Degeneration." He reported a case in which, following copious hemorrage from the nose, symptoms of pernicious anemia developed, and after death diffuse degeneration of the spinal cord was found

Books Received.

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MEDICAL REPORTS OF THE CENTRAL LONDON THROAT AND EAR HOSPITAL. Vol. I. 8vo, paper, 134 pages. Adlard & Son, London, England.

HOW TO NURSE SICK CHILDREN. By CHARLES WEST, M.D. 12mo, 52 pages, cloth. Longmans, Green & Company, New York.

SELF-CONTROL AND HOW TO SECURE IT. By Dr. PAUL DUBOIS. 12mo, 337 pages, cloth; $1.50 net. Funk & Wagnalls Company, New York.

THE MATTER WITH NERVOUSNESS. By H. C. SAWYER, M.D. 12mo, 209 pages, cloth. Cunningham, Curtiss & Welch, San Francisco and Los Angeles, Cal.

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FELIX HOPPE-SEYLER'S HANDBUCH DER PHYSIOLOGISCH- UND PATHOLOGISCH-CHEMISCHEN ANALYSE FÜR AERZTE UND STUDIERENDE. Von Dr. H. THIERFELDE. 4to, 854 pages, paper, illustrated; 22 marks. A. Hirschwald, Berlin, Germany.

ÜBER DIE WIRKUNG MODERNER PROJEKTILE. Von Dr. F. RIEDINGER. 4to, 31 pages, paper, illustrated: 4 marks. Curt Kabitzsch, Würzburg, Germany.

TEXT-BOOK OF EMBRYOLOGY. By BAILEY and MILLER. 4to, 672 pages, cloth, illustrated: $4.50 net. William Wood & Company, New York.

CONSERVATIVE GYNECOLOGY AND ELECTRO-THERAPEUTICS. By G. BETTON MASSEY, M.D. 8vo, cloth, 462 pages, illustrated; $4.00 net. F. A. Davis Company, Philadelphia, Pa.

MANUAL OF VOLUMETRIC ANALYSIS. By HENRY W. SCHIMPF, Ph.G., M.D. 8vo, cloth, 725 pages, illustrated. Wiley & Sons, New York.

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FORMULAIRE MAGISTRAL. Par A. et G. BOUCHARDAT. 32mo, 672 pages, cloth; 4 francs. Félix Alcan, Paris, France.

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THE INFLUENCE OF SODIUM BENZOATE ON THE NUTRITION AND HEALTH OF MAN. 8vo; paper; 761 pages. Government Printing Office, Washington, D. C.

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Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending May 8, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	559	183
Diphtheria	339	35
Measles	1,297	36
Scarlet Fever	371	29
Smallpox	..	..
Varicella	188	..
Typhoid Fever	58	4
Whooping Cough	86	5
Cerebrospinal Meningitis	7	6
Malarial Fever	.	..
Totals	2,905	298

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending May 7, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Oakland	Apr. 12–19	2	
Sacramento	Apr. 17–24	1	
Georgia, Macon	Apr. 18–25	5	
Illinois, Danville	Apr. 18–25	12	
Indiana, South Bend	Apr. 18–25	1	
Kansas, Kansas City	Apr. 17–24	3	
Wichita	Apr. 17–24	1	
Kentucky, Covington	Apr. 17–24	1	
Lexington	Apr. 17–24	1	
Newport	Apr. 17–24	1	
Louisiana, New Orleans	Apr. 18–24	5	
Maryland, House of Correction, Bridewell	Mar. 18–Apr. 27	10	
Michigan, Grand Rapids	Apr. 18–24	1	
Saginaw	Apr. 18–24	1	
Minnesota, Duluth	Apr. 15–22	1	
Minneapolis	Apr. 10–24	5	
St. Paul	Feb. 1–Mar. 31	68	
Missouri, Kirksville	Jan. 1–Apr. 17	1	
St. Louis	Apr. 17–24	1	
Montana, Butte	Apr. 13–20	2	
Nebraska, Polk	Mar. 20–Apr. 26	14	
New Jersey, Camden	Apr. 17–24	3	
New York, Little Falls	Apr. 10–24	2	
North Carolina, 19 Counties	Feb. 1–28	20	
Ohio, Cincinnati	Apr. 16–24	10	..
Columbus	Apr. 17–24	2	..
Conneaut	March and April	2	..
South Carolina, Yorkville and vicinity	Apr. 26	8	..
Nashville	Apr. 26	1	..
Texas, San Antonio	Apr. 17–24	1	
Utah, Salt Lake City	Mar. 1–31	62	
Virginia, Botetourt County	Apr. 28	100	
Portsmouth	Apr. 20–27	1	
Washington, Spokane	Apr. 10–17	3	
Tacoma	Mar. 7–Apr. 4	9	..
Wisconsin, La Crosse	Apr. 17–24	1	
Milwaukee	Apr. 17–24	9	
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Mar. 6–13	8	8
SMALLPOX—FOREIGN.			
Algeria, Algeirs	Mar. 1–31		17
Austria, Trieste	Mar. 20–27	1	
Brazil, Rio de Janeiro	Mar. 14–28	42	16
Sao Paulo	Mar. 1 –14		2
Canada, Halifax	Apr. 10–17	1	
China, Amoy	Apr. 13–20.		Present
Hongkong	Mar. 6–20.	5	4
Egypt, Cairo	Mar. 18–25	16	11
Great Britain, Bristol	Mar. 27–Apr. 10	7	1
Cardiff	Mar. 3–10	1	
India, Bombay	Mar. 23–30		31
Calcutta	Mar. 13–20		305
Rangoon	Mar. 13–20		9
Mexico, Guadalajara	Apr. 8–15		4
Monterey	Apr. 11–18		7
Vera Cruz	Apr. 11–18	1	
Russia, Odessa	Mar. 27–Apr. 3	6	
St. Petersburg	Mar. 20–27	11	6
Warsaw	Jan. 30–Feb. 6		2
Spain, Barcelona	Mar. 5–12		3
Huelva	Mar. 1–31		2
Valencia	Apr. 2–9	5	
Turkey, Constantinople	Mar. 28–Apr. 11		1
YELLOW FEVER.			
Barbados	Apr. 10–17	1	1
Brazil, Manaos	Mar. 13–Apr. 3		5
Para	Apr. 3–10	3	3
Mexico, Merida	Feb. 27–Mar. 6	1	
Ticul	Apr. 1–24	2	1
CHOLERA—INSULAR.			
Philippine Islands, Provinces	Mar. 6–13	262	113
CHOLERA—FOREIGN.			
India, Bombay	Mar. 23–30		1
Calcutta	Mar. 13–20		101
Rangoon	Mar. 13–20		3
Russia, general	Mar. 6–20	76	27
PLAGUE.			
Brazil, Rio de Janeiro	Mar. 14–28	2	
Chile, Antofagasta	Apr. 3	11	

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Original Articles.

THE NEUROGENIC AND MYOGENIC THEORIES AND THE MODERN CLASSIFICATION AND INTERPRETATION OF CARDIAC ARRHYTHMIAS.

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NEW YORK.

Introduction.—Irregularities of the heart-beat occur in all sorts of pathological conditions, and have to be dealt with quite frequently in all shades of medical practice. The proper understanding of these irregularities is therefore undoubtedly of importance to every practitioner. Within the last ten years a great change has taken place in the interpretation of these phenomena; students of this subject designate this change a veritable revolution. Keen investigators and leading clinicians throughout the world are now paying a great deal of attention to the study of the cardiac arrhythmias, and the literature on that subject has already assumed large proportions.

How much of this knowledge has reached the minds of the large mass of general practitioners? There are some reasons for the suspicion that in this country as yet not even the upper stratum has been deeply penetrated by the new light. I shall give at least one reason for this suspicion. It is now agreed by all active investigators of the nature of cardiac arrhythmias that extra systoles are responsible for a good many of the irregularities of the heart. Professor Friedrich Müller, of Munich, said two years ago in his Harvey lecture in this city, that more than half of the arrhythmias are due to extra systoles. Now, what is an extra systole? You may turn to many large books on diagnosis and see whether you will find that term in the index. However, I hasten to add that there are quite a number of notable exceptions. Indeed, it will give me great pleasure to point out later some of the important original investigations contributed by bright men of this country to the solution of the problems under discussion.

Your President, in honoring me with the invitation to present a paper before this Society, added that it should deal with a practical problem. In selecting the present subject for discussion in my paper before you, I have complied with the last-mentioned requirement; the problem of irregularity of the heart is, as as I have pointed out before, certainly of great practical importance. However, the very demand for a practical problem prompts me to point out to you before entering upon the details of our theme, the general lessons we may learn in this regard from the progress made in the clinical studies of our subject. The progress made in this field within the last ten years is incomparably greater than the one made in many of the foregoing decades, although there was throughout those decades no lack of great clinicians nor of intense studies of our subject. The success attained in recent years was won by the close application to clinical medicine of facts established by animal physiology. These physiological facts were discovered, however, not in an attempt to find something which has a direct bearing upon human medicine, but in an endeavor from a purely scientific point of view to establish the nature of the origin of the heart beat; in fact, a good many of the physiological facts were brought to light by the struggle for supremacy between the neurogenic and myogenic theories of the origin of the heart beat. Furthermore, most of these studies were not made upon higher animals, standing near the human species, but upon the hearts of lower animals, such as the frog and tortoise.

The progress in medicine was made by men, some of whom never had any experience with animal experimentation, but all of whom absorbed all the details of the facts and theories of the physiology of the heart and with great acumen and truly scientific methods applied them in the studies of the pathological phenomena of the human heart. Among the many important results thus achieved stands out the most satisfactory fact that many of the laws learned from the heart of the frog were found to hold good to their full extent for the human heart. From these experiences the following lessons may be learned. In the first place, we see here a striking instance in which experiences gathered from studies upon lower animals have great, and may have even full value in their application to the knowledge of the processes of human life. The sciences of medicine have to contend with the objections frequently made in certain medical quarters that that which was learned in animal experimentation cannot be applied to human beings, and even some of our modern pathologists speak with contempt of frog physiology. These opinions rest upon an unfamiliarity with the real facts in physiology and medicine.

We learn further that studies which were made with no other purpose than to learn the truth proved to be of great importance in their practical application. A study of any subject with the single purpose of learning the truth about it will reveal more of its intricacies and may be finally of greater practical value, than studies biased by the extraneous motive of their immediate practical application. The apparently abstruse phenomenon of the refractory period of the heart muscle proved to be a boon in the interpretation of some of the irregularities of the heart beat.

Finally we learn that the secret of the clinicians who succeeded in contributing so much to our knowledge of the nature of cardiac arrhythmias consists in their mastery of the details of the theories and facts underlying the newer contribution to the physiology of the heart. The mastery of the theoretical and scientific branches of medicine is a

great practical asset for the investigator as well as for the practitioner of medicine.

I shall now turn to our subject. As I have already indicated, the progress recently made in the knowledge of cardiac arrhythmias was based upon the application of the physiological facts derived from animal experimentation. These again were brought to light to a great extent in the struggle between the neurogenic and myogenic theories of the origin of the heart beat. I shall try at first to present to you in a brief and elementary way the chain of facts and theories which led up to the present phase of our knowledge about human cardiac arrhythmias. In so doing, I shall have to tell you something about the birth, growth, and struggles of the neurogenic and myogenic theories. If it will seem to some of you that I am lingering too long in telling the tales of the battles of theories, I would remind you of my view which I stated before, that theoretical knowledge is a practical asset. It is my aim to convert those of you who may be of another mind.

The Neurogenic and Myogenic Theories.—The neurogenic is the older of the two theories. Neurogenic means the supposition that the heart beats are originated in some part of the nervous system. The heart is a muscle and its function is simply that of contraction. For centuries it was assumed that the rhythmic contractions of the heart were carried on by impulses sent to that muscle from some part of the central nervous system in the same manner as the skeletal muscles are prompted to their sporadic contraction by impulses received through the motor nerves from the brain. This assumption was easily disproved by Haller, the celebrated physiologist of the eighteenth century, by the following experiment: the heart continues to beat for some time after its complete removal from the animal body; the cause of the rhythmic beats must therefore be located in the heart itself. However, the investigations of the nineteenth century gradually brought to light new facts which permitted the resuscitation of the neurogenic theory to new life in a new form. At the beginning of that century, Bichat, who divided the functions of life into animal and vegetative systems, assigned to the sympathetic nervous system the control of the vegetative life. About the middle of the thirties, Ehrenberg discovered the ganglion cells in the brain, which soon gave rise to the assumption that nerve cells are capable of spontaneous activity, that is, of what is now generally termed automatism. The study of reflexes began about the end of that decade, and the study of such functions as respiration and deglutition which are carried on by a complexity of reflexes, led to an assumption that they are managed by centers located in the medulla oblongata, that is, by groups of nerve cells possessing the power of automatically generating coordinate impulses adequate to the corresponding functions. Finally, in 1843, Remak discovered the presence of groups of nerve cells in the sinus of the frog's heart. Here was now the following chain of premises. Peripheral nerve ganglia belong to the sympathetic nervous system, which controls the vegetative functions. The heart belongs to the vegetative system. Nerve ganglia possess the power of automatism. The heart contains such ganglia. On the basis of these premises, Volkmann, in 1844, formulated the theory that the nerve cells of the heart are generating automatically the impulses which cause the rhythmical contractions of the heart, the heart ganglia being in a certain way comparable to the nerve cells of the respiratory center which causes the rhythmical contraction of the respiratory muscles. The new neurogenic theory agreed with the old theory that the heart beats originate in the brain, with the difference that it assumed that the heart carries its brain in its own tissue.

As I have indicated before, the bulk of the experiments on the origin of the heart beat were made on the heart of the frog. There are various potent reasons for it. In the first place the heart of the coldblooded animals is a more convenient object of study, inasumch as it shows a greater independence from the rest of the body, than, for instance, a mammalian heart. The heart of the frog can be removed from the body and kept alive and beating for hours and days under only moderate precautions. Then the various parts of the heart of the frog are more differentiated than the heart of animals. It consists practically of five sections: The mouths of the large veins, the sinus, the auricles, the ventricle and the aortic bulbus. Each of the chambers contracts as a whole, and these contractions follow one another in a peristaltic manner in the above-given order, beginning with the veins and terminating with the bulbus. Finally, the relatively slow propogation of the peristaltic wave makes the frog heart a convenient object for comparatively simple experiments.

One of these simple experiments became a fundamental factor in the discussion of the nature of the origin and conduction of the heart impulse. I refer to the experiment of Stannius. Stannius has not done much work in physiology; but this one simple experiment made his name famous. After all, even some of the fundamental experiments of our time are experiments of Stannius in disguise. For instance, the interesting and instructive experiment of Erlanger, that is, the exposing of the bundle of His to the compression of a vise, is in its inception a modification of the celebrated experiment. The experiment of Stannius consists in putting a tight ligature around some part of the auricle. The result is striking: all above the ligature continues beating in an undisturbed way, and all below the ligature stands still. This simple experiment was the starting point for a good deal of work and discussion. Many celebrated physiologists tried their hand at it, and it caused satisfaction as well as anxiety in the neurogenic camp. At a glance it would seem that it proves the neurogenic theory most beautifully. The rhythmic contractions of the heart are caused by impulses sent out from the nerve cells which Remak discovered in the sinus; a ligature, therefore, which cuts off the impulses from getting to parts under it will cause the stoppage of these parts. Bidder, however, found later that there are some groups of nerve cells also in the groove between the auricle and the ventricle. The question arose, then, what function do these ganglia have and why do they fail to cause the rhythmic beating of the ventricle after the application of the ligature?

I shall, of course, not attempt to try your patience by burdening you with a multitude of facts and arguments, which came to light in the further development of the neurogenic theory or the various modifications which the theory had to undergo from time to time. I shall only say in a general way that the neurogenic theory insists that the heart muscle, like any other muscle, is neither able to generate impulses nor to conduct them. The impulses are generated automatically in nerve cells and are con-

ducted, perhaps through several relay stations, by nerve fibers which finally convey the impulses to the heart muscle in the manner of motor nerves. There are some newer supporters of the theory, who no longer insist upon the exclusive importance of the nerve cell; they simply insist upon the general assumption that the automatic generation of impulses and their conduction is carried on by the nervous tissues and not by the muscle fibers, of whatever form they may be.

During the long domain of the neurogenic theory, very many important, well-settled facts were brought to light, bearing upon the nervous mechanism of the cardiac activity. I shall only mention the discovery of the two kinds of nerves by means of which the heart is connected with the central nervous system: the vagus nerves, stimulation of which inhibits the heart beats, and the accelerator nerves, stimulation of which accelerates and strengthens the heart beats. By means of these nerves the heart is in close continuous telegraphic communication with all parts of the animal body. I may say that even the interesting facts which are now used by the myogenists as their most available methods of study, like the refractory period, the compensatory pause, the all or none law, etc., were all discovered by the adherents of the neurogenic school. I shall add further that during the reign of the neurogenic theory, peripheral nerve ganglia were found in abundance in other organs which are endowed with involuntary movements. The intestines with their involuntary peristaltic movements present such an instance. It is a noteworthy fact which may be mentioned here that through the recent work of Bayliss and Starling and of Magnus it seems quite safely established that the peristaltic movements of the intestines originate indeed in the plexus of Auerbach and not in the unstriated muscle fibers of the intestinal wall.

The neurogenic theory dominated the teachings of physiology for a good many decades. Until very recently it was the theory which text-books, large and small, printed in large type; the professor told it to his students and the clinical writers and teachers found that it explained beautifully all the facts which they gather at the bedside.

We are now confronted with a radical change. The myogenic theory which only recently forged its way to the front won the battle, so it seems, in a short, sharp fight, and it must be admitted by friend and foe that it is already doing excellent work. The credit belongs essentially to two brilliant investigators, Engelmann and Gaskell. It is of psychological interest to note that Engelmann began his scientific career by studying the ciliary movements. Here he was confronted with coordinate rhythmical movements in which nerve elements had no share. At the end of the sixties he studied the peristaltic movements of the ureters. He could find no nerve cells in the walls of these tubes, and he therefore made the muscle fibers responsible for the safe conduction of the peristalic wave. Next he studied intestinal peristalsis and was inclined to ascribe the coordination of these movements to an inherent property of the muscle fibers of the intestinal wall. In these writings he already manifested his positive leaning toward the assumption of a myogenic origin of the cardiac movements. His effective experimental work on the physiology of the heart, however, was done only in the nineties of the past century. The work was so thorough, painstaking, and precise that it made Engelmann the flag bearer of the myogenists. It must be stated, however, that Engelmann's investigations were greatly facilitated by the excellent work of Gaskell, done about a decade before. This brilliant physiologist began work as a pupil of Michael Foster in the neurogenic school. Employing a new method of investigation, the so-called suspension method, and coming across the heart of the tortoise, in which the nerve fibers connecting the sinus with the ventricle run separate from the auricular muscle fibers, Gaskell became converted to the view that automatism and conduction are carried on by the muscle fibers. He soon brought together a number of facts in support of this view and laid the essential foundation of the myogenic theory as it is conceived to-day.

Turning now to the experimental facts which brought about the change in favor of the myogenic theory, we have to distinguish between the localization of the automatic generation and the conduction of the rhythmic impulses. Against the assumption that the generation of the impulses occurs automatically in ganglion cells, the following two objections were brought forward. In the first place, some parts of the heart, like the apex and the aortic bulbus, contain no ganglion cells, nevertheless they can be made to beat rhythmically under certain conditions after they are cut off from the rest of the heart. Also bits of the superior vena cava of the frog which contain no nerve cells continue to beat rhythmically after their isolation from the rest of the vein. Here then are rhythmic contractions of parts which have nothing else but muscle fibers. The second point was brought out by His, Jr., and by His and Romberg, and is a striking fact indeed. It rests upon observations which were made on embryos. In various animals pulsations of the heart appear in the embryo long before there are any ganglia in the tissues of the heart. According to His, the elder, the peripheral sympathetic ganglia do not develop within the corresponding tissues, but wander into it from the cerebrospinal or sympathetic system. In the chick the pulsations of the heart are noticeable in an embryo only 36 hours old, while the ganglia do not reach the heart before the sixth day. It is therefore evident that in the first days of embryonic life the heart rhythm cannot originate in the nerve cells.

That the conduction of the impulses from the sinus to the ventricle is being carried by muscle and not by the nerve fibers, was demonstrated first by Gaskell on the tortoise. As stated before, the nerves in this animal's heart run in a separate, easily accessible trunk. Gaskell found that by cutting the nerves the rhythm of the heart was not disturbed, but cutting away all the muscular connections between sinus and ventricle, while leaving the nerves intact, the ventricle stopped at first and then started off beating with a rhythm different from the one of the sinus. A similar experiment was performed by F. B. Hoffmann on the frog, where the nerves run in two thin bundles in the auricular septum and are hard to reach. These experiments show that in these coldblooded animals the impulse is conducted from the sinus to the ventricle through the muscle fibers, and not through nerves.

There was a question to answer why, if the conduction is carried on by muscle fibers, there is a delay in the progress of the contraction wave in passing from the auricle to the ventricle. The neurogenists explained this retardation by the delay which the impulse suffers while passing through nerve cells. Gaskell has shown that this delay was

due to the narrowness of the muscle bridge connecting the auricle with the ventricle. He has shown that if the bridge was still more narrowed by moderately cutting or compressing the connecting muscles, the delay was still greater, and by further cutting or compressing the connecting tissue one or the other of the impulses would not reach the ventricle at all, so that the beats of the ventricle in relation to those of the auricle would be of a rhythm of one to two or three and so on, until the ventricle would be entirely dissociated from the auricle.

However, the myogenists had still one question to overcome. The theory was applicable to the hearts of coldblooded animals, because there were muscle fibers which connected the ventricle with the auricle. For the mammalian heart, however, the contemporary anatomists were teaching that there were no muscular connections between auricles and ventricles. Now, if the nervous element cannot conduct the impulse, and muscle fibers are not present, how does the impulse reach the ventricle? In this emergency two publications appeared nearly simultaneously by Kent and His, describing a bundle of muscle fibers entering from the right auricle into the septum and branching out into both ventricles. That was in 1893. That bridge of muscle fibers is now known as the bundle of His. Of Kent we shall speak later a little more.

In 1895, a very brief communication appeared from His in which he stated that when the bundle was cut in living mammals, the ventricles were beating in a tempo different from that of the auricles. Very little attention was paid at that time to these remarkable anatomical and physiological data. About ten years later, however, the medical world was stirred up by various occurrences, and henceforth we find a number of investigators busying themselves intensely with anatomical and physiological studies of the nature and significance of the bridge connecting the auricles and ventricles in mammals. These studies mark a definite progress in our knowledge of the subject. Of the anatomical data which came to light we shall bring out in the first place the following point. According to the statements of Kent the fibers of the atrioventricular bridge differ perceptibly in structure from the other muscle fibers of the heart and are embryonic in character. His, however, stated expressly that on these points he completely disagreed with Kent. Of recent workers, Retzer as well as Braeunig agreed with His that the fibers of the bundle of His show no structural differences from those of the other muscle fibers of the heart. Tawara, however, who has done the most thorough and exhaustive work on the anatomy and histology of the atrioventricular bundle, on the contrary, agrees with Kent that there is a definite structural difference, and that these fibers are indeed to a degree embryonic in character. According to Tawara, some of these fibers are identical with the long-known fibers of Purkinje, which are thus present not only in the sheep's heart, where Purkinje observed them, but also in the heart of man and of other mammals. Furthermore, in the auricular section of the bundle, Tawara distinguishes from the rest of the fibers a complicated, net-like mass, which is now known as Tawara's Knoten, or the atrioventricular node. It plays already a distinct rôle in medicine. An additional interesting and important anatomical fact is the recent finding by Keith and Flack in human hearts of a small net-like mass of tissue similar in character to Tawara's Knoten at the junction of the superior vena cava and the auricle. Myogenists are inclined to look upon this node of Keith as the seat where the first impulses are automatically originated. The findings of Keith were very recently confirmed by Koch from Aschoff's laboratory where Tawara's work also was done. The original simple bundle of His appears now in the form of a quite complicated system, and, surely, the last word is not yet said on that subject.

One word more about the nerves. According to Retzer, the bundle of His contains no nerve fibers, a statement which brought joy to the myogenic camp. However, Tawara as well as Keith and Flack are emphatic in their statements that their nodes contain nerve fibers as well as nerve cells.

Of practical importance is the further fact that each of these nodes contains special arteries. Pathologists and clinicians are already at work to connect special forms of arrhythmias with a sclerosis of these special arteries.

From the physiological work we have to mention the experiments of Humblet and especially of H. E. Hering, who succeeded in cutting the bundle of His in the excised mammalian hearts which were kept alive according to the present new methods by perfusion with a Ringer solution. The heart beats presented then a complete block, as the term now goes, that is, ventricles and auricles were beating in different rhythms. Of four hearts thus experimented upon by Hering there was a complete block in three, while in one there was no success. The hearts were examined by Tawara who found that in the three successful hearts the bundle was cut, while in the one failure the bundle was not cut.

Experiments of great interest were performed by Professor Erlanger,[1] then at the Johns Hopkins Medical School. By a specially devised clamp he succeeded in compressing the atrioventricular bundle of the hearts of living dogs—of course, under deep anesthesia—exactly in the same manner as Gaskell did on the hearts of coldblooded animals, and with exactly the same results. Moderate compression caused a slowing of the transmission of the wave of contraction from the auricle to the ventricle. Stronger compression changed the normal rhythm to two, three or four beats of the auricles to one of the ventricles. Still stronger compression led up to a complete block. While the auricles continued to beat in their former rhythm, the ventricles stood still for a while, then they gradually commenced to beat in a rhythm entirely of their own.

Besides their theoretical value these experiments, as we shall see later, are of great practical importance, inasmuch as they throw light on the nature of some of the pathological cardiac arrhythmias in human beings.

Here I wish to say again a word on the work of Stanley Kent. Everybody now knows His and his bundle, but very few know of the share which Kent had in the detection of that bundle. Kent's publication on the bundle appeared at least simultaneously with that of His. Furthermore, Kent was apparently more correct than His in the description of the structure of these fibers, and in his important reference to their embryonic character. Now, in studying original articles, I discovered that Kent also performed the experiments of Erlanger apparently by the *same method and with the same success.* They are mentioned in Kent's article which was published fifteen years ago.[2] He says there that by using a suitably constructed clamp he was able to

verify for the mammal all the effects described by Gaskell for the frog. This is exactly what Erlanger has done. I do not know who and where Kent is, I do not even know whether he is alive. But I want to do justice to his work. In the anatomy and physiology of the conducting system of muscle fibres of the mammalian heart Stanley Kent was ahead of his time. But fate deprived him of the credit and fame due to him. Now permit me to add, impressively, that these remarks should not be interpreted as containing a shadow of reflection upon the work of Erlanger. Any one who knows this investigator will not doubt for a moment that he was not familiar with the brief, hidden-away statement of Kent. If he had known it, he would have been the first one to state it. The plans of experimentation were entirely original with Erlanger, and we all know how they came about. It was while he was carrying on his splendid studies of the case of Stokes-Adams disease given to him by Osler,[8] that he planned and executed his now celebrated experiments on the mammalian heart.

Now, let us return to our main issue.

The followers of the myogenic camp, to which now the great majority of physiologists all over the world seem to belong, believe to be now in possession of sufficient facts to warrant the following conclusions.

It seems to them established that neither the origination of the impulses for the rhythmic contractions of the heart, nor the conduction of these impulses to any part of the heart have anything to do with nerve cells or nerve fibers. The conception of the myogenic theory is that the automatic generation of the impulses as well as their conduction are carried on by muscle fibers. At an early embryonic stage the heart appears as a simple tube, the walls of which are composed of muscle fibers which differ structurally from the muscle fibers of the adult heart and which are endowed with the property of automatic rhythmic contractions. In the course of the further development this tube is converted into the divided chambers of the adult heart and the muscle fibers assume another structure. However, some small part of the original embryonic tissue is preserved. This tissue is the sinoventricular system of conducting fibers, or the bundle of His with the nodes of Tawara and Keith. In normal conditions the stimulus is originated automatically at the mouth of upper veins, perhaps in the node of Keith, from where it is transmitted through the persistent embryonic fibers first to the sinus, then to the auricles and from there to the ventricles. The spreading of the impulses in each section takes place very rapidly; the passing, however, from one section to the next occurs more slowly on account of the narrowness of the connecting bridge and on account of the embryonic character of the connecting fibers. The experiments made it evident that each section of the heart is capable of independent automatism which normally, however, is kept in abeyance by the impulses coming from the first station. The independent automatic mechanism of each chamber, however, make their appearance as soon as the conducting path from the primary station is blocked by some cause or other.

I am not sure that the physiologists of the myogenic camp have already made up their minds what to do with the nodes of Keith and Tawara. The clinicians of that camp, at least some of them, however, seem to be sure that the nodes are the seat of automatism. If this be the case, the myogenic theory would, so it seems to me, lose an essential feature of its original aspect and would have one essential point rather in common with the neurogenic theory. If the automatic generation of the impulse be restricted to the nodes and their conduction confined to the embryonic fibers of the conducting system, then the main muscle fibers of the adult would occupy the same position assigned to them by the neurogenic theory, namely, to contract at the behest of a power localized outside of themselves. The difference between the two theories would be that in one case the power is entrusted to the nerve cells and nerve fibers, and in the other case to the residuary embryonic nodes and fibers residing within the adult heart. I wonder whether this view will satisfy the original founders of the myogenic theory.

The myogenic theory so far has had all its own way. However, I have to record one discord in this harmony. In investigations carried on during the last few years in this country by Professor Carlson of the University of Chicago, important facts came to light which are decidedly inimical to the myogenic theory, at least in its universal application. In the course of his studies in Woods Hole, Carlson[9] discovered positive evidence that in Limulus, the horseshoe crab, the conduction of the stimulus for the movements of the heart is carried on by nervous elements and not by muscle tissue. The heart of Limulus, which is nearly half a foot long, consists of various segments; they are connected by a thick nerve cord which runs the entire length of the heart on the dorsal surface, and by two lateral nerves. Carlson established the facts that complete transverse section of the heart at any place, while leaving the nerves intact, does not interrupt the movement in any parts of the heart. On the other hand, leaving the heart intact and cutting the nerves, abolishes the movements in the part of the heart distal to the place of section. Here the automatic generation of the impulses as well as their conduction to the various segments are undoubtedly carried on by the nervous elements and not by the muscles, in other words, are of neurogenic origin. Furthermore, Carlson found in the embryo of that animal that here, too, as in many vertebrate animals, the heart pulsates before there are any nervous elements within its tissue. Nevertheless the nerve cells and nerve ganglia, after they reach the heart, assume the entire control of the heart beat.

This last observation shows at the same time that the fact of the heart of the embryo beating at a certain stage before there are any nerve ganglia cannot be taken as a final proof that the nerve cells in the adult heart cannot have a share in the management of its affairs. Considering that just this observation of His and Romberg in the vertebrate heart has been the main support of the myogenic theory; considering further that the other supporting fact, namely, the presence in the heart of parts which have no ganglia and which are nevertheless capable of rhythmical pulsations is not convincing either, since with the newer histological methods nerve cells and nerve fibers were found in all these tissues; remembering also that according to Tawara and Keith the nodes as well as the bundle contain nerve cells and nerve fibers; considering all this and a good many more points, one cannot help feeling that the myogenists have not as yet completely proven their case.

There is still another side of the myogenic theory in its newest aspect which should invite some re-

flection. In medicine we are accustomed to think that embryonic residues are pregnant with pathological possibilities and that the adult organism is much safer without such ontogenetic legacies. The myogenic theory teaches us that our very life depends upon them. I wonder whether a day will come when some pathologist would advance the theory that all the cardiac troubles come from this bundle of His. The fibres being embryonic, might degenerate more readily, so it could be claimed, and thus bring disaster to the physiological elements which are imbedded in them and upon which the heart's normal action depends exclusively.

However, I am not standing here before you as a warrior taking sides with one of the camps. I consider my function to-night simply as that of a war correspondent, telling the news from the battlefield. And here I can truly report that the myogenists have won the day, the majority of the physiological and medical investigators are converted to their views. I can also say that the theory amply justifies its existence by its productivity. Fruitfulness is the only criterion and the only requirement of an efficient theory. The myogenic theory recently exerted a wholesome influence upon medical investigation. As long as it is capable of being productive and useful, it will continue to reign and hold the stage.

I have stated before that the credit for developing and establishing the myogenic theory belongs essentially to two men: Engelmann and Gaskell. I may add now that even the spreading of this teaching among clinical men can be traced to a degree to the influence of these physiologists. Perhaps I may say a few words about it.

Engelmann has pursued his experiments on the heart, as stated before, in the nineties of the last century. He was then professor of physiology in Amsterdam and made his communications to the medical societies and academies in Holland, and published them in the biological and medical journals of that country. The first important clinical paper based exclusively on the results of Engelmann's studies was published in 1898 by Wenckebach, who is professor of medicine in Groningen. In 1903, Wenckebach published his well-known book on the arrhythmias, which is based entirely on the myogenic theory. Towards the end of the nineties, Engelmann was called to the chair of physiology in Berlin. Soon after, we find the senior leader of medicine in Berlin, my old teacher, Von Leyden, delivering an address on the myogenic theory and its importance to medicine. The occupant of the second chair of medicine, the brilliant Kraus, we find devoting all his energies to the application of the newer results in cardiac physiology to the clinic. Due probably to the influence of the above-mentioned celebrated trio, His was called to the vacant chair of medicine in Berlin, the very same His, the father of the bundle. No wonder that all Berlin, and with it all medical Germany, is converted to the myogenic theory. Engelmann's connected presentation of the entire problem in the Deutsche Klinik was probably another potent factor for the success of the theory in Germany.

One of the foremost leaders in the new branch of medicine is James Mackenzie. In his articles in journals, in his book on the pulse, and especially in his recent book on the heart, he proves himself to be a most enthusiastic, orthodox adherent of the myogenic theory. These views he had an opportunity to imbibe by his close association with the English physiologists, among whom the myogenic theory found warm adherents many years ago—thanks to the teachings of Gaskell.

Next to Wenckebach and Mackenzie, H. E. Hering has to be mentioned as one of the most active investigators in the new line of pathological research. It is perhaps not an accident that his activity in this line developed after he spent some time in England with the leading physiologists of that country. However, Hering's present allegiance to the myogenic theory is quite doubtful again.

The Cardiac Arrhythmias.—We shall now turn our attention to the pathological side of our problem, to the arrhythmias. Irregularity of the heart, or rather of the pulse, has been a favorite subject of study of clinicians who especially cultivated the functional side in pathology; men like Traube, Riegel, Potain, Kussmaul and others. Many observations have been collected. We thus find in the medical literature a good number of terms purporting to designate the various types of pathological pulses. To mention only a few and at random: The pulses bigeminus, trigeminus, intermittens, deficiens, alternans, paradoxus, bisferiens, interceditens. Each of these designations describes at best only the simple phenomenon of the irregularity. The newer investigations are directed to the study of the nature and origin of the cardiac arrhythmias underlying the various irregularities of the pulse. These studies led to an attempt of a new and perhaps simple classification of all the arrhythmias. The modern interpretation of the various phenomena of cardiac irregularity, which, it must be said, is far from being simple, is based upon the newer knowledge gained in the researches upon the physiology of the cardiac rhythm and is attained essentially by the analysis of grahpic records obtained from various parts of the circulatory system.

In the following I shall attempt to outline in the briefest possible way in the first place the few facts in physiology, the knowledge of which is indispensable for the understanding of the modern interpretation of the arrhythmias; I shall then discuss very briefly the methods employed in studying the human arrhythmias. Finally I shall discuss the classification and interpretation of the arrhythmias as they are advocated at present by the leaders in this new field of clinical research.

A Few Physiological Facts.—I have already mentioned before the term extra-systole. Most of the results achieved by Engelmann in his classical studies upon the heart of the frog were obtained by the extra-systole method. The meaning of extra-systole is simple. When a regularly beating heart is stimulated by a single short stimulus, that heart responds by a single contraction, a systole. By this method a number of pecularities, they are called laws, were found, peculiarities of the intrinsic nervous system, say the neurogenists, of the heart muscle, say the myogenists, or of the embryonic system within the adult heart, say the latest myogenists. But we shall now leave the theories completely out of consideration. The most important peculiarity is the so-called *refractory period.* It was first observed and described by Kronecker, it was later systematically studied by Marey and was finally worked out in many details by Engelmann. Refractory period means this: When the heart contracts normally, or by an extra-systole, it loses for the time being the ability to respond with a contraction to a stimulus. The heart returns to the normal state only gradually, beginning at first to

respond only to a strong stimulus and that only after a long latent period.

In connection with the refractory period there is another peculiarity of the heart of interest; it is the phenomenon known as the *compensatory pause*. The pause following an extra-systole is longer than a normal diastolic pause, it is longer by so much as to make up the loss of the preceding diastole. For instance, if an extra-systole occurs just at the middle of a diastole, the length of the compensatory pause is then equal to a normal diastole and a half.

With these two phenomena is connected a third one, the so-called *post-compensatory systole*. The first systole after an extra-systole and a compensatory pause is larger than a normal systole. I shall not enter into any discussion of the nature and cause of these phenomena, we have neither time nor space for that, but the facts themselves ought to be clearly remembered by every practitioner, as their knowledge is indispensable in interpreting practical phenomena.

Extra-systoles can be produced at the ventricle, at the auricle, and at the sinus. When an extra-systole is produced at the sinus, this systole is not followed up by a compensatory pause, the length of the following pause is only that of a normal diastole. Neither is there the characteristic compensatory pause when the extra-systole is produced in the auricle. However, here the following pause is slightly longer than a normal diastole. I shall repeat that the compensatory pause is characterized by this formula: compensatory pause plus the diastole preceding the extra-systole = 2 normal diastoles. The knowledge of the above details helps localize the cause of an arrhythmia due to an extra systole. I shall say here that according to Mackenzie, in human beings an extra-systole has its origin in the bundle of His, either in the part located in the ventricle or in the part located in the auricle, or it is located in Tawara's node. The allorrhythmia which is caused by extra-systoles which have their origin in Tawara's node is called by Mackenzie nodal rhythm.

Two other peculiarities of the heart muscle I have to mention. Both were established by Bowditch and by Kronecker. One peculiarity is the so-called All or None Law, and it means this: while, when a skeletal muscle is stimulated, the contractions with which it reacts are proportionate with the stimulus, that is, a weak stimulus causes a weak and a strong stimulus a strong contraction, the heart has only one kind of a response to all degrees of stimulation. A stimulus which is just strong enough to cause a contraction will cause the strongest contraction which this heart can make under the given conditions; stronger stimulation will not cause a stronger contraction. The conditions, of course, will influence the strength of response. The degree of vitality, nutrition, temperature, etc., will influence the degree of contraction.

The other peculiarity is the absence of tetanus. A skeletal muscle will respond with a tetanus, that is, with a continuous contraction, to a continuous rapid stimulation. The heart, at least that of vertebrates, responds only with a single contraction, and a continuous stimulation will cause only a series of discrete contractions. This depends probably upon the refractory period; each contraction prevents the further effect of the stimulation until the refractory period is worn off. It should be added, however, that a continuous stimulation is capable of affecting the tonus, that is under continuous stimulation the relaxation of the heart during the diastole becomes less and less complete.

The investigations of Gaskell and Engelmann brought into prominence the necessity while considering the heart's action to distinguish the following various properties:

1. The rhythmicity, that is, the capability of the heart to generate automatically rhythmic impulses.

2. The conductivity, *i. e.* the ability to conduct a given impulse from one place in the heart to another.

3. Excitability or irritability, *i. e.* the ability to receive or respond to an adequate stimulus; it is this property which determines the threshold of a stimulus, so that a heart which possesses more of that property, or in other words, is more irritable, is more ready to respond to weaker stimuli.

4. The contractility, *i. e.* the ability to react to more favorable conditions with stronger contractions.

5. The tonicity, that is, the degree of contraction which the heart possesses during the diastole.

It is a question whether the last-named property is not simply a product of irritability and excitability. The distinction of the other properties is a necessity and their knowledge is of practical importance. It is a question whether the different properties run parallel and are present in all parts of the heart. The question is an intricate one and the details are not settled; I shall therefore not enter into a discussion of them.

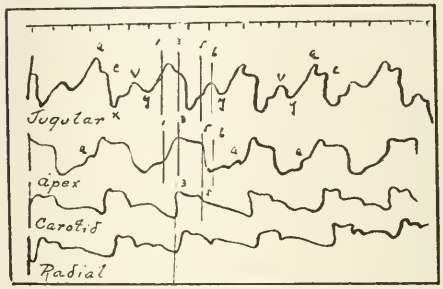
With reference to these properties as well as for other reasons the relation of the vagus and accelerator nerves to the heart have to be discussed briefly. It is generally agreed upon that the vagus terminates within the heart in nerve ganglia which are connected with the muscle fibers by means of postganglionic nerve fibers. The nerve fibers of the accelerators, however, terminate directly in the muscle fibers. There is no doubt that the accelerator fibers act upon the auricles as well as the ventricles, even when a heart block is present. The vagus fibers act undoubtedly upon the auricles; their relations to the ventricles, however, are not very transparent, and opinions differ with regard to several points.

With regard to the action of these nerves upon the heart again the above-mentioned properties have to be distinguished. The vagus fibers inhibit or decrease and the accelerator fibers increase: the rate of beats, the conductivity, the irritability and contractility. Engelmann introduced here a new nomenclature, and since it is now often in use even in the clinical literature, I shall record it here. The nerve fibers which influence the rate Engelmann calls chronotropic, those which influence the conductivity he calls dromotropic; those which influence the irritability he calls bathmotropic, and those which influence the contractility he calls inotropic. Engelmann assumes that each quality is attended by a special set of nerve fibers. I believe that in this regard Engelmann stands alone in his opinion.

There are, of course, many more physiological facts which are employed and will be employed in the elucidation of clinical phenomena. However, the few data given above are most frequently employed by the present clinical investigators, and will afford sufficient aid to those who wish to follow intelligently the current literature on that subject.

Methods.—From the foregoing statements it is evident that for the study of the rhythm of the heart, the knowledge of the contractions of the auricles is as important as that of the contractions of

the ventricles. Formerly the arterial pulse was the sole guide for a recognition of the rhythmic activity of the heart. Aside from the fact that it gave no hint as to the condition of the auricles, it gave no information even of the left ventricle when its contractions were not capable of sufficiently influencing the distant arteries so as to produce a palpable pulse. In this regard auscultation has given better results, as at least the ventricular contractions never escape its notice. But the heart sounds or murmurs mark only the beginning and the end of the contraction of the ventricles; of what happens during this time in the auricles and of what happens in all parts of the heart during diastole, auscultation gave very little information. Great hopes were entertained when sphygmography was introduced, the objective and lasting record was expected to divulge a lot of the heart's secrets. But nearly as great as the expectation was the disappointment. Too much was expected of it; the sphygmogram can tell only what the left ventricle does during the last part of its contraction. The history repeated itself when the cardiograph was introduced, and it was in so far even worse as there was a great diversity of opinion regarding the interpretation of the elevations and notches on the curve. In our time a great deal of activity has been displayed to obtain as much objective information as possible regarding the condition of all chambers of the heart during the entire heart cycle. And now the sphygmogram occupies a prominent position on account of the safe landmark which it contains. The chief wave indicates positively the opening of the aortic valves. The cardiogram again indicates the entire time of the contraction of the left ventricle. Furthermore, it was found that the cardiogram contains also a mark which indicates the beginning of the normal auricular contraction. Besides the proper utilization of the old methods, new methods were developed. Tracings of the jugular pulse tell the entire story of the right auricle. Liver tracings tell the same story and a part of the story of the right ventricle. Minkowsky, on the basis of my statements, made 26 years ago, introduced the method of obtaining tracings from the oesophagus which should tell all about the pulsations of the left auricle. Einthoven, after inventing a very sensitive galvanometer, introduced the method of obtaining photographic records from the electrical changes which take place during auricular and ventricular contractions. The few experts who have employed it speak well of it. However, neither this method nor the obtaining of curves from the oesophagus are for the present of any great practical value. The method which is in vogue now is the obtaining of a phlebogram from the jugular vein simultaneously either with a sphygmogram or a cardiogram. Either of the last-named graphic records has a definite landmark, indicating the opening of the aortic valves. It corresponds to the peak of the first, main elevation in either of these records. In writing the phlebogram exactly above one of these two records a perpendicular line will indicate the exact location of the time of the opening of the aortic valves upon the tracing from the jugular vein. In the normal tracing it corresponds with the elevation which is designated as wave "C." These means of identification are very important, as the waves upon the jugular tracing are sometimes far from being characteristic. When using the sphygmogram from the radial artery for identification, 1/10th of a second has to be added, that is, the time which takes the pulse to travel from the aorta to the wrist. It can not be my purpose to attempt here to describe in detail the procedures employed in these methods. My aim is to present briefly the principles of these methods. I shall, however, reproduce here normal tracings for the purpose of elucidating the terms employed in the analysis of these curves.



The first tracing from above represents a normal jugular phlebogram, or, as Mackenzie calls it, the auricular form of the jugular pulse. Wave "a" indicates the ventricular diastole. Wave "v" is normally produced by various causes. The drop from "v" to "y" is a distinct landmark, it is caused by the opening of the tricuspid valves. These designations were introduced by Mackenzie and were accepted by Wenckebach and other leading students of the subject. There are some controversies as to the mechanism by which the various waves are produced. For instance, Mackenzie believes that wave "c" is simply transmitted from the underlying carotid artery, while Morrow and others believe that it is produced by a positive venous wave. Wave "v" is the most disputed one, and some writers have other designations for it. We shall, of course, not enter into any discussion of these controversies. It is sufficient to know that there is practically no difference of opinion regarding certain landmarks, namely, that wave "a" marks the auricular systole, wave "c" marks the ventricular systole and slope "v-y" marks the opening of the tricuspid valve.

The normal venous pulse which is reproduced here is also designated as the *auricular* form of the venous pulse. This distinguishes it from the *ventricular* form of the venous pulse which occurs in certain pathological conditions to be mentioned later. It is characterized mainly by the absence of the "a" wave and by the presence of a high "c" or "v" wave.

The other three curves represent a cardiogram and sphygmograms from the carotid and radial arteries. There is nothing new about them, except that the slight wave marked "a" preceding the systolic elevation on the cardiogram is interpreted as indicating the auricular systole.

In pathological conditions which lead to various arrhythmias there are various changes which manifest themselves in the jugular pulse. There are changes in the number of waves and their character, and there are also changes in the length of the intervals between the individual waves, especially in the length of the "a-c." There are also changes in the relations between the phlebogram and the sphygmogram or cardiogram. The careful analysis of all these changes is the method chiefly employed in arriving at a diagnosis as to the nature and lo-

cation of the cause of each individual cardiac irregularity.

Types of Cardiac Arrhythmias and their Interpretation.—The irregularities of the heart are at present generally divided into the following five types:

The respiratory type; the irregularities caused by extra-systoles; the irregularities due to a disturbance in the conducting system; the pulsus alternans and the perpetual irregular heart. This classification was introduced by Hering, who employs the following terminology: Pulsus respiratorius, pulsus extrasystolicus, pulsus transmissorius, pulsus alternans and pulsus irregularis perpetuus. The classification as well as the nomenclature were made by Hering, independent of and without regard for any theory. Mackenzie, on the contrary, strives to employ terms which should express his theoretical views. The ryhthm of the perpetual irregular heart he terms: *nodal rhythm* and the respiratory type, Mackenzie classifies as sinus irregularities.

Pulsus Respiratorius.—The least pathological of the irregularities are those which are presented by the respiratory type. The rate of the beats of the heart vary normally with the respiration, the beats being accelerated with the inspiration and retarded with the expiration. In some cases this difference is greatly exaggerated, and during inspiration, when the pulse becomes rapid and small, it seems sometimes completely to disappear under the finger. Under these circumstances this irregularity gives the impression sometimes of a real pathological arrhythmia. It occurs during convalescence after infectious diseases which, in combination with the bradycardia which often appears at this stage, causes grave suspicion as to the condition of the heart. It occurs also in neurasthenia and in certain cerebral diseases. The phenomenon is met with more frequently in children. Mackenzie designated it previously as an infantile type.

In some cases the heart is abnormally slowed like in meningitis or convalescence. In these arrhythmias the relations of the auricles to the ventricles remain unaltered. The change affects the origin of the rythm; hence the term sinus irregularities of Mackenzie. The increase or decrease of rate is accomplished essentially by shortening or lengthening the diastolic phase of the cardiac cycle. These irregularities have their origin in decreased or increased irritability of the vagus center in the medulla. An injection of atropine abolishes this arrhythmia. The nature of this arrhythmia is easily recognizable. Forced respiration increases the irregularity and holding the breath for a while abolishes it. This type of arrhythmia should offer no difficulty in diagnosis and cause no concern regarding prognosis.

Pulsus Extrasystolicus.—The irregularities caused by extra-systole present an interesting and practically important type. The experts on our subject claim that extra-systole is the cause of the majority of all cases of cardiac arrhythmias. It is now generally agreed upon that the various irregularities which were formerly known under the terms of pulsus bigeminus, trigeminus, quadrigeminus, bigeminus continuous, or premature, abortive or "frustrane" heartbeats, are caused by extra-systoles. It is only ten years since the idea was grasped that extra-systoles may occur also in human hearts, and that it may be the cause of some of the cardiac arrhythmias. The first intimation of this thought was given by Wenckebach in 1898. It gives me pleasure, however, to state that at about the same time with Wenckebach, and surely entirely independently of him, the occurrence of extra-systoles in men, with illustrative cases, was described in this country by Professor Cushny, then at Ann Arbor and now at the University College, London. A few years before, Cushny (with S. P. Matthews) demonstrated the production of extra-systoles in the mammalian heart. I have stated above how extra-systoles are produced in the experiments on hearts of animals. We are as yet in the dark as to the nature of the stimulus which causes the extra-systoles in men, but there is no doubt that they do occur, and occur very frequently. It is now established that they can take place either in the ventricle, or in the auricle, or in the junction between the auricle and ventricle. Some describe cases in which the extra-systoles took place at the junction between the veins and the auricles—sinoauricular junction, as it is called. Mackenzie assumes that the extra-systoles take place in the various parts of the system of the left-over embryonic tissue; that is, that it takes place either in the ventricular, or in the auricular part of the bundle of His, or in the node of Tawara, and also in that of Keith. Interesting methods of diagnosis are worked out for the localization of the production of the extra-systole in each case. It will be impossible to enter here to any extent upon the intricacies of this subject. I wish, however, to remind you of that which I stated above regarding the refractory period and compensatory pause. In the human heart also refractory periods and compensatory pauses follow extra-systoles. When an extra-systole occurs in the ventricle, the next normal impulse which comes in regular order from the auricle fails to cause a contraction of the ventricle on account of the refractory period which follows the extra-systole. The diastole which now follows the extra-systole has the length of a compensatory pause. You remember the formula I have given above for the characterization of the compensatory pause; it was this: The sum of the two diastoles before and after a ventricular extra-systole = two normal diastoles. This formula helps to diagnosticate the location of an extra-systole in the ventricle, since extra-systoles which occur in any other parts of the heart are not followed by the characteristic compensatory pauses.

When, in consequence of an extra systole, auricle and ventricle contract simultaneously, which occurs mostly when the extra-systole is located in the atrio-ventricular area, the simultaneous contraction of both chambers often causes a visible pulsation of the veins in the neck, and on the tracing from the jugular vein there is no "a" wave, and the "c" wave appears as one large elevation. This curve represents, as stated above, the ventricular form of the venous pulse.

Leaving the question of localization out of consideration, it may be stated that the occurrence of an extra-systole presents no diagnostic difficulties. It is usually recognized by a premature beat in the radial pulse which is followed by a long pause. If the palpitating finger misses the second pulse on account of its small size, auscultation will reveal the heart sounds belonging to the extra-systole. In many cases the first sound belonging to the extra-systole is characteristically loud. Of special interest are frequently the subjective sensations of the patients. Some patients are conscious of a transient fluttering, some feel that the heart has stopped, others again are shocked by a big heartbeat, which

means that some feel the occurrence of the extra-systole, some become aware of the compensatory pause, and others again are especially affected by the strong post-compensatory systole. In neurotic persons the shock is followed by great exhaustion.

Extra systoles occur frequently in hysterical or neurasthenic persons; but they occur also in patients with suspected myocardial disease, in elderly arteriosclerotics, occasionally in obese persons and in patients exhausted from a febrile infectious disease. Excess of coffee or tobacco hastens the appearance of extra systoles, especially in nervous, neurasthenic individuals. The presence of the above described subjective symptoms speaks for the nervous origin of the extra systoles in those patients. Some deny that extra systoles can be caused directly by nervous stimulation. But the assumption that nervous individuals are prone to manifest extrasystolic arrhythmias does not include the claim that these systoles were produced by stimulation of nerves. The occurrence of extra-systoles is connected with an increased irritability of the cardiac tissues, so that subminimal stimuli become effective. In the course of infectious diseases or in the degenerative processes of the heart chemical substances may develop which increase the irritability of the heart tissue; in localized degeneratiions the irritability of the tissue may be correspondingly localized also. Coffee, tobacco, and other drugs may increase the irritability. So is the irritability increased also in certain hysterical or neurasthenic individuals; and again, either the irritability of all the tissues or only of certain tissues is increased. The stimuli which produce the extra-systoles may be frequently present, but only in such small degrees that they usually remain subminimal and hence ineffective. When the irritability of the heart is by some cause or another increased, the stimuli suddenly become effective. The nature of the stimuli may in some cases be of a purely mechanical kind. Mechanical stimuli are very effective in stimulations of hearts of animals.

The foregoing analysis is well illustrated by the following observation. In a neurasthenic patient with extremely sharpened senses and irritable tissues, who suffered greatly from the subjective symptoms accompanying the extra-systoles, these attacks would often come on when the stomach was filled with food or with gases. When the patient was in an irritable state, the supine position would bring on attacks of extra-systoles; "she would feel how her heart was touching the spine." In both instances it was a mechanical stimulus which affected the irritable heart. Around the time of the menstrual period the attacks would be more frequent and more distressing. With the onset of the menopause, however, the attacks became reduced by at least 80 per cent.

According to the above presented conception, it is not so much the production of new stimuli as the increased irritability of the heart which is responsible for the occurrence of extra-systoles.

Pulsus Transmissorius.—The arrhythmias which have their origin in disturbed conductivity are by far less frequent than the foregoing types of arrhythmias. The various forms of disturbances follow pretty closely the disturbances seen in the experiments by Gaskell on the frog and tortoise and by Erlanger on dogs. Moderate disturbances cause only a retardation of the passage of the impulses from the auricles to the ventricles which may lead to an occasional dropping of a beat. Stronger disturbances lead to a greater disproportion between the beats of the auricle and those of the ventricle, so that two, three or four beats of the auricle would be followed by only one beat of the ventricle. Still greater disturbances of the conducting mechanism may lead to a complete dissociation of the ventricles from the auricles, the ventricle continuing in a rhythm of its own. The disturbance in the conducting system may be caused by organic lesions; however, in moderate manifestations of the disturbances these may be caused by effects of the vagus upon the conducting fibers and also, as some claim, by digitalis. Cases of moderate disturbances of the conduction occur in convalescence from infectious disease, especially from articular rheumatism.

Great interest has recently been aroused by the cases of Stokes-Adams disease, in which at the autopsy in some cases organic lesions were found at the bundle of His. Such patients suffer during life from bradycardia or rather from slow pulse, because only the ventricle then beats very slowly, the auricles beating twice or three times as fast. These patients are subject to epileptoid attacks during which time the heart may stand still for a minute or two. The most plausible explanation is apparently this. In the intervals the patients are suffering from partial block, hence the slow pulse, and the disproportion between the auricular and ventricular beats. At the time of an attack the block for some reason or another becomes temporarily complete, the ventricle then stands still for a while. The attack passes off either through the ventricle starting to beat with its own rhythm or the cause for the complete block has disappeared again. The literature on Stokes-Adams disease—some now add Morgagni's name to it—is pretty large now, and I shall not dwell further on this subject.

I shall add that from our present knowledge of the anatomy of the conducting system it is evident that a disturbance of conduction might take place also between the node of Keith and the bundle of His or the node of Tawara.

For a diagnosis of disturbance of conduction tracings from the auricle and apex ought to be obtained. Cases of very slow pulse should suggest strongly the presence of an incomplete heart block.

Pulsus Alternans.—Pulsus alternans is not a new type; it was described by Traube in 1872. The only new thing about it is, perhaps, that it is not a pulse but a heart alternans. It is not a disturbance of rate, but of the size; a strong beat alternates with a weak one. It is due to a disturbance in the contractility of the heart muscle, it is inotropic in Engelmann's terminology. It seems it can be produced by large doses of digitalis. The alternans indicates weakness of the heart muscle and presents a grave form of arrhythmia.

Pulsus Irregularis Perpetuus.—The perpetual irregularity presents also a grave type of arrhythmia. According to Mackenzie this type is characterized by the completeness of the irregularity and its permanency, by the disappearance of the presystolic murmur which was previously present, by the disappearance of the small auricular wave from the cardiogram and by the change of the venous pulse from the auricular to the ventricular form, that is, the "a" wave disappears and instead a large wave appears. Mackenzie assumes that in these cases a break occurred between Keith's and Tawara's nodes, with the result that the atrio-ventricular node (Aschoff-Tawara) assumes now the regular function of the rhythm production, hence

the term nodal rhythm. As a consequence of this new arrangement the auricle contracts, so Mackenzie assumes further, simultaneously with the ventricle. Other writers believe that the auricle is paralyzed in these cases, a view which was previously entertained, in fact, originated by Mackenzie himself.

This type of arrhythmia occurs in cases of advanced stenosis (and insufficiency) of the mitral and tricuspid valves, and also in advanced cases of cardiosclerosis.

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INFANT MORTALITY.

COMPARISON OF THE PAST AND PRESENT.

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O fairest flower, no sooner blown but blasted,
* * * * * * * *
But oh, why didst thou not stay here below
To bless us with thy heaven-loved innocence?
To slake his wrath whom sin had made our foe,
To turn swift-rushing black Perdition hence,
Or drive away the slaughtering Pestilence?
—*Milton*, 1625.

Foreword.—A babe in the household is a well-spring of joy, notwithstanding that the greatest of poets speaks of one as a "muling, puling infant." The birth of an heir to the throne is telegraphed over the kingdom and to foreign lands. The royal mother and the frontier mother rejoice alike. Raphael's most beautiful canvas is that of "The Mother and Child."

Why is it all? Simply because we all see in the child the possibility that he may attain to our ideal position, a throne may be, a seat among the mighty in business, art, state, or profession. An individual baby is a small bit of matter, but potentially very great. Small wonder then that family, state, and nation are anxious about him. France notably among the nations, because her birth rate has been falling so low.

The subject of infant mortality is as old as the practice of medicine. At various times it has demanded special attention, sometimes in one country, sometimes in another. The earlier writers making children's diseases a special study gave statistics to a slight extent, but mostly gave opinions based upon experience, than which there is no better teacher. During the past generation, however, statistics have been collected in most civilized countries so that comparisons can be made with a degree of fairness. In our own land the census returns have been reasonably full and accurate each decade, but there have been no intercensal figures on a large scale until the year 1900 and since. Now the figures of the registration area comprise about one-half of the population (48.5 per cent.) of the United States, namely, 40,000,000 in sixteen entire States, 90 per cent. of the population in cities of over 8,000 inhabiting the other States. The study of the mortality statistics in their entirety and in the analysis usually presented with them by the authorities gives us the opportunity to compare the earlier days with the present, also to compare city with country, various ages and other factors. Further analysis makes it very easy to determine what special diseases carry off the infants. The object of this paper is to follow out such a study to see wherein we have gained, where we have lost; to determine what the influences were that caused the rise or fall, and if possible lay plans for improvement in the future.

Pre-Natal Causes.—Infant mortality may be fairly considered as beginning before birth. Guillemot and Devillieres claim that 20 to 25 per cent. of pregnancies fail to mature. The birth rate, and its changes, is shown in the accompanying table. It will be seen that the birth rate in the United States was 33.6 per cent. per 1,000 living fifty years ago, while now it is 27.2 per cent., a considerable part of which is due to foreign immigration rather than to American born mothers.

TABLE I.

BIRTH RATE PER 1,000 POPULATION

Countries.	Years.	Birth Rate.
England and Wales	1851-1860	34.1
	1901-1905	28.4
France	1851-1860	26.3
	1894-1900	22.2
Germany	1851-1860	35.3
	1891-1900	36.1
Italy	1871-1880	36.9
	1891-1900	34.9
United States	1851-1860	33.6
	1891-1900	27.2
Sweden	1851-1860	32.8
	1891-1900	27.2

Illegitimacy is also a factor. Illegitimate children may be as healthy at birth, but are so frequently neglected by the mother or sent to overcrowded institutions that they die in large numbers. In Glasgow in 1873 the death rate of legitimate children was 154 per 1,000, while the illegitimate rate was 293 per 1,000. It is interesting to note that the number of illegitimate births in England has fallen from 6½ per cent. in 1860 to but 3 per cent. at present. Deformities such as spina bifida or patent foramen ovale, hydrocephalus, etc., naturally lessen the likelihood of children living beyond infancy.

Heredity.—There are [illegible] vorable constitutional tendencies aside from the inherited diseases, such as syphilis. The offspring of tuberculous parents or those suffering from any constitutional disease will be born with a constitution having little power of resistance against the same or other diseases. The effects of habits or morals of the parents are visited upon the infant, for example the children of drunkards have an unstable, nervous system, are subject to convulsions and epilepsy or become idiotic. Most of the mentally defective in institutions for feeble minded and idiotic are of alcoholic parentage.

Race.—The race problem enters naturally into the study, but not extensively. Before our civil war the proportion of children to women of childbearing age was about the same in the negro and white race. In the decade 1880-1900 there was a decrease of 160 children born to 1,000 negro women, while the decrease of children born to white mothers was 75

per 1,000 women. As a large proportion of negroes in our country are poorly housed and fed, we are not surprised that they die in large numbers. The death rate of negro children in Washington is seven times that of white children.

The following table shows the trend of deaths in several countries during the last thirty years:

TABLE II.

Death Rate Under One Year Per 1,000 Living.

	1876-1880.	1895.	1893-1902.
England	145	150	152
France	163	170	158
Prussia	205	210	199
Italy	249	190	173
Switzerland	189	190	145
United States	166	—	165.4

—*Mulhall.*

TABLE III.

Deaths Under One Year Per 1,000 Deaths in the United States.

					Registration Area.	
1860	1870	1880	1890	1900	1906	1907
207	229	231	234	191	202	190

A glance at these tables shows that the English speaking countries have made very scant progress with infants under one year. Death rates reached their maximum about 1890, since which time there has been a general decline. The epidemic and contagious diseases figure most largely in the mortality waves, and infectious diseases tend to prevail together.

Table IV sets forth the percentages according to method of feeding:

TABLE IV.

Death Rate in Infants' Hospital According to Methods of Feeding.

Years.	Mothers' Children.	Bottle-fed.	Years.	Farmed Out.	Year.	Wet-nursed.
1868-1872	16.12	55.22	....	.....	....	.....
1873-1877	12.25	44.60	1875	14.4	..	....
1878-1882	12.64	56.85	1879	50	....	....
1883	14.15	61.86	1882	29.5	.	.....
1886	13.30	56.21	1885	21.4	..	.....
1888	18.27	57.02	....	48.57	....	.....
1898	7.6	33.40	....	55.73	1897	28.57
					1898	21.74
1899	5	46.10	....	58.33	1899	14.47
1900	7	61.70	....	31.10	1900	10.26
1901	5.23	48.85	....	27.50	1901	13.84
1902	7.47	62.14	....	16.67	1902	*2.17

*Note.—Only a few cases remaining in the institution.

Institutional Mortality.—The realization of the necessity for public care of the city's infants seems to have come over philanthropists and physicians with great force between 1865 and 1870. In 1866 the New York Infants' Hospital was opened. About the same time the New York Infant Asylum, a private, Protestant institution, was organized, and also the New York Foundling Hospital under Roman Catholic auspices. In order to have a basis for views concerning the care of infants which would influence their mortality, I selected as a basis the history of the Infants' Hospital of New York City, commonly called the Randall's Island Hospital. The Infants' Hospital first consisted of a collection of infants taken from the almshouse, penitentiary, and from the City Hospital, or Island Hospital, as it was then called, on Blackwell's Island, all of which were institutions for adults. These were placed in a new building erected on Randall's Island in 1868. The classification was such that the records showed the total number treated, with the mortality, the foundlings and the orphans with their mortality, and children with mothers. The first five years of the hospital showed an annual aggregate of 1,166 patients treated, with a mortality of 36.7 per cent. In the first five years the orphans died with an average mortality of 55 per cent., while the mortality of the mothers' children was 16 per cent. The next five years showed orphans and foundlings with a mortality of 44.6 per cent., while the mothers' children had a mortality of 12.4 per cent. During the third quinquennial period, the mortality of foundlings and orphans was 56.8 per cent., and the babes with mothers 12.6 per cent. It seems to be a universal rule that the mothers' children have about four times the chance of life that the orphan or foundling has.

In 1875 the Hospital, being badly crowded, it was determined to board some of the infants with families in the country, Westchester County. This was called "farming out." From that time on, from 55 to 80 babies were farmed out each year. The mortality among these was noted as 14 per cent. in 1875, 21 per cent. in 1885, 48 per cent. in 1888. It was discovered in 1883 that the expenses of farming out the babies was 42 cents a day, while it cost but 29 cents to keep the infants in the Hospital. It was therefore thought wise to discontinue farming out, but the crowded condition of the Hospital led to the return to the former policy in 1885. From this time the custom prevailed and failed by turns. In 1898 a definite effort was again made to place the infants to board. A committee from the State Charities Aid Association joined with the Guild of the Infant Saviour, and the committee thus formed took in charge the matter of placing out the foundlings. During that year, 1898, 61 were taken from Randall's Island, of whom 34, or 55.7 per cent., died. The next year 36 were so boarded out, with the mortality of 58 per cent.; 1901 was a more successful year, 40 boarded out, with a mortality of but 27 per cent. The figures concerning farmed out babies show remarkable fluctuation, as much as those in the Hospital, but in the main the mortality was lower than for the same class of infant remaining in the institution. Comparing the total mortality of the quinquenium 1898 to 1902 with the mortality of the first five years of the Hospital, we find a decided gain, 22 per cent. instead of 45 per cent.

There is a still greater gain in the last five years even among mothers' children over the first five years of the same class, 5.5 against 16.12 per cent. The average mortality of the foundlings from 1897 to 1901 was 47 per cent., a gain of 8 points as compared with the five years 1868-1872. In seeking causes for the fluctuation of rates, and also to determine what was the prevailing plan for caring for each class of children, I have gone carefully over the history of the institution. It seems that children were bottle-fed with various proprietary foods, but in the main milk was the standard diet, both in the early and the later years of the institution's history. In 1890 sterilized milk was in use, as the notes of the Medical Board show in a report on the manner in which the milk was sterilized and carelessly prepared. It was then put under the direct control of a managing nurse, with the result that there was great improvement in the condition of the children. In 1891 all the bottle-fed babies were put in one ward under a responsible nurse instead of under the care of the workhouse women or the mothers of other children. The number of wet-nurses was increased in 1892 and they were or-

dered extra diet. In 1893 there are again notes on the sterilizing of the milk. It was sterilized in bulk, being brought directly from the cows belonging to the Hospital and sterilized in the steam cooking caldrons of the kitchen. In 1896 Percentage Feeding was introduced, the milk being prescribed with proper proportions of fat, proteids, and sugar for each individual child. The bottles of modified milk were then pasteurized for twenty minutes at a temperature of 170°. This was done in the large steam caldrons in the kitchen, and later in clothes boilers especially heated by gas. In 1898 there were many changes at the Infants' Hospital which brought about a great fall in the mortality. First, the number of babies wet-nursed was increased from 20 in 1897 to 139. In 1898 the main Hospital building underwent complete change, being practically rebuilt except the outside walls. During this time many of the infants were taken to one-story pavilions on another part of the Island, 824 were discharged, *i. e.* two-thirds of the whole number treated instead of the usual one-half. The improvement in their condition was marked after that change alone.

With the beginning of the year modified milk was prepared from Walker-Gordon cream. Beginning in January of that year all infectious cases were removed from the Island as soon as discovered, and turned over the care of the Health Department. Boarding out was resumed in April, 61 babies being sent to individual homes in the country, as previously mentioned. The institution also received the gift of a copper sterilizing plant which made more easy and simple the work of sterilizing large quantities of milk than it had formerly been. The result of these many changes and improvements was a reduction of the mortality to 19.8 per cent. Though it did not remain at this low figure, it never rose to a greater height than 27 per cent. thereafter. It might be recalled, however, that the mortality in 1875 and 1885 was only 28 per cent. and a fraction These changes, every one of which was a help, show that we should avail ourselves of every possible means to reduce mortality, and that while no one is very powerful, several become all powerful.

Overcrowding.—Overcrowding of population leads to many faulty conditions of hygiene in general, and the personal care of children in particular. As the density of population increases the mortality rises. This is made particularly clear by tables, one of which shows the density of population in England and Wales during 1851 to 1866. This is by square miles over the entire country, and shows the death rate per thousand population for all ages, especially that for children under five years. It will be seen that the mortality increases more in the case of young children than at any other ages.

TABLE V.

Density per square mile..	166	186	379	1718	4499	12359	65823
Rate, all ages..	16.9	19.1	21.9	24.8	28.0	32.9	38.6
Rate, 5 years..	37.8	47.5	63.0	82.1	94.0	111.9	139.5

The mortality statistics, to be thoroughly appreciated, should be divided into city and country. The census figures of the registration area of the United States for 1901 to 1906, show that the mortality in rural districts was 14.1 per cent. deaths from all causes per 1000 of population, while the urban rate was 17.3 per cent.

TABLE VI.

DEATHS FROM DISEASES OF EARLY INFANCY PER 100,000 POPULATION—NEW YORK STATE.

Years.	Cities.	Rural.	In Registration Area.
1901.....	70.9	39.8	20.722
1902.....	71.0	39.0	21.811
1903.....	74.0	42.7	22.514
1904.....	76.0	42.5	24.001
1905.....	77.5	47.6	23.617
1906.....	81.8	47.3	29.743
1907.....	82.2	49.4	30.637

This in general accords with what we have found in detail specific instances.

As an example of the effect of city density, we have a table compiled largely from data furnished by Dr. Guilfoy, of the New York City Department of Health, showing the population per acre in a number of tenement house blocks, with the population under five years of age, and all ages, the death rate of each class, and the rate of mortality of certain diseases common in childhood. This will be readily understood and correctly interpreted, except possibly as to the tuberculosis in the adults. The small number of deaths in some blocks may be due to the fact that adults are sent to the hospital, while infants and small children in a larger proportion are kept at home to be cared for by the family.

It should be remembered that density per acre is not necessarily a reliable standard, as it is possible

TABLE VII. DEATHS IN 1905 AND 1906 IN CERTAIN BLOCKS FROM PRINCIPAL DISEASES. POPULATION AND DENSITY, RATE PER 1,000 AT AGE—PER W. H. GUILFOY.

Block.	Nationalities in each block.	Population	Died.	Rate	Diphtheria.		Diarrhœa.		Pneumonia.		Acute Bronchitis Bronchial-Pneumonia		Pulmonary Tuberculosis.	
					Cases.	Rate.	Cases.	Rate	Cases.	Rate	Cases	Rate	Cases	Rate
1,234 Acres . . 4 51	Italian .	Under 5,	1,884	164	87	5	2 65	42	22 3	6	22 3	5	29 7	
Density. . . 1,045		All ages,	9,426	231	24 5			42	4 46	14	1 48	59	6 2	12	1 27
1,442 Acres . . 3 131	Irish	Under 5,	1,150	100	77 2	5	4 34	23	20 0		5 2	49	42 8	3	2 61
Density. . . 964		All ages,	6,058	151	24 9	1	99		3 99		1 65	53	8 7	11	1 82
7,047 Acres. . . 4 38	Russian Pole .	Under 5,	910	4	58 5	5	5 49	10	10 90			5	5 5	1	1 10
Density. . . 784	American	All ages,	6,992	108	15 16	7	1 00	10	1 43			6	0 9	12	1 72
1,711 Acres . . . 2 553	Russian Italian .	Under 5,	1,030	54	52 42	3	3 03		12 3		3 08	21	19 4	5	
Density . . . 1,280	German .	All ages,	1,280	80	13 10		0 46		1 83		0 91	21	3 22	9	1 38
9,019 Acres. . . 1 78	German . American .	Under 5,	336	29	86 5	3	8 93		14 88			6	17 6		
Density . . . 848	Colored. .	All ages,	3,022	71	23 2		99		1 65		2 32	7	2 32	10	3 31
1 781 Acres . . . 4 84	German . American English. .	Under 5,	1,006	77	76 57	6	5 96		1 99			12	11 9		
Density . . . 691	Italian .	All ages,	6,736	137	20 34		89		29	8	1 19	17	2 53	12	1 73
"The Ansonia" Acres, 1.65 26.40 acres floorspace . .			2,000		No deaths										
Density . . . 1,262	American . . .	Under 5 years			49	5 yrs.	2 9	5 yrs	13	5 yrs.	1 2	5yrs.	5 0	5 yrs	22
Manhattan and Bronx. (1906) . . .	All nations.	All ages	2,464,432	46 108	18 71		45		11		1 5		1 4		2 4

for a large number of people to be housed on a given area of land under hygienic conditions; for example, the Ansonia, New York's largest apartment hotel. This covers one and six-tenths acres of ground, contains 2,500 rooms, and 2,000 persons, making a density per acre of 1,262. This is almost as dense in relation to the area as the Chrystie street block, having 1,280 persons to the acre. The conditions other than area are as diverse as possible, the Ansonia being situated near the Hudson River between Central Park and Riverside Park, all rooms opening outside, not into air shafts, but courts open to the street, and everything about the building of the most modern and hygienic pattern possible. The building has sixteen inhabitable floors, so that in reality the persons living here occupy twenty-six acres of floor area. In the seven years since the building was opened, there has been no infant death there, nor has an employee, of which there are four hundred, given up work because of tuberculosis. This shows that under modern methods of building in large cities it is possible to have a density of population without a high death rate. However, the general statement is true concerning working classes and the tenement population. A safer criterion is found in the analysis of persons living in a definite number of rooms. For example, Neumann in Berlin, in 1903 investigated 2,701 infantile deaths; 1,792 occurred in one-room dwellings, 754 in two rooms, 122 in three rooms, and 43 in larger dwellings. These statistics also go to show that air, light, and sanitation go hand in hand with the health conditions that will be expected in few rooms of large dwellings as contrasted with the crowded quarters. The smaller the number of rooms, the larger the number of deaths is the rule.

Value of Nursing.—It is generally admitted that the natural food for young infants is their mother's milk. It has been customary from earliest times to advocate a wet-nurse only when a mother was physically unable to nurse her child.

Dr. Harris, physician to William and Mary, in the early part of the eighteenth century, wrote as follows: "It is grievously to be lamented that so many Mothers not only of high Rank but even of the common Sort can with so much Inhumanity and more brutish Cruelty desert their tender Offspring and expose them to so many Dangers of mercinary Nurses who are greedy only of the profuse Rewards bestowed on them at Christening and so being weary of their present Employment perform it Negligently while they are looking out for a new Prey. Let us make a Survey of the Advantages that permit Mothers so commonly to sacrifice their beloved Offspring. They are the more free Enjoyment of Diversions, the greater Niceness of adorning their Persons, the opportunity of receiving impertinent Visits and returning those insipid Favours, the more frequent Attendance on the Theatre or the spending the greater Part of the Night at their beloved Cards."

That is exactly such a statement as may be heard in the twentieth century medical lecture. The women of to-day are but a replica of their forbears.

The advantages of the mother's milk for the babe are evident in comparing the death rate of mother's children with those wet-nursed, or brought up artificially on milk or prepared foods. The Infants' Hospital supplies data to make this perfectly clear. See Tables IV and VIII.

An example of the value of mothers' nursing their own offspring can be found in the history of our American Civil War, in 1861-5. Wars and the nursing of infants may seem to be far apart, but during the war cotton was not shipped from this country to England in the usual quantities. As a result the factories there in large numbers were closed. The women who do so large a proportion of the factory labor had perforce to remain at home. The result was that their infants were nursed regularly and had a mother's care. This gave rise to a great falling off in infant mortality in the manufacturing cities.

During this period 24 per cent. of the population became objects of charity, and the general death rate was low. After the close of our war and the reopening of the mills, the death rates rose to their usual height.

TABLE VIII.

Wet-Nursing vs. Bottle Feeding—Death Rate of Orphans Wet-Nursed and Bottle-Fed at the Infants' Hospital, New York.

	1897	1898	1899	1900	1901	1902	1903	Total
Orphans wet nursed	21	138	152	156	159	46	34	706
Orphans wet nursed, died	6	30	22	16	22	1	1	96
Percentage of deaths	28.57	21.74	14.47	10.26	13.84	2.17	2.94	13.50
Orphans bottle fed	591	506	462	389	262	213	146	2,569
Orphans bottle fed, died	432	169	213	240	128	133	66	1,381
Percentage of deaths	73.1	33.40	46.10	61.70	48.85	62.14	45.21	*53.76*
Mother's children	499	578	462	483	554	495	324	3,395
Mother's children, died	68	44	28	34	29	36	28	267
Mother's children, per cent	13.6	7.6	6.0	7.0	5.2	7.47	8.9	*7.8*

This table exhibits clearly the difference between wet nursing foundlings or orphans and bringing them up on the bottle. In general terms we may say that the mortality among mothers' children is less than 10 per cent., while among orphan children wet-nursed it is a little higher, and in the orphans brought up on a bottle four times the fatality of those wet-nursed.

Relation of Diarrhea to Manner of Feeding.—Newsholme gives figures concerning 10,308 homes. In these homes occurred 121 deaths due to diarrhea among infants. Of this number 6½ per cent. were suckled, 36 per cent. fed on cow's milk, and 30 per cent. on condensed milk, the advantage to the nursed baby being six to one over that fed upon cow's milk.

From earliest times it has been customary in some institutions to board out a portion of the children in homes, preferably in the country. In 1872, farming out was begun from the Infants' Hospital. From 55 to 80 and occasionally more were so boarded in Westchester county, just north of the city. The mortality varied from 14 to 58 per cent. Farming out of babies has been the habit of the New York Foundling Hospital for many years, as many as 1,000 being boarded out all the time. The mortality of this institution was, in 1879, 29 per cent.; in 1906, 32 per cent. This last mortality is greater than that of the institution formerly, and has been explained as being due to so many infants

being received in a diseased condition requiring such careful and skillful treatment, cases that were formerly sent to the Infants' Hospital. It must be true that the class of patients is different, because this same hospital in 1902 had a mortality of only 21.6 per cent. and in 1903, 23.2 per cent. There have been no epidemic diseases in recent years to cause the change.

Infanticide.—In the list of causes of infant death, we commonly find a statement that child insurance is a factor, it being claimed that the mothers of poor children may neglect them in order that they may realize on the insurance in the event of the death. This seems a libel on the humanity of mothers, be they ever so ignorant or poor. That infant insurance is not a factor in this country can be readily proven. Insurance in the United States does not begin until the child is one year old and upward. The Medical Director of the Metropolitan Insurance Company informs me that in 1895 they had in round numbers 800,000 children insured under ten years of age. The experience of the two other large industrial insurance companies, the Prudential and the Hancock, are similar to the Metropolitan, therefore will be treated together. In these companies there has never been a single death of a child brought about by reason of its insurance. The mortality of insured children is less than the general mortality. The experience of the London Prudential has proved this in England, and the Metropolitan in this country. For instance, at the age of two years next birthday, according to Farr's table, there would be 65 deaths per 1,000 of that age, whereas the Metropolitan's experience has been only 49 deaths per 1,000. In England, in 1890, there were insured 4,150,000 children under ten years of age. Infants are insured there almost from birth. As the amount of insurance paid on the life of an infant increases in proportion to the length of time of the insurance, the payment being weekly, it is poor business policy to allow children to die if they are insured. Insurance upon adults having a definite sum for each premium presents a different proposition. We know that death of adults has been sought for their insurance. Infanticide is a factor in infant mortality and gives us a shock of horror as the numbers appear in cold print, but happily the number has been diminishing for the past ten years.

Infants are neglected and many wilfully destroyed; for instance the coroner's physician of this city supplies the figures for the years 1906 and 1907:

TABLE IX.

	1906	1907
Infanticide	6	4
Atelectasis	23	37
Suffocation of babies due to clothing or overlying	5	9
Marasmus	224	117
Unknown babies abandoned or reported on soon after death	71	137

Many of these cases are undoubtedly criminal although proof is usually lacking. But in a large city of this kind, with so large a number, it is interesting to note that the matter of insurance can not be considered a factor, either from the company's standpoint or that of the coroner.

Infanticides in the United States

1894	340	1898	248
1895	269	1899	182
1896	300	1900	159
1897	321	1904	153

Specific Diseases.—The causes of death of infants under a year of age are easily compared with the other ages. It was formerly assumed that the mortality of infants was one-eighth that of the mortality at large. Infant mortality for the registration area for 1906 was 20 per cent. of the total mortality instead of 12½ per cent. as was once thought to be normal. The census returns give us much valuable information for large areas, and are not so misleading as local reports may be. Grouping the infant deaths since 1900 produces a table of facts full of suggestion. Of twenty-five diseases tabulated, a few are especially worthy of comment. Typhoid fever since 1900 has declined somewhat. Malarial fever and influenza have also diminished. Smallpox, although the cases are exceedingly few, only 66 for the area, has increased. Measles and scarlet fever, remain the same. Whooping cough has improved somewhat, also dysentery and diphtheria.

Pulmonary tuberculosis has fallen off slightly, although not so markedly as in adult practice. In 1906, 10 per cent. of the total mortality was due to pulmonary tuberculosis. Only 3 per cent. of the deaths from pulmonary tuberculosis occurred in children under five years of age. This makes the mortality exceedingly small from tuberculosis when we recall that 28 per cent. of all deaths occurred under five years. If it be true that tuberculosis in children is most often due to the bacilli that may be in milk they should die largely from abdominal tuberculosis. According to the reports in the census office for the years 1901 to 1905, the deaths from abdominal tuberculosis number 3 per cent. of the deaths from all forms of tuberculosis at all ages. In 1905 there were 373 deaths from abdominal tuberculosis in children under 5 years, *i. e.* two-tenths of 1 per cent. for that age. In 1906 there were 465 such deaths under 5 years, or six-tenths of 1 per cent. In each year they constituted less than one-fifth of the abdominal cases. The frequency of involvement of certain portions of the body under 5 years differs from the total or adult proportions as shown below:

	Under 5 Yrs.	All Ages.
Tuberculosis of lungs	.37	.88
Tuberculosis, meninges	.47	.05
Tuberculosis, abdominal	.08	.03

Deaths from Tuberculous Meningitis per Million Living, England and Wales.

1861-1870	301	1891-1900	216
1871-1880	284	1901-1905 (5 yrs.)	185
1881-1890	234		

Reduction of 40 per cent. in 55 years, but less than in pulmonary tuberculosis (55.5 per cent.).

It may be remarked in passing that tuberculosis in children is almost wholly of the human type, not of the bovine type (Dr. Park).

The general mortality throughout our own country and foreign lands has been steadily falling in recent years. This is largely due to the increasing knowledge of the causes of disease and the dissemination of such among the laity. Schools, health journals, and Boards of Health are all lending a hand and together with physicians are educating the public.

Table X, from the paper by Sidney Phillips, shows most clearly the trend of disease in England for fifty years. Although it is not confined to infants and young children we here have the diseases which seriously affect them.

Table XI indicates in like manner the progress

made in controlling preventable diseases in New York City.

TABLE X.

Deaths Per Million Annually.

Decennium.	Variola.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Pneumonia.	Diarrhea.
1851-1860.....	221	412	982	...	503	No returns	
1861-1870.....	152	391	890	390	467	1,089	...
1871-1880.....	230	334	649	261	451	1,004	843
1881-1890.....	44	406	312	286	414	1,066	631
1891-1900.....	73	414	158	314	377	1,227	738
1901-1905.....	30	326	126	223	300	1,277	671
Rate of decline, per cent.....	.86	.20	.87	42	40	1906 increase 17	...

TABLE XI.

Deaths per 1,000 in Old New York, i.e. Manhattan and Bronx.

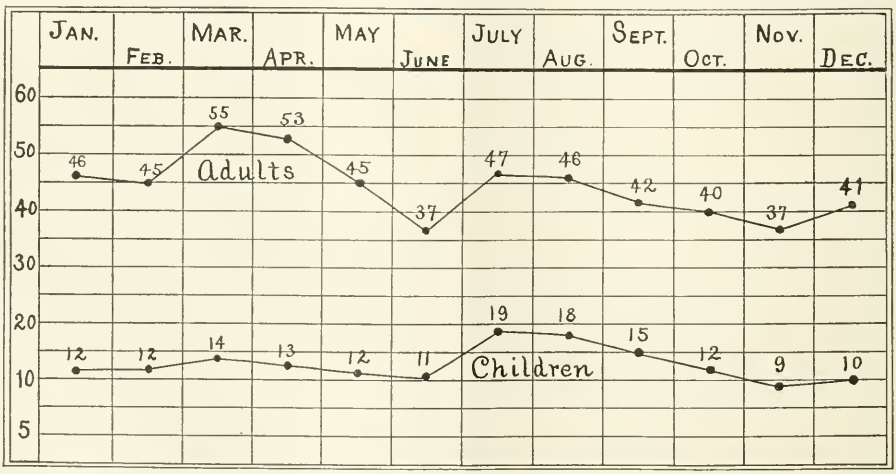
Years.	Variola.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Pneumonia.	Diarrhea, Under 5 Yrs.
1868-1877.....	.48	.28	.91	1.54	.37	2.02	3.48
1878-1887.....	.07	.37	.74	1.70	.31	2.27	2.69
1888-1897.....	.03	.31	.39	1.30	.25	2.84	2.27
1898-1907.....	.02	.20	.20	.53	.12	2.71	1.56
Gain.....	95	21%	78	65	67	loss 34	gain 55

Infectious Diseases.—The pathologists have been especially active in recent years, the germ theory having changed our views of many diseases, not only those which we knew as infectious, fevers a generation ago, but adding diphtheria, rheumatism, pneumonia, tuberculosis, some forms of meningitis, and various forms of intestinal troubles that were formerly classed as diarrhea and cholera-infantum. Finding and isolating Eberth's bacillus, the germ of typhoid fever, the Klebs-Loeffler bacillus of diphtheria, the menigococcus and pneumococcus has enabled us to intelligently wage war against these diseases, either to prevent their spread or to curtail their progress when present. Graphic charts showing the yearly number of cases of infectious disease occurring show rise and fall like the waves of the sea. These tides of infection make the study of epidemiology of very great interest, and an important part of the study of infant mortality, because infants even at the age of one year or less are affected by these infectious diseases. We find in studying the contagious diseases that the number of children attacked increases in proportion to their exposure out of the home, for example at school. However, with young infants we find a large mortality due to disturbances of the digestive system which comes from causes within the home. Some of these are recognized as infective, for example dysentery, due to the Shiga's bacillus. Pneumonia prevails at all ages, and having an air-borne cause, it, with bronchitis, carries off large numbers of young infants. For example, in 1907, more than 14,500 infants died from pneumonia alone, in the registration area, and 4,370 from bronchitis.

Violence.—The number of cases of death due to violence in infants and young children has increased enormously, which shows a peculiar moral condition of the country or else unusual change in the manner of reporting deaths by violence. Diseases of the kidneys, Bright's disease for example, remains practically the same. Diseases due to the circulatory system are about the same. Veneral diseases have increased relatively and actually 1,299 deaths are reported for 1907. It is not apparent how this has come about. An increase of 40 per cent. in five years needs explanation and correction. We do not like to think that the morals of the country are degenerating so rapidly, but the facts remain that the deaths due to venereal diseases have increased very markedly. A study of the individual diseases and the death rate would lead us to congratulate ourselves on the management of infectious diseases. Probably the increased efficiency and thoroughness of health boards as mentioned is a factor in this, but the digestive diseases, diarrhea and enteritis included, are in a large measure due to infection by means of the food supply. Here we are losing ground since 1900.

TABLE XII.

Deaths by Months in the Registration Area in 1900. (The Figures Denote Thousands.)



In March and April pulmonary deaths predominate and occur chiefly among the adult population. In July and August diarrheal deaths are highest and are chiefly among the very young.

Season of the Year.—Factors to be taken into account are the time of year and the atmospheric conditions as well as the character of the food. The relation of these to each other is very close, for in hot weather, July, August, and early September, conditions are such that food easily deteriorates, milk becoming sour and indigestion and diarrhea resulting. Moreover the milk is more likely to become infected in hot weather as this is the season that the domestic fly flourishes. It has been noted that when there was an epidemic of diarrhea the domestic fly was also prevalent and doubtless played a large part in spreading infection. The various bacteria also flourish in hot weather as the *Bacillus coli communis*, the *Bacillus enteritidis* of Gaertner, the *Bacillus acrogenes*, and others. In fact there are forty bacteria which have been identified in the intestines, and several streptococci. Newsholme gives figures concerning ten thousand homes with analysis of the deaths from diarrhea in babies. Of the 121 deaths, 6½ per cent. were nursed, 36 per cent. given cow's milk, 30 per cent. condensed milk. As high as 18 per cent. of diarrhea deaths have been found among breast-fed infants, showing that enteritis may occur when the food supply is ideal.

The percentage of deaths due to diarrhea and enteritis has not diminished at all in the last six years.

TABLE XIII.

Percentage of All Deaths Due to Diarrhea and Enteritis.

Annual Average, 1901 to 1905.	1902.	1903.	1904.	1905.	1906.	1907.
Aggregate 100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 2 yrs..... 81.5	80.0	80.8	82.2	83.8	84.5	85.3
2 yrs. and over.. 18.5	20.0	19.2	17.8	16.2	15.5	14.7

—(U. S. Mort. Stat., 1907, p. 71.)

TABLE XIV.

Deaths Under Two Years of Age in Registration Area per 100,000 Population from Diarrhea and Enteritis.

Year.	Deaths.	Rate.
1900	33,479	...
1901	28,523	91.2
1902	26,903	84.3
1903	26,697	82.1
1904	30,315	91.5
1905	33,032	97.8
1906	42,581	103.9
1907	41,563	99.5

—(Mort. Stat., 1906 and 1907, Table III.)

What Is Being Done.—Day Nurseries have been established in the large cities, New York having 62, London 55, and Paris 66. Madam Coullette's Restaurants for Nursing Mothers have proved of great value in Paris. The New York Department of Health, Bellevue and some other hospitals send out nurses to instruct the mothers wherever there is a new-born infant. The city and country homes have accomplished great good, for example, at Coney Island and the Rockefeller Institute. Quarantine of the homes or schools, clean milk, certified, perhaps pasteurized, all are factors. London has a daily supply of one-quarter of a pint per capita, New York City three-quarters of a pint per capita. If it all goes to babies, ours should be the better. Last year about fifty societies sent representatives to a committee organized by the Board of Health of New York whose business was in every way possible to lessen infant death rate, by instruction, recommending proper food, places where medical advice could be had, etc. If all the leading charitable societies in all our cities were to combine as here, great good would be accomplished.

Fresh Air Work.—Fresh air philanthropy was begun in this city by Rev. Dr. Muhlenberg in 1849. It has grown so that now there are fifteen general and twenty-five denominational societies in New York. Forty of our cities have like agencies so that they report 1,200,000 day trips a year, not to mention the fortnightly outings which reach the thousands. These outings are a great factor in the welfare of the young children as well as infants.

Advice to Mothers.—One of the best methods to preserve infant life is that begun in Paris in 1893 by Variot, the "Consultations des nourrisons." Mothers are required to return to the lying-in hospitals each week to report upon the condition of their infant. Nursing has increased greatly since the consultations became general. Bresset reported 61 per cent. of mothers nursing their offspring in 1899, but this was increased in five years to more than 81 per cent.

The New York Association for Improving the Condition of the Poor has an ideal plan in the Caroline Rest Fund which centers its attention upon the mother. Their nurses instruct the tenement mothers before confinement as well as advising after the child arrives. This work is new but the results published in 1908 concerning 337 cases are encouraging as the infant deaths in cases visited before confinement were not one-third the number occurring in cases visited only after the birth. The same study of patients shows a mortality of 17 per cent. in cases conducted by midwives as compared with 8 per cent. where physicians were employed. This argues well for knowledge and prophylaxis *vs.* know-nothing and do-nothing.

The following table illustrates the result of the efforts we are making. It is encouraging in many ways and suggestive of lines upon which to work in future. It shows clearly that the ratio of progress has been greatest in epidemic diseases and the least in those of early infancy. This is exactly as might be expected, for to one class we are all alert, while to the other we give almost no heed.

TABLE XV.

Deaths per 100,000 Population in Registration Area U. S. A.

Classes of Causes of Death.	Number in 1900.	1900 1	Increase (+) or decrease (—) from: 1901-2	1902-3	1903-4	1904-5	1905-6	1906-7	1900-7	Ratio of Gain.
All causes, all ages	1755.0	—99.0	—61.9	+17.7	+52.1	—47.0	—10.7	+40.0	—109.7	.06%
Epidemic diseases	166.2	—10.1	—18.1	+ 6.2	—14.3	—14.1	+ 6.8	+ 4.0	— 39.6	23 %
Other general diseases	312.4	— 3.4	—12.0	— 8.7	+16.7	— 7.0	—10.0	+ 4.1	— 4.7	1.5 %
Diseases of respiratory system	250.2	—25.0	— 7.7	— 4.6	+14.3	—26.6	— 5.3	+13.3	— 42.5	16 %
Diseases of digestive system	220.2	—25.0	— 0.4	— 3.6	+11.4	+ 4.0	+ 6.3	— 7.4	— 23.1	10 %
Diseases of early infancy	76.9	—10.7	+ 2.2	+ 0.8	— 3.2	— 2.4	+ 2.6	+ 0.8	— 3.5	4.5 %

It is hardly necessary to point out that the lessons of this table are found in the last column, the ratio column.

In Berlin there was opened last year the Empress Augusta Victoria House for the reduction of infant mortality; an institution where every form of information pertaining to infant mortality will be gathered as well as given out. There has been in-

corporated in New York "The Infants' Science Academy" for the scientific study of infants, their health, care, diseases, and physical development, and for the interest of mothers in all that pertains to the care of infants.

Just now, in this year of grace, 1909, a bill has been introduced in Congress to form a Federal Children's Bureau to deal with facts of birth rate, infant mortality, physical degeneracy, illigitimacy, and other juvenile matters. When this bureau is in operation much valuable statistical matter will be gathered.

Early Infancy.—According to the international classification of causes of death, early infancy includes only those under three months of age. In 1907 there were more than 30,000 deaths in early infancy in the registration area. In the first group of the list are congenital debility, jaundice, atelectasis, infanticide, atrophy, sclerema, etc. In the second group are cellulitis, inflammation of the umbilical cord, umbilical hemorrhage, or cellulitis. In the third group are exposure, neglect, privation, starvation, and lack of care.

The first group will be seen to be due to maternal influences, the second to infections at or soon after birth, the third to social conditions.

Many lives might be saved from group one if those who are to become mothers could be properly educated, nourished, and cared for before delivery. We have a society of Sanitary and Moral Prophylaxis making a fine effort to prevent and overcome venereal diseases. We need Maternity Prophylaxis circles to inform young women, and men as well, of the needs and privileges of young mothers.

Great care is exercised in breeding fine cattle, fast horses, dogs with proper muzzle, fancy birds, and poultry. For many years the government has expended vast sums of money in raising fishes and vegetable products and sending forth the information about them. Let us do as much and more on behalf of the infants.

What Might be Done.—Most young parents and but few with families know the requirements and dangers incident to infancy. Social settlements and church clubs should conduct the training of man and woman not wholly manual training. Teach the parents that are to be. The general practitioner should realize his responsibility in instructing young mothers without waiting to be called for specific diseases. Mothers, or those about to become mothers, should not be permitted to work in factories until in perfect health.

There is abundant knowledge already lying dormant. It should be given to the young people. Thousands of the youth of our land do not get beyond the High School in our educational system. I recently examined all the books on physiology and hygiene in the library of the New York City Board of Education. Not one of them alludes to infants or children as being different from adults in structure or development of body and brain. The mysterious period of adolescence through which the youths are passing is not hinted at in text book or school room. Outside the school room there are enough hints of sex relation not always delicately expressed. Matrimony and maternity of course are never mentioned. Why not have every graduating high school class given a lecture by a mature and wise physician or educator, who may speak wisely, recognizing the influence of the sexes upon each other, dealing with the institution of marriage in its physical and social aspects. Warn against sentimental affection where health of body and mind are more important. Urge the wisdom of preventing child labor and long hours of work for women when they should not work at all in factories and shops.

Boys and girls in their teens are very quick to be interested in large subjects, are inclined to think they know everything. All the facts possible should be given them to insure a sturdier lot of infants in the next generation.

Conclusion.—Graham says that 50 per cent. of the infant deaths are preventable. If this be true, the physicians of the United States should be indicted for homicide in 50,000 instances a year. It is not enough to complacently watch the death rate go down in some instances, it is our province to make it go down by our skill in treatment, or better by prophylaxis, and not take praise where the credit belongs to the mildness of season or the absence of epidemic. We need to study physiology more closely, especially the action of the heart and lungs, and the mysteries of metabolism.

Improved sanitation will, naturally, include inspection of the tenement, with a study of the methods of keeping food, especially milk. Hygiene of a general sort taught in the schools makes an impression on the children which they will not forget when they are adults. It is hardly necessary to assert again that babies should be nursed by their mother, and if not should be given milk prescribed in proportions or formulas on prescription by physicians and not according to chance rules of the laity.

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6. Mulhall's Statistics.
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8. Strong: "Challenge of the City."
9. Annual Reports of the Infants' Hospital, Department of Charities of New York, Unpublished Years from Office Files.
10. Annual Reports of New York Foundling Hospital.
11. Annual Reports of the New York Infant Asylum.
12. I am indebted to Dr. Weston of the Coroner's Office, also Dr. Willard, Medical Director, Metropolitan Insurance Co., and Dr. William Guilfoy of the Health Department for valuable statistics. The many journal articles consulted and works on pediatrics are too numerous for detailed mention.

160 West Seventy-third Street.

INSTANTANEOUS RADIOGRAPHY IN LESS THAN ONE HUNDREDTH SECOND; A NEW METHOD OF RADIOGRAPHY.*

By FRIEDRICH DESSAUER,

ASCHAFFENBURG A. M., GERMANY.

The endeavors of Rosenthal, Rieder, and others to shorten the time of exposure are well known. By systematic work they were successful in making good Röntgen negatives of the thorax in 1 to 5 seconds without using an intensifying screen, and with such even in fractions of a second. If I am not mistaken, Rosenthal has even taken a radiogram with intensifying screen in 1/25 second, show-

*A paper read at the Fifth International Roentgen Congress.

ing in distinct outlines the shadow of the heart of an adult. This picture could be seen at the Congress of Amsterdam.

At the same Congress Mr. P. H. Eykmann, from The Hague, showed his radiograms of the act of deglutition in man, laying much stress on the necessity of solving the problem of actual instantaneous radiography. It is important to define the conception, "Instantaneous Radiography," more precisely. By the term momentary radiography only such work should be called in which the time of exposure is so short that the action of the heart or any other slight movement which the patient might make does not disturb the distinctness of the picture.

A real instantaneous radiogram, therefore, must be taken in less than 1/50 second. But it would be still better to reduce the entire time of exposure to 1/100 or 1/200 of a second. I have endeavored to solve this problem by a series of experiments, which I propose to explain in the following, although the results must as yet be regarded as only partial.

First, I must once more revert to Mr. Eykmann's work. He was, so far as I am aware, the first to conceive in full measure the importance of this problem and to emphasize it; the first, too, to promote it by constantly endeavoring to interest physicists and technicians with whom he was acquainted in its practical pursuit. In the *Archiv für physikalische Medizin und medizinische Technik* he describes his adventures on these trips and the work done by the authorities visited.

A discharge (single spark) of the new apparatus for instantaneous röntgenograph.

Mr. Eykmann visited me several times during my experimental work in my laboratory at Aschaffenburg, and gave me some valuable hints. It is chiefly due to his continuous urging that, after many failures, I always again took up the experiments, modifying them as found necessary. I would, therefore, thank him here heartily.

The problem of shortening the time of exposure in radiography to 100 or 200 parts of the time required in those exposures which hitherto have been erroneously termed "instantaneous" is undoubtedly soluble. In fact, it has been solved already in principle. I have made a series of pictures of the extremities of the thorax, the left superior part of the lungs, the heart, which I have all done in less than 1/100 second. These were only slightly, some even not at all, underexposed.

But they are not as good as well made time radiographs. On the other hand, they have been done without any special care, with cheap tubes, without careful adjustment of the tubes; besides that, an intensifying screen has been used in making them, and this, as is well known, reduces the quality of the pictures considerably. I used the Schleussner plate, as mentioned, with intensifying screen, but without any other auxiliary. My first endeavor was to satisfy myself that such short exposures were possible. To improve the quality of the pictures is a special task, which seems to me to be quite possible. Also the intensifying screen will soon be superfluous.

With regard to the technique, I can at present only say the following: The problem is to generate for a very short time an extremely powerful stream of cathode rays in the tube. The first surprise was to find that quite ordinary tubes, without special backing of the anticathode, will stand this strong stream perfectly well. During the most brilliant illumination of the tube one sees a spot on the anticathode becoming red hot. However, as the time is so extremely short, the anticathode is not destroyed, so far, at least, as my experience goes.

It has proved to be serviceable to increase the size of the anticathode, an alteration the importance of which I emphasized already more than a year ago.

For generating the impulses of discharge there are several physical possibilities, the factors always being the same, viz., capacity and transformer, or transformer alone, or direct generation of high-tension impulses of current. I was successful, after many trials, with a combination of capacity and transformer. Figure 1 is a photograph of such a single impulse, which manifests itself in the shape of a spark.

One of course has a right to question the time of such extremely short exposures which are said to be done by automatic switching. Rosenthal rightly stated last year that such measurements are incorrect. The time of exposure is not equal to the time during which the primary current flows through the circuit, but rather equal to the time of the illumination of the tube, measured from the initial flashing up to that of the entire extinction of the light. This time can be measured in an exact and entirely adequate manner by means of a rotating film. A motor, whose number of rotations is known, turns a film which is enclosed in paper impermeable for light. Before this film is placed a piece of lead foil having a narrow slot. Through this diaphragm Röntgen rays fall on the film; the time of the illumination of the tube is then calculable by the breadth of the stripe shown on the film after development, the amount of rotations of the motor, and the diameter of the circle in which the film was rotating.

This method of radiographing in a very brief time opens up a new possibility in Röntgen technique which I would at least mention: the röntgenological technique becomes very much more simple. It is no more necessary to fix the patient carefully. The entire manipulations in radiographing do not require more trouble than the pulling of the trigger of a gun. The rest is done quite mechanically, a mechanical contrivance switching the current on and off; this in my model, used hitherto, consists of a spring. The only manipulations are to cock the trigger and to pull it; that is no more trouble than is necessary in ordinary instantaneous photography. Movements of the patient during this short time are impossible. Before he could make any, the radiogram is finished.

It is the task of the very near future to introduce this real instantaneous radiography into röntgenological practice. There are very many practical advantages connected with it quite apart from the scientific aspects of the method, which can at present hardly be calculated, but which should neither be over- nor underestimated (I am thinking of kinematography of the heart, for instance). To-day I am able to state as the results of my ex-

perience the possibility of taking actually serviceable instantaneous radiograms with exposures which are from 100 to 200 times shorter than those hitherto considered normal, *i. e.*, in 1/100 or 1/200 of a second, as against 1 to 10 seconds hitherto.

ECONOMY IN MAJOR ANESTHESIA; MORE PARTICULARLY AS TO ETHYL-CHLORIDE.

By R. H. M. DAWBARN, M.D.,

NEW YORK.

Ethylchloride, whether employed by itself for major anesthesia or prefatory to the exhibition of ether, has come to stay. Steadily it has grown in popularity, and with ordinary care and precaution is remarkably safe. One of the best known of several men of this city exclusively anesthetists, and who is anesthetist for one of our largest hospitals, told me a couple of years ago that unless the surgeon insists upon laughing-gas before the ether he no longer gives it, preferring the ethylchloride-ether sequence to any other. For himself, it avoids the lugging about of the heavy nitrousoxide canister; for the patient, while ethylchloride is not, like nitrous-oxide gas, entirely free from odor, still it is unobjectionable. I personally have never come across a patient who sickened at the smell of ethylchloride; however, possibly there may be such, and both to cover its odor when desired, and the more pungent and generally offensive smell of ether, it seems a good plan to follow (as lately I have been doing) a bright suggestion for which I have to thank Dr. Morris Stark of this city, namely, to carry as a part of my anesthesia kit a small vial of the genuine Oriental sandal wood oil. A single drop rubbed along the edge of the facepiece of the inhaler makes itself very evident above any other odor. Similarly, I have known a single drop anointing the lips of an ether-nauseated patient to settle the stomach remarkably.

A few years ago a firm of manufacturing chemists requested me to experiment at the City Hospital for the purpose of determining what size of little glass capsules containing ethylchloride would be best to manufacture, with the idea in mind that each one should suffice for at least the accomplishment of a primary anesthesia in any average adult; this I did, and recommended the 5 c.c. little glass retainers which since have been upon the market. These are intended to be used exclusively in conjunction with the air bag method of anesthesia. Each of these little containers ends in a long drawn point, and they are delivered wrapped in cotton. From two to four are placed within the rubber bag when anesthesia is about to be begun. So extremely volatile is this drug that, were one to snap off the glass point outside and then endeavor to convey it within the bag, however quickly the motion were made, all of it would be lost. Therefore the writer suggested the plan now customary, *i. e.*, to snap off the point within the bag, the glass capsule being seized and held securely through the thin rubber. The cotton which is wrapped about the end of the retainer to be snapped across protects the bag from any injury.

This method is an excellent one from every point of view except from that of economy. These little tubes cost 25 cents apiece. This would frequently make the expense for an operation of some length, for this purpose alone, $1 to $1.50, since from four to six of these small containers (20 to 30 c.c.) might be required.

The main purpose of the present article is to direct attention to ethylchloride major anesthesia along the same lines, at a saving of 50 to 75 per cent. in expense. The method about to be described is simplicity itself; and, indeed, for this reason may very likely have suggested itself to a number of others already. It will, however, or it should as a matter of economy, relegate the new 5 c.c. tubes to the back shelves. I refer to the employment of a large (say, 50 c.c) tube of ethylchloride. It should, however, first be tested, watch in hand, to see how many seconds are required, when the cock is opened its widest, to allow, say, 5 c.c, to escape. With the 50 c.c container, made of glass, this can readily be observed by the sight; one can see the ethylchloride as it runs. Given, however, one of the steel receptacles, it will be necessary to have the firm from which the receptacle is bought work out the question of the number of cubic centimeters which escape per second from their individual container. Or else the surgeon can do it himself, quite readily, as follows: The weight of the empty 50 c.c container being known, as well as the weight of this amount of ethylchloride (obtained simply by weighing the full container upon arrival), it only remains, using scales of a reasonable degree of delicacy, to tell by the difference in weight just how much ethylchloride has escaped from the open tap in any given number of seconds.

With the usual receptacle of 50 c.c. capacity it will be found that for each five seconds that the tap is wide open, nozzle downward, one cubic centimeter of ethylchloride will have escaped into the rubber bag holding the container, or approximately this amount.

Obviously, the same ethylchloride tube is just as good for the purpose of freezing (local anesthesia); so that the physician who has obtained any good make of ethylchloride, in a receptacle of reasonably large size, is now equipped efficiently for anesthesia of whichever kind may be desired, either major or minor.

Of course, however, freezing is a very poor way to accomplish local analgesia except simply to open a boil or a felon. Where any dissection is contemplated we do not wish to work upon tissues as rigid as a board—which they necessarily are while frozen. For anything beyond a single knife thrust, therefore, either cocaine (one-half of 1 per cent. within the skin proper, and one-fourth of 1 per cent. beneath that level) or else eucaine B—say, 2 per centum (I have known twice this strength to cause sloughing of the tissues infiltrated with it); or, finally, naming the third of the local anesthetics which the writer would choose, among a dozen or more obtainable now, one of the most recent, *i. e.*, quinine and urea. This is without poisonous effects. At least none have as yet been observed, in whatever dosage. It occurs as a white powder. Ten grains emptied into an ounce of water makes a 2 per cent. solution. Differing from cocaine, it is not injured by boiling. For curettage of an ulcerated surface or other reason, even a 15 per cent. solution has been applied without the least objectionable effect. Apparently a few minutes' longer waiting for complete benumbing effect is necessary, however, than is the case with the other chemicals named.

105 West Seventy-fourth Street.

SMOKED TORICS—A MENACE TO HEALTH.

By PERCY R. WOOD, M.D.,

MARSHALLTOWN, IOWA.

Prevention of disease is in keeping with the spirit of our profession. The smoked toric coquille prescribed as a shade for weak and sore eyes is productive of much harm. It has an unmeasured and irregular refraction index ranging from one-twelfth to one-half diopter minus.

When we recall that in a neurasthenic individual the accurate measurement and correct adjustment of this slight correction when indicated relieve various pathological local conditions as well as reflex functional neuroses the indiscriminate prescribing of an undetermined and unindicated refraction medium must appeal to the thoughtful as exceedingly inconsistent, unjust, and unprofessional. To illustrate the therapeutic influence of slight corrections I quote two cases from my own files.

Case I.—Mrs. D., Marshalltown, consulted me June 15 last with a severe conjunctivitis complicated with corneal ulceration and iritis. She was wearing: R. + 75 cyl. ax. 90; L. + 50 cyl. ax. 90.

Under a cycloplegic I found and prescribed the following: R. — 25.sp. + 75.cyl. ax. 90; L. — 25.sp. + 50.cyl ax. 90.

Recovery was prompt. Please note the very small minus spheres which were added and the consequent results.

Case II.—H., Baxter, nine years old. Consulted me January 23; had chronic blepharitis. Suffered three years with nocturnal enuresis that had baffled medicinal therapy, also had indigestion, constipation, and insomnia.

I prescribed his full correction, which was: R. + 25.cyl.ax. × 80; L. + 12.cyl.ax.90.

Note the astigmatism against the rule in one eye and the small correction in the other. Local symptoms abated as if by magic, and in less than six weeks the functional disturbances had also disappeared. If such slight errors induce serious pathological lesions in sound eyes, what may be expected in those already diseased? Naturally increased activity of local and systemic pathological lesions and especially if associated with a temperament sensitive to ocular irritation. This is precisely what happens. The sufferers ascribe the discomfort and increased inflammation to the disease and seek relief in darker glasses.

These glasses are recommended by the profession, and, I am sorry to state, by some oculists as well as by jewelers, opticians, department stores, and cheap venders everywhere. They are a menace to health. The proper kind being plain and possessed of no refracting power.

Differential Diagnosis Between Neurasthenia and Various Affections of the Nervous System.—T. A. Williams tries to indicate pathognomonic differences which, even in the early stages, will enable the clinician to distinguish the hebephrenic form of dementia precox, hysteria, mythomanic, and suggested neurasthenias, including the false gastropaths, psychasthenia, and the anguish neuroses, from the true idiopathic neurasthenia. The criterion employed to distinguish hysteria is its susceptibility of production by suggestion and removal by suggestion-persuasion, as enunciated by Babinski. The latency of suggestion is shown, and also its power to produce secondary neurasthenia (in the false gastropaths of Dejerine) and even tics and obsessions simulating those of the psychasthenia of Janet. The criteria of the latter are indicated at some length, consisting mainly of the relative absence of fatigue, along with the presence of the particular stigmata, such as morbid fear, chronic inadequacies, altered sense of reality, and episodic agitations of motor, intellectual, and emotional content. The psychogenic origin of these distinguishes them from the similar complications of psychical nature which may occur during an attack of neurasthenia. Rest is without avail in these cases, psychotherapy is the indication, as it also is in the pseudoneurasthenia of vacuity of hysterical and mythomanic etiology.—*Archives of Diagnosis.*

Tuberculosis of the Cervix Uteri.—Deletrez states that primary tuberculosis of the cervix uteri is rare, the secondary or descending form being more frequent. It attacks especially persons from eighteen to forty years of age. Genital contagion from husband to wife is rare, and traumatism may only predispose to the localization of the bacilli. The appearance of the lesion is that of numerous vegetations about the cervix with ulcerations, and suggests cancer. In the secondary form there is infiltration of a circular nature about the os. Uterine tuberculosis resembles metritis, with ulcerations, syphilis, and cancer, and must be differentiated from these conditions. Prognosis varies with the form and localization of the lesion, and the occurrence of tuberculosis in other organs. Operation consists of amputation and cauterization when there is little tubercular tissue present, and hysterectomy when there is much. Recurrences are frequent.—*Annales de Gynécologie et d'Obstetrique.*

Seroimmunization and Serotherapy in Measles.—Francesco Cenci, in an epidemic of measles, obtained serum from a strong man who had recovered from the disease and injected this into four children who were exposed to the disease, while several brothers and sisters were left uninjected. All the children were left equally exposed to the contagion, and those who had been injected did not take the disease, while the others did. This showed that they had had conferred on them an immunity against the disease. This immunity lasted throughout the epidemic and for four months after it. In a second epidemic, occurring four years later, these four children had the disease lightly. Hence the immunity was only a temporary one. The author has also injected measles patients with antidiphtheritic serum to test its effects. He found that the fever fell, the respiratory symptoms decreased, and the general condition improved rapidly. In one case of bronchopneumonia all the symptoms improved at once and the child was entirely well in a few days.—*Rivista di Clinica Pediatrica.*

Necrotic Anginas and Perforations of the Palate in Scarlatina.—P. Lereboullet gives histories of five cases of perforation of the soft palate in scarlatina. This is a rare complication of scarlet fever. In most cases it has proved fatal, but of the author's patients all recovered. It generally affects children under five years of age. A false membrane similar to that present in diphtheria first covers the tonsils and pillars of the fauces. In this membrane examination shows no diphtheria bacilli, but only streptococci. The glands are sometimes not infiltrated, but the general condition of the patient is bad. The larynx is not affected, but the nasal fossæ may be involved. Fever is high. This lasts for some days, when the appearances rapidly change. The tonsils necrose and the palate may be perforated while the membrane clears up. There are no difficulties of deglutition or phonation. If death does not ensue the repair is rapid, the tissues showing little inflammatory reaction. The author believes that this condition is produced by the streptococci themselves, since no other bacilli are found in the exudation. Treatment consists of the usual general measures and lavage of the parts, with dioxide of hydrogen or antiseptic washes.—*La Progrès Médical.*

Advisability of Lactation During Acute Illnesses of the Mother.—G. Guidi, from an experience of thirty years in practice, together with experiments on animals, gives it as his conclusion that in many acute diseases of the mother it is advisable to continue lactation. Stopping it injures mother and child. The patient should be carefully watched, fed so as to give the necessary amount of nutritive material to the milk, and kept under the best possible hygienic conditions. As to the danger of infection of the child, it is slight. Either the milk has antitoxic properties, or the child is capable of producing antitoxic substances that protect it against the disease. The passage of bacteria into the milk does not produce infection of the infant. The child should not be kept in the room with the mother except when being nursed. Clinical observation and experimental study agree in showing that the germs do not infect the child.—*Rivista di Clinica Pediatrica*

MEDICAL RECORD.

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New York, May 22, 1909.

THE EFFECT OF FEVER IN INFECTIOUS DISEASE.

THE medical profession is divided into three camps, so far as the interpretation of the effect of high temperature in infections is concerned: some consider it to be always harmful, others interpret it as a reparative reaction only, still others think that it may work both benefit and injury to the organism. In the *Münchener Medizinische Wochenschrift* of April 13, 1909, Dr. Fr. Rolly presents a most interesting critical study of these views founded upon extended personal investigation of the subject. Liebermeister represents the school that sees nothing but injury from high temperature, and the practical importance of such a view is seen in the fact that he and his followers have insisted upon the necessity of antipyretic measures whenever the temperature in the course of an infectious disease becomes high. Soon, however, experimental work showed that the bad effects attributed by Liebermeister to high temperature were due to other causes. Rolly together with Meltzer kept many rabbits in overheated cages for many days in succession; not one animal showed any changes in the parenchyma of organs that could be compared to the degenerations produced by infectious disease accompanied by fever. Though proteid metabolism is markedly increased in infectious fevers, high temperature plays but a subordinate rôle in this result, while moderate temperatures probably are of no influence whatever. It has been claimed, too, that high temperature has an unfavorable effect upon the appetite; so far as animals are concerned, however, no such effect was noted by Rolly and Meltzer.

That the changes in pulse and in respiration in infectious disease are due to the toxins produced and not to high temperature has been amply proved by many investigators. Welch has shown that prolonged hyperthermia produces no effect upon the functions of the heart and the blood pressure, while Romberg and Pässler have demonstrated that it is the toxins produced by infecting microorganisms that are responsible for vasomotor paralysis with lowering of the blood pressure leading to death in animals experimented with. Other experiments by Rolly and others have shown that neither the hemoglobin nor the cellular constituents of the blood are affected by prolonged artificial hyperthermia. So far as reaction to disease is concerned, their experiments tended to show that high temperature was favorable to the progress of the disease, for in animals it increased phagocytosis as well as the amount of agglutinins and other protective substances in the blood.

Rolly's final conclusion is that rise in temperature accompanying infectious disease is productive of more benefit than injury to the organism. It simply marks a very intense reaction to injury aimed at the destruction of the infecting agents or the neutralization of their toxins. Clinically, therefore, his views oppose any extreme antipyretic measures, whether medicinal or hydrotherapeutic. He would try to control only very high temperatures or such as are accompanied by marked nervous disturbance, and in no case would he have recourse to such measures as the Brand bath for typhoid fever, for instance, but be satisfied with mild drugs or with moderate application of hydrotherapeutic measures.

TUBERCULOSIS IN EARLY CHILDHOOD.

IN recent years the members of the medical profession, especially those interested in the diseases of children, have shown a decided tendency to increase the rigidity in the hygienic rules governing early childhood. Children who a generation ago would have grown up in the belief that each must eat his peck of dirt are now watched with the greatest care. Their hands are kept clean, their food is most carefully prepared, and under the care of many pediatrists they are allowed only toys which will withstand boiling. The purpose of this minute care is of course to keep the child from contracting disease through the ingestion of contaminated material, and by its means it is desired to decrease or eliminate the danger of the two great dreads of childhood, infectious enteritis and tuberculosis.

In *The Archives of Internal Medicine* for April, 1909, Dr. Martha Wollstein of the Babies' Hospital in New York gives a study which is of some interest in this connection and throws some light on the mode of infection of tuberculosis in early childhood. Although our efforts are so strongly directed toward clean hands, clean milk, and clean toys, Dr. Wollstein claims that in infancy the portal of entry of tuberculosis is almost universally through the lungs. In an analysis of 185 autopsies in infants showing tuberculosis in some form, it was found that of the total number of autopsies on the bodies of children under one year of age 12 per cent. had tuberculosis, between one and two years 36 per cent., and of those over two years 32 per cent. Though in most of the cases it was not possible to determine definitely the portal of entry of the tubercle bacilli, a few facts are suggestive. In one case only was the disease limited to the gastrointestinal tract, while in fourteen it was confined to the lungs or bronchial glands. Four other cases were of undoubted intestinal origin, forty of respiratory origin, and one of mixed respiratory and intestinal origin. The fact that the lungs were involved in 96 per cent. of all the cases is suggestive, but might be interpreted merely as indicating their greater predisposition to the disease.

While these statistics do not in any way suggest

that less care should be taken in the feeding of infants, they do impress upon one the necessity of care in purifying as far as possible the air that children breathe. The cases reported by Dr. Wollstein are taken from the poorest classes in the city and most of the children have had very little care of any kind, either dietetic or hygienic. For this reason it may not be quite fair to compare them with the cases under the care of skilled pediatrists. Nevertheless, if in these children who have had both bad food and bad air, the lungs are first attacked in such a great majority of cases it is safe to say that in other classes the same tendency must exist. Many children are of course brought up in clean rooms and in "pens" and are protected from dust as much as possible. This is, however, more frequently not the case, and the child during the second year—the age of greatest susceptibility to tuberculosis—is allowed to creep or run about almost at will. In the case of an active healthy child this is difficult to prevent, and it is not altogether well to try to do so, as the child must be allowed a certain amount of freedom for exercise. What can be prevented, however, is the accumulation of dust in the nursery, and scrupulous cleanliness of this room cannot be too strongly insisted upon. Dr. Wollstein's findings suggest that such cleanliness is, in the case of tuberculosis at least, of even greater importance than purity of the food.

THE PATHOLOGY OF SURGICAL SHOCK.

During the past few years there has been carried on a large amount of research on the subject of surgical shock and our knowledge of the clinical picture, causation, physiology, and treatment of this condition has been greatly increased, mainly through the work of Crile and his coworkers in Cleveland. Our knowledge has widened as to the reduction of blood pressure and cerebral anemia following extensive sensory nerve stimulation, and the influence of hemorrhagic anemia in intensifying the condition of shock. This has led to the use of adrenal extract, intravenous infusion, and finally to direct transfusion of blood in order to overcome the cerebral anemia and thereby either ward off or relieve the shock.

In the light of these advances in physiology it is of interest to note that the first step has been taken to attack the problem of shock from the standpoint of the cytological pathologist. This work, though carried out under the auspices of Crile, was actually done by David H. Dolley of the University of North Carolina, and an account of it appears as a preliminary communication in the *Journal of Medical Research* for April, 1909. Dolley's method was to shock dogs to varying degrees by roughly manipulating the intestines over periods of several hours, the animals being kept under ether anesthesia, and care being taken that there was no loss of blood. Portions of the cerebellum were then removed either *intra vitam* or immediately after death and examined by Held's modification of Nissl's methods. The results as described by the investigator were indeed striking and were marked by the distribution of the chromatic material and by the structural appearance of the cells themselves. In a mild degree of shock the Nissl bodies increased in number and the cytoplasm itself stained deeply. As the intensity of shock increased the chromatin rapidly disappeared from the cytoplasm but was replaced by that of the nucleus. The pictures illustrating the article show to a nicety all of the changes from an increased amount of chromatin to the conditions in which first the color leaves the cytoplasm, is replaced in part by that of the nucleus, and again disappears, to be once more replenished at the expense of the nucleolus, and finally to be lost entirely. At the same time the size of the cell gradually increases until in the last stage it actually bursts and lies dead. The author draws an arbitrary line beyond which he believes that the shocked cell cannot recuperate and makes differential counts of the numbers of cells in the various stages of disintegration.

The idea that surgical shock has any microscopic pathology is certainly new and of no small interest to surgeons, pathologists, and neurologists. The present article is entitled a preliminary communication and it is much to be hoped that it will prove to be only one of a series of investigations into this most interesting subject of the pathology of shock.

WEATHER CHANGES AND THE SUBJECTIVE SYMPTOMS OF DISEASE.

The well-known inclination of many patients to blame weather changes for the appearance of pain in connection with their maladies is usually discounted a great deal by the younger generation of physicians brought up on the modern views of the pathogenesis of disease and of its symptoms. Not infrequently, however, a physician himself, who has fallen prey to such a disease as gout or rheumatism, discovers some constant relation between any sudden increase in his discomfort and the changes in the weather; he is then unpleasantly converted to the belief that the clinical observations of more experienced men as well as the statements of patients are founded upon more tangible evidence than imagination.

Writing in the *Münchener medizinische Wochenschrift* for April 20, 1909, Ludwig Miller communicates the results of a careful study of this matter carried out upon a great number of patients in the hospitals and in private practice. He has found that many patients suffering from chronic rheumatism could foretell weather changes with almost the exactness of a barometer; painful sensations referable to the affected joints were felt invariably two or three days before the appearance of bad weather, whether marked by wind or by rain. Several patients affected with sciatica and others suffering from arthritis deformans could also trace all exacerbations of pain in their cases to the same cause; most of them were quite ignorant of the aim of Miller's investigations, reporting to him by mail any sudden increase in discomfort. In such cases, a study of the weather conditions showed the existence of an unmistakable relation between them and the symptoms complained of. Just as

evident was such relation in cases of locomotor ataxia in which lightning pains appeared and disappeared with barometric changes. No less an authority than Erb corroborated such findings in the case of this disease. Among other conditions that made "walking barometers" of patients were hemiplegia, extensive scars, amputation stumps, etc.

Miller considers one by one the possible factors connected with weather changes that may be held responsible for the clinical phenomena, among them changes in atmospheric pressure, disturbances in electrical conditions in the air, dampness, etc. In no case, however, can any single one of these be considered as the sole cause of the appearance of an exacerbation of pain in the class of patients studied by him. However that may be, the mere fact of such relation between the weather and the subjective symptoms of disease seems to be quite evident from his investigations.

A Test of Pancreatic Function.

Anatomically, the pancreas is so placed as to be but little open to examination by palpation through the external abdominal walls. Its secretion, too, being poured into the small intestine cannot be obtained for examination as readily as is the case with the gastric juice. It is not surprising, therefore, that with the recent increase of interest in pancreatic disease, there should have been devised numerous indirect methods of judging the function of this important gland. In the *Deutsche medizinische Wochenschrift* for April 22, 1909, Dr. Oscar Gross describes an interesting method of testing pancreatic function, founded upon the presence or absence of the specific pancreatic ferment, trypsin, in the feces. Making use of the fact that casein is easily precipitated from an alkaline solution by the addition of acetic acid, while products of its digestion remain dissolved, he added portions of the feces to be examined to such casein solutions. From time to time the addition of acetic acid served to indicate the progress of the digestion of casein if any had taken place. Several ingenious considerations are brought forward by Gross to show that the digestion of casein in such a case could be traced only to the effect of trypsin. In the first place, peptic action was excluded by the alkaline reaction of the mixture. Chloroform was added to the casein solutions to prevent the action of bacteria found in the feces. Erepsin was excluded by the fact that no digestion took place in dogs after extirpation of the pancreas, though, of course, erepsin continued to be furnished by the intestinal mucosa. Still more interesting was the observation that the addition of blood serum inhibited the digestion of casein, a phenomenon made intelligible by the recent discovery of the antitryptic power of the blood. Gross has examined a large number of stools by this original method and has demonstrated the presence of trypsin in all normal cases. The rate of digestion was somewhat modified by the kind of foodstuffs taken, a fact which corroborates the supposition that the activity of the various digestive glands adapts itself in every case to the demands made upon it at each particular meal. Intestinal and gastric disorders appeared to have but little if any effect upon the tryptic digestion of casein by the feces. It seems, therefore, that the test proposed by Gross really gives a fair idea of the secretory activity of the pancreas and of the presence of trypsin in the feces. It would be well to try it in every suitable case of suspected pancreatic disease, so that its value as a diagnostic measure might be definitely determined.

The Rectal Shelf.

An aphorism often emphasized by a certain professor of internal medicine is that "the first duty of a consultant is to make a rectal examination." The truth of this and the value of such a procedure is well shown in an article by George Blumer in the *Albany Medical Annals* for May, 1909, entitled "The Rectal Shelf." The author calls attention to the fact that a common site for metastases from gastric carcinoma is in the vesicorectal fold, and that a tumor growing in this location gives a definite picture of no small value in diagnosis. "If one passes the finger into the rectum in these cases the lower portion of the bowel is usually normal; it is not until the prostate gland has been passed that any abnormality is detected. Just above the prostate in some cases, in others at the limit of palpability, 2 to 4 cm. above, if the finger is passed along the anterior rectal wall it impinges upon a shelf of almost cartilaginous feel which projects into the rectal cavity." In some cases in which infiltration of the intestine has occurred an annular zone or signet-ring structure may be made out. The rectal shelf, however, differs from primary rectal carcinoma in that, though by its bulging into the lumen it may cause partial obstruction, there is no ulceration of the mucosa or passage of blood or pus. This observation of Blumer is of interest and should prove of value in the diagnosis of certain obscure abdominal diseases. The condition, as occurring fairly early in gastric carcinoma, not only may throw light on the diagnosis of the disease but, as its presence shows that metastasis has taken place, may be of value in prognosis and as a contraindication to gastrectomy.

News of the Week.

Public Health and Marine-Hospital Service.—An examination of candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service will be held in Washington, at the Bureau of the Department, 3 B Street, S. E., on Monday, June 14, 1909, at ten o'clock. Candidates must be between 22 and 30 years of age, graduates of a reputable medical college, and able to furnish testimonials as to their professional and moral character. The examination is divided into physical, oral, written, and clinical. Upon appointment, young officers are usually assigned to duty at one of the large hospitals. After four years they are entitled to examination for promotion to the grade of passed assistant surgeon. Assistant surgeons receive $1,600, passed assistant surgeons $2,000, and surgeons $2,500 a year, and are entitled to furnished quarters for themselves and their families. Further information may be procured from the Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C.

Tuberculosis in New York.—In reply to a statement made recently by Mr. Nathan Straus, that tuberculosis had largely increased in the last few years, and that present methods of dealing with it were ineffective, the Health Commissioner has

issued the following statement showing the number of new cases of the disease and the death rate per 1,000 of population:

Year.	Tuberculosis death rate per 1,000 population.	New cases of tuberculosis reported.
1900	2.79	11,977
1901	2.64	13,397
1902	2.42	12,346
1903	2.46	15,214
1904	2.50	18,723
1905	2.40	20,831
1906	2.45	20,085
1907	2.39	19,725
1908	2.29	23,325

These figures support the contention of the Health Commissioner that Mr. Straus's assertion is incorrect, and that the death rate has decreased, the large apparent increase in cases being due to the fact that tuberculosis is now always reported to the Board of Health.

Death Rate in New York.—During the week ending May 8, 1909, there were 1,560 deaths in New York City, a rate of 17.83 per thousand. During the same week of 1908, there were 1,483 deaths and the rate was 17.49. The largest increase in the number of deaths was noted among persons over sixty-five years of age suffering from pneumonia. There was a marked decrease in the number of deaths from diarrheal disease among children under five years of age, only forty-five having been reported during the week against sixty-two for last year.

Department of Hospitals.—The question of a change in the method of hospital control was one of the topics discussed at a meeting of the Conference on City Planning and Municipal Art in session at the Twenty-second Regiment Armory for the past two weeks. Commissioner Hebbard, Dr. W. G. Thompson, and Dr. C. L. Dana favored the removal of the city hospital system from the three municipal centers by which it is now controlled—the Department of Health, the Department of Public Charities, and Bellevue and Allied Hospitals—and the establishment of a separate Department of Hospitals. Mr. Homer Folks opposed such a consolidation and stated that in his opinion the faults of the existing hospital system could be obviated by the establishment of a Board of Ambulance Control. All the speakers urged the need of more beds, better equipment, and more accessible location for the various hospitals.

Laboratory for Metropolitan Hospital.—A pathological laboratory building is soon to be erected as an annex to the Metropolitan Hospital on Blackwell's Island. The building will be two stories high with attic, will be of brick with ornamental stone trimming, and will have a frontage of seventy feet and a depth of eighty-seven feet. The main floor will contain offices, a museum and specimen room, and an autopsy room. The second story will be fitted up for a library and a laboratory, and the attic will contain animal rooms.

A Dispensary Clearing House.—The various medical societies of Chicago contemplate a dispensary reform movement whereby the various organizations of the city will establish a central investigating bureau, cooperating with the charitable organizations in discovering applicants for aid who abuse medical charities. Under the plan contemplated, there will be no delay in furnishing emergency medical service to deserving or undeserving patients, and worthy individuals will be aided as freely and as promptly as before.

Chicago Lying-In Hospital.—According to the annual report of this institution, it is estimated that thirty per cent. of the blind wards of the State have lost their sight through carelessness at the time of birth. Thousands of mothers are permanently invalided through ignorance or carelessness of their obstetric attendants. Thousands of infants are lost at birth and thousands injured or crippled, so that they become public or private wards, the result of ignorance and incompetence. The practical obstetrical instruction in most medical colleges is so meager, according to this report, that the student is really harmed by it.

Gifts to Charities.—Through the death of Mrs. E. C. Magee in Rome recently, the estate of the late Senator Magee will become available for the establishment and maintenance of a free hospital on the site of the Magee homestead in Pittsburg.

The estate of the late Dr. Frank W. Draper of Boston, will eventually go to Harvard University. During the lives of the widow, children, and grandchildren, the estate, which amounts to about $100,000, will be administered as a trust fund for their benefit.

By the will of the late Hannah N. Maule of Philadelphia, bequests are made as follows: $3,000 to the Northern Home for Friendless Children, $3,000 to the Philadelphia Home for Incurables, and $2,000 to the Children's Seaside Home, Atlantic City.

New York Homeopathic College.—At the forty-ninth annual commencement of the New York Homeopathic Medical College, held at Mendelssohn Hall on May 12, the degree of M.D. was conferred upon sixteen graduates by Mr. Melbert B. Cary, the president of the Board of Trustees. On the following evening the Alumni of the College held their annual dinner at the Waldorf, about three hundred being present.

The Loomis Laboratory.—Plans for the remodeling of the Loomis Laboratory of the Cornell University Medical College in New York have been filed with the Building Department. The first, third, and fifth floors will be rearranged, and will contain offices for the professors and rooms for special laboratory work, physiological research, and photomicrography.

Dr. A. C. Abbott, President of the Philadelphia Bureau of Health and Bacteriologist in Chief to the Department of Charities and Correction, has submitted his resignation, to take effect on June 1, in order that he may resume active work as Professor of Hygiene and Bacteriology at the University of Pennsylvania.

Physicians' Club of Chicago.—At the annual meeting of this Club, held May 14, the following officers were elected: *Secretary*, Dr. George E. Baxter; *Directors*, Drs. Frank Billings, William Cuthbertson, Henry T. Byford, Edwin B. Tuteur, Henry B. Favill, and Charles L. Mix. The directors will select a chairman for the organization at a future meeting.

Medical Society of New Jersey.—The annual meeting of this society will be held at Cape May on Wednesday, Thursday, and Friday, June 23 to 25, 1909.

The Ohio Homeopathic Society, in session at Toledo on May 5, elected the following officers:

President, W. H. Humphreys, Toledo; *Vice-Presidents,* H. F. Staples, Cleveland, and W. W. Ensley, Dayton; *Secretary,* R. G. Keiser, Columbus; *Treasurer,* T. T. Church, Salem.

The Macoupin County (Ill.) Medical Society, at its annual meeting, recently elected the following officers for the ensuing year: *President,* Dr. E. K. Lockwood, Virden; *Vice-President,* Dr. Morgan, Nilwood; *Secretary-Treasurer,* Dr. H. A. Pattison, Benold.

Société Internationale de la Tuberculose.—In May, 1910, this society, which is presided over by Professor Lancereaux, will distribute to authors submitting the best essays on the subject of tuberculosis, the following prizes: 1. a prize of 300 francs; 2, a prize of 100 francs; 3, two prizes of 50 francs each; 4, two gold medals with diplomas of honor; 5, three silver medals with diplomas of honor. Authors desiring to enter the competition should send their manuscripts to M. le Dr. Georges Petit, Secrétaire Général de la Société Internationale de la Tuberculose, 51 rue de Rocher, Paris, before the 1st of January, 1910.

The Late Dr. Murray.—At a recent meeting of the New York Obstetrical Society the following resolutions were adopted:

Whereas, by the death of Dr. Robert A. Murray this Society has lost one of its oldest and most esteemed members, a fine type of the old-fashioned, upright practitioner,

Resolved, that we feel keenly the absence of a loyal, big-hearted friend, as well as of one who possessed to an unusual degree skill and sound judgment as an obstetrician. A man of sterling integrity, he was the friend and counsellor of a large circle for nearly thirty-five years. He was a familiar figure in this community and a constant attendant at our meetings, giving us the fruits of his experience. We sorrow over the fact that his kindly face and genial presence will never again be with us.

Resolved, that these resolutions be inserted in our minutes and that copies be sent to the family of the deceased Fellow and to the leading medical journals.—Egbert H. Grandin, George W. Jarman, Henry C. Coe, Committee.

Obituary Notes.—Dr. Melchert H. Garten, a prominent practitioner of Lincoln, Neb., died suddenly from angina pectoris, at his home on May 6, aged 63 years. Dr. Garten was graduated from Rush Medical College in 1871, and after practicing for some years in Dover, Ill., moved to Lincoln, where he built up a large practice in diseases of the eye, nose and throat. He was a member of the American Medical Association and of the State Medical Society, being in attendance at a meeting of the latter when he was taken ill.

Dr. James Henry Payne of Boston, Mass., died at his home on May 14, aged 85 years. Dr. Payne was born in Albany and was graduated from the University of New York in 1849. Until 1860, he practised in Bangor, Me., where he had a notable experience with Asiatic cholera during the epidemic in that city in 1849-50. Since 1860 he had made his home in Boston, where he had a large practice.

Dr. Joseph H. Plunkett of McComb City, Miss., died at his home on April 29, of kidney disease, aged 46 years. He was a graduate of Tulane University, New Orleans. 1890, and a member of the Mississippi State Medical Association.

Dr. James J. Foster of Milwaukee, Wis., died at his home of disease of the liver, on April 30, aged 40 years. Dr. Foster was graduated from the Wisconsin College of Physicians and Surgeons in 1903, and was a member of the American Medical Association.

Dr. John D. North of Jackson, Mich., the oldest practicing physician of that town, died at his home recently, aged 75 years. Dr. North was graduated from the medical department of the University of Michigan at Ann Arbor, in 1859, and was formerly a surgeon of the Jackson, Lansing & Saginaw Railroad.

Dr. J. J. Burroughs of Houston, Texas, died on May 3, after a long illness, aged 79 years. After graduating from the University of Tuscaloosa, Ala., Dr. Burroughs studied medicine at New Orleans School of Medicine, from which he was graduated in 1860. Later he also received degrees from Bellevue Medical College, 1875, and from Jefferson Medical College, Philadelphia, 1876.

Dr. William Peale Brewer, a veteran of the Confederate Army, and a distinguished physician of New Orleans, La., died on May 3, aged 67 years. Dr. Brewer was graduated from the Medical College of Virginia in 1864.

Dr. William H. Schultz of Lebanon, Ind., died at his home on May 7, aged 69 years. He was graduated from the Medical College of Indiana in 1870.

Dr. Theodore Miller of Califon, N. J., died at his home on May 14, aged 60 years. Dr. Miller was graduated from the medical department of New York University in 1873.

Dr. Rachel S. Skidelsky died at Philadelphia of pneumonia on May 14 at the age of 53 years. She was graduated from the Woman's Medical College of Pennsylvania in the class of 1894. She was much interested in various public movements.

Dr. Margaret Richardson died at Norristown, Pa., on May 15 at the age of 91 years. She was a graduate of the Woman's Medical College of Pennsylvania.

Dr. Wm. Bird died at Chester, Pa., on May 13. He was graduated from the College of Physicians and Surgeons, Baltimore, in 1880.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

TROPICAL SCHOOL'S NEW LECTURES—TROPICAL SOCIETY ON BERIBERI — IMMUNIZATION — BRAIN, RIGHTHANDEDNESS, AND SPEECH—LIVERPOOL SCHOOL'S EXPEDITION—WAR ON RATS—TANTALUM.

London, April 30, 1909.

The School of Tropical Medicine, always to the fore, has now arranged to hold advanced courses in protozoology, arthropodology and helminthology. There is also to be a course of general medical zoology. The object is to train the students in so practical a way as to enable them to undertake, without assistance, original investigations at home or abroad.

The Society of Tropical Medicine and Hygiene, which is closely associated with the School, has been discussing the etiology of beriberi. The rice theory, which has been frequently put forward and rejected, and again revived in Japan and rejected, was once more represented at the society. Dr. L. Braddon, Surgeon of Negri Sembilan in the Malay States, claimed that the disease is not produced by all rice, but only by that prepared in one way, viz., the white, uncured rice—sifted, hulled, screened, and then polished and sized. This, he holds, will in time produce beriberi. But fresh rice dried in the sun and stored in dark bins, and then each day's amount taken and hulled by pounding in a wooden mortar before cooking, as is the custom in

Malay, does not produce the disease; nor does that cured by the Indian method, viz., soaking for twelve hours, then heated with water on a slow fire till the grains burst, afterward dried in the sun and winnowed. It is thought the grain is thus sterilized in the husk, and so any organisms thereon destroyed. The Chinese, who are the chief sufferers, always eat uncured rice. Dr Braddon cited experiments in institutions by feeding one group on cured and another on uncured rice and after a year reserving the diets with results confirming his view. The true cause of beriberi was, he held, feeding on uncured rice which had been husked and stored for some time and on which an epiphyte had developed and was a nerve poison.

Dr. A. R. Wellington of Sarwak had also a paper. He said the disease was unknown among the Dyaks in the interior of Borneo; but when they came to Sarawak they suffered as much as the Chinese. In Simanggang Gaol the disease had been checked by feeding on fresh rice. At Brocketon mines where it was once rampant it was now absent, though no change had been made in the rice, and in other mines the experience was the same. Examples of infection had been noted, and there were cases which seemed due to place infection. He had investigated the bed-bug theory, but found no evidence that these or other parasites carried the infection. But he added that since bugs had been exterminated in the Kuching Hospital there had been no fresh cases. It would seem, therefore, from Dr. Wellington's experience one can draw no definite conclusions.

Dr. Carnegie Brown said beriberi had been got rid of in the Japanese Navy by general sanitary improvements and the addition of animal food to the diet without any change in the rice ration. A disease which could not be distinguished from beriberi was seen in persons who did not eat rice; on the other hand, rice was the chief food of large communities living in the endemic area but not suffering. But the evidence of asylum neuritis, ship beriberi and similar conditions was important and it was not answered by denying they were beriberi. In Italian ships rice was largely consumed and beriberi was unknown; in Norwegian ships rice was not eaten and the disease was common. In the districts dealt with by Dr. Braddon thousands of Chinese households lived on rice and none of the members suffered; but if one of them went to a mine, hospital, asylum, or gaol he was likely to be attacked. Dr. Braddon's feeding experiments were, however, very striking.

Colonel Leishman had always thought the clinical features pointed to protozoal infection; but careful researches did not support the view, and it looked as if there was some association with rice.

Dr. James Maxwell said that in Formosa they met with cases, although the people lived in their houses and always husked their rice at the time of using it.

Dr. G. C. Low considered ship beriberi was not a distinct disease.

Dr. T. S. Kerr said no fresh cases occurred in the institutions of the straits settlements after the introduction of the husked rice.

Sir Patrick Manson said Dr. Braddon's theory was strongly supported, though not complete. The discussion is to be continued at the next meeting.

The questions connected with the bacillus of acne have for a long time disturbed our dermatologists, but seem to be for the most part settled by a recent research in the laboratories of St. Mary's Hospital by Dr. Alex. Fleming. From this it would appear that the different organisms previously described are probably only one, although that might be mixed with others, and perhaps present different appearances. The difficulty of obtaining a pure culture was overcome by Gilchrist, of Baltimore, some ten years ago, and the bacillus he found constantly present he thought differed in some points from that described by Unna. The view which seems to be prevailing now is that these and others are not essentially different. Whether they can alone produce suppuration may still be doubted, as recognized pyogenic organisms are so apt to be present. But Dr. Fleming reports that a pure culture inoculated into the skin of a susceptible individual produced a pustular folliculitis, and examination of the pus from it showed no other organism. He found the bacillus constantly present, and, frequently, the only organism present in the pus. Further, he has carried out vaccine treatment with success. In some cases an autogenous acne vaccine succeeded after the failure of an ordinary stock vaccine; but this is only in accordance with what occurs in the employment of other vaccines, such as streptococcus. The acne vaccine can be mixed with other organisms if such are present in the pustules.

Sir Almroth Wright has been instructing the Authors' Club on "Immunization." He told the members he regarded our civilization as incomplete and more or less a make-believe. The rôle of bacteria was most formidable, and when we thought we had conquered them by sanitary measures we had only been fighting one small part of infective disease. Though smallpox, typhoid, and dysentery killed fewer people in England than ever, they were by no means the most serious evils caused by bacteria. These were the chronic diseases which sooner or later every one met with. Estimates of losses to business from fogs were circulated in newspapers; but no one reckoned the cost of influenza or tubercle, which must be got rid of before we could call our civilization complete. The first great movement in immunization was inoculation against smallpox; but that had its dangers until vaccination arrived. Then came the work of Pasteur, who said if this process prevented one disease, why not another? Most of his work was prophylactic; but now we have reached the idea that immunization might be effective therapeutically. This aims at assisting nature in developing strong resisting agents in the presence of disease. The method has been gradually extended to one disease after another.

Dr. F. W. Mott, pathologist to the County Asylums, concluded on Tuesday two lectures which he delivered at the Royal Institution on "The Brain in Relation to Righthandedness and Speech." In regard to the question whether the two hemispheres were distinct or not, he said he had found little, if any, difference in weight except in diseased conditions. The left hemisphere was concerned with dexterity and speech, but there was no preponderance in its weight, nor was there any greater complexity in its structure. He could not endorse the opinion that the left hemisphere received a larger supply of blood than the right. Nor could he admit another opinion that the heavier organs, as the liver, etc., being on the right side, determined mechanical advantages leading to righthandedness in 98 per cent. of the population. That view was disproved by the fact that in cases of complete transposition of the visera the persons had not been lefthanded. The brain acted as a whole in thought by virtue of a sort of bridge between the two hemispheres. With regard to speech he discussed two opinions as to its origin—the one which attributed it to instinct and the other to slow evolution. Lantern slides were employed to illustrate some points.

The Colonial Secretary has sent to Sir Alfred Jones, chairman of the Liverpool Tropical School, a copy of a communication from the Governor of Jamaica expressing warm appreciation of the value of the work done by Mr. Newstead, who was sent by the school last year to conduct experiments for checking the ravages caused among cattle by ticks. Mr. Newstead employed a system of spraying the animals with such excellent results that the Director of Agriculture has reported that the tick problem in Jamaica can now be cheaply and effectively controlled. Lord Crewe, as Colonial Secretary, expresses his satisfaction at receiving so welcome a report.

In Parliament on Wednesday it was stated for the Government that the agreement with Germany about sleeping sickness related only to Uganda and German East Africa. The investigations in Nyassaland have not so far revealed the presence of the tsetse fly, so the Government considers they have reason to hope that such an epidemic as wrought havoc in Uganda will not extend to Nyassaland.

A bill has been introduced into Parliament the object of which is to reduce the number of rats, and so the enormous destruction caused by these vermin of foodstuffs—to the amount, it is said, of millions in a year. Founded on similar lines to legislation now in force in Denmark and other countries, it proposes to arm public authorities with powers to cope with the evil, while safeguarding private interests from damage. Local authorities when informed that a place within their jurisdiction is infected by rats are to inquire into the truth of such information, and, if found to be true, are to take such measures as may be deemed advisable for destroying the vermin. If the bill passes doctors and sanitariums will have a new weapon in their "war against rats."

Tantalum, long regarded as a rare metal, is now found in various parts of the world mixed with other substances and can be purified so as to be used for various industrial purposes. Its qualities should interest, as far as it seems likely, to be available for surgical appliances. It is being tried for knives, being, some think, equal to fine steel. Mr Alex. Siemens lectured

on it last week at the Royal Institution, and spoke of it as a nonconductor mixed with carbon, and said it can be hammered out into thin elastic wire, and its filaments, too fine to be seen at a short distance, can support a great weight. Slightly oxidized, it would make writing pen nibs, and its most successful use so far, he said, was in making filaments for incandascent lamps; in fact, there are a great number of tantalum lamps in use, but the actual consumption of the metal is very slight, owing to its atomic lightness. He showed by experiment that a tantalum lamp was better fitted to resist overheating than a carbon lamp, and had proved to be more economical. The disadvantages of tantalum are that in great heat it absorbs hydrogen and nitrogen and becomes brittle; but for many purposes which do not require a very high temperature it appears to be an ideal metal.

OUR VIENNA LETTER.

(From Our Regular Correspondent.)

TREATMENT OF HEMORRHAGE BY SERUM INJECTIONS—PAINLESS DENTISTRY—HEMOLYTIC ICTERUS OF THE WIDAL TYPE—INCARCERATION OF A PROLAPSED UTERUS—A MODIFIED OPERATION FOR CLEFT PALATE—AMYLOID TUMOR OF THE LARYNX.

VIENNA, May 10, 1909.

Dr. K. Wirth has recently tried the effects of serum injections in the treatment of hemorrhage, after he had very good results with the method in controlling an extensive hemorrhage in a patient suffering from hemophilia. He used horse serum for the purpose, the usual dose being 20 c.c. and the site of the injection being either the lateral abdominal walls or the thigh. In no case were any untoward results noticed. The method was used altogether in eight cases, in all of which very favorable effects were noticed, though other measures of controlling bleeding proved quite useless. The cases treated were those of hemorrhage following tonsillotomy, bleeding from the nose in arteriosclerotics, hemoptysis in tuberculosis, and hemorrhage from the bowels. As a rule a single injection was quite sufficient, the effects being quickly noticed. In suitable cases the serum was also used locally, cotton saturated with it being applied to the nasal mucosa in epistaxis, and enemata containing serum being given in hemorrhage from the lower bowel. The results in these cases were also very satisfactory.

Dr. Alfred Neumann has used a new procedure in painless extraction of upper teeth, consisting in the anesthetization of the nerves supplying the upper jaw. He injects cocaine and adrenalin solutions in three places in the jaw, one in the neighborhood of the last tooth at the angle formed by the deflection of the mucous membrane of the mouth, the second at the root of the tooth that is to be operated upon, and the third about the gums surrounding the defective tooth. The needle is in all cases pushed high up and only then the anesthetizing solution is expelled. Any dental measure can then be performed without pain. Alveolar spaces may be cleared out and teeth extracted quite painlessly, even in the presence of very extensive and severe periosteal inflammation.

Dr. Stejskal has had the opportunity of observing two cases of hemolytic icterus of the type described by Widal. One of the patients is a girl of eighteen years, who has been under observation for over one and a half years. Her disease has been developing for three years, having begun with feelings of lassitude, weakness, shortness of breath, headaches, etc. Remissions and excerbations of symptoms have been quite frequent in the course of the disease. Objective signs consist in extreme paleness, combined with jaundice, and an enlarged spleen, which has varied in size from time to time. The second case was that of a writer who has been affected since last July, presenting about the same signs and symptoms of disease. In both cases the malady was an acquired and not a congenital condition. It is differentiated from pernicious anemia by the absence of any extensive hemorrhagic phenomena, by the presence of hydrochloric acid and of pepsin in the stomach, and by the occurrence of thromboses. The variable size of the spleen helps to differentiate it from the anemic conditions accompanying splenomegaly. Dr. Stejskal could corroborate the hemolytic phenomena observed by Widal in such patients. The resistance of the red cells to osmotic and toxis influences is very much diminished in this affection, but this is probably dependent upon changes in the physical properties of the cells and does not appear to depend at all upon the hemolytic phenomena. Autoagglutination was not observed in these two cases.

Dr. Rosenberger of Budapest has recently operated upon a case of incarceration of the uterus complicated by a laceration of the vagina. The patient was a woman in the third month of her seventh pregnancy. She found herself suddenly unable to void urine, in spite of an overfilled bladder; next day she felt intense desire to go to stool and attempted several times to empty her bowels. Her efforts simply led to the appearance of a bladder-like tumor at the vaginal entrance, which was interpreted by the midwife as an impending abortion. The latter, therefore, simply encouraged the patient to continue straining, thinking thus to hasten the expulsion of the fetus. Her efforts, however, only served to increase the size of the prolapsed tumor. A physician was then called in and the patient was removed to a hospital. There it was found that the uterus, together with the left tube and ovary, had prolapsed between the thighs of the woman, while the right-sided adnexa could be felt in one fornix of the vagina. The prolapsed uterus was soiled with feces from the lower bowel, while the bladder was distended by two liters of clear urine. Total extirpation of the uterus had to be done, an extensive laceration of the vagina being found at the operation. Drainage with iodoform gauze had to be employed. The postoperative condition was for a time quite serious, but the woman finally made a very satisfactory recovery.

Dr. Winternitz of the Budapest Children's Hospital Stephanie has published a modification of the operation for cleft palate. He operates at one sitting, making use of two plates, made of aluminum, silver, or hard rubber, and perforated in two places. These plates are designed to press together the edges of the wound and thus relieve the tension on the central row of sutures. In five days these plates may be removed and then the button sutures may be dispensed with in a few more days. Winternitz has operated in twenty-five cases according to this method. He had much better success in operating upon infants under two years old than upon babies over that age. The former could be kept much quieter, slept better, and did not cry so much, so that less tension was exercised upon the fresh scars. The author, therefore, advises early operation, though not on babies under one and a half years old. In later age the soft palate does not develop properly and no abundance of tissue exists for a successful closure of the congenital gaps in the hard palate. If a harelip exists, it must be corrected before the split palate is operated upon.

Lénárt of Budapest operated upon a patient suffering from an amyloid tumor of the larynx and trachea. The patient was a man of 57 years, who has been hoarse for the last five years. Four years ago a small piece of tissue was removed for diagnosis and was pronounced to be of chronic inflammatory nature. Two years ago there appeared a reddish, flat tumor in the subglottic space under the right vocal cord; this tumor presented an uneven surface, was not connected with the vocal cord, stretched posteriorly to the interarytenoid space, and projected into the middle of the larynx. No inflammatory lesion could be observed anywhere in the body. The patient gave a history of a syphilitic infection, which occurred thirty years ago and was not followed by many symptoms. He has had two healthy children born to him since, and could do his work, which was that of a teacher, without any difficulty. He was treated for months by the administration of potassium iodide, but showed no signs of improvement. Radical operation was advised at the time, but the patient refused it. This year he returned for treatment, being able to breathe only through a cannula, the lower portion of the larynx being completely filled with the tumor mass. A radical operation was performed and the tumor, a large soft mass, projecting in every direction, was removed. The tumor was removed very easily, the surface of the larynx and trachea showing no signs of infiltration. The bared spots were skin grafted. Three days after the operation the patient could feed himself properly and four weeks later the cannula could be permanently removed. The patient recovered completely, he could breathe freely and his voice reassumed normal strength and sound. Histological examination of the tumor proved it to be of amyloid nature. It seemed probable that in this case the chronically inflamed tissues underwent amyloid degeneration during the long course of the disease.

Progress of Medical Science.

Boston Medical and Surgical Journal, May 6, 1909.

The Results of Operations for Cancer of the Tongue, Mouth, and Jaw at the Massachusetts General Hospital, 1890-1904.—The hospital records have been carefully searched by R. B. Greenough, C. C. Simons, and R. M. Green and 172 cases have been found; 112 were operated on, 50 were deemed inoperable, and 10 refused operation. Of the 112 operations of all varieties, 20, or 17.8 per cent., resulted in death within sixty days. Of cancer of the tongue and floor of mouth there were 98 cases, of which 62 were operated on and 36 were inoperable or refused operation. Of the 62 cases operated on, in 58 (93.5 per cent.) the end result is known. Sixty-two cases of operation gave an operative mortality of 8, or 12.9 per cent. Of the 58 cases in which the end result is known, 10 were free from recurrence three years or more after operation (17.2 per cent.). Of the 40 cases in which recurrence did take place after operation, in 38 death occurred before the lapse of three years after operation. Operations for cancer of the tongue involving section or resection of the jaw caused a much higher operative mortality and no greater percentage of cures than the intrabuccal operations. Of cancer of the lower jaw there were 40 cases; 28 operable, 12 inoperable. The operative mortality of 28 cases was 10, or 35.5 per cent. In 26 cases of operation the end result is known, and 5 cases (19.2 per cent.) were free from recurrence three years or more after operation. There were 14 cases of cancer of the upper jaw. Ten were operated upon and 4 were not. The end result is known in 9 of the 10 operated cases, and in each of these 9 cases death occurred within three years, although there were no deaths as an immediate result of operation. Cancer of the tonsil, soft palate, or fauces occurred in 11 cases, 8 of which were inoperable and 4 were submitted to operation. One case was alive and well seven years after operation (25 per cent.). There was no operative mortality. Cancer of the cheek occurred in 9 cases, 1 of which was inoperable. Of the 8 patients operated upon, 2 died of operation (25 per cent.) and none was cured.

New York Medical Journal, May 8, 1909.

The Value of the Roentgen Rays in Thoracic Lesions.—The paper of R. H. Boggs is illustrated with several skiagrams of familiar chest lesions. It must be confessed that the ordinary methods of printing skiagrams from blocks leaves much to be desired. The author says that from a series of more than eighty patients examined for pulmonary tubercle and in whom the diagnosis has been confirmed, either before or after, by other methods, he feels justified in concluding: (1) That the extent of the disease is more accurately determined by the *x*-ray than the physical findings alone. (2) That in doubtful cases the rays often afford sufficient information to make an accurate diagnosis. (3) That the rays are a useful method of recording the lesions and determining the progress made by treatment. (4) That the radiogram records nothing but variations in density and leaves the etiological factors to be determined by other clinical methods. (5) That frequently, when physical signs were present in one side, the radiogram would show infiltration in both lungs.

An Operation for Frontal Sinus Obliteration Avoiding Supraorbital Deformity and Nasal Scar.—A. E. Prince figures several instruments used by himself in operating and thus details his technical methods: (1) Intranasal preparation. Introduce a postnasal plug. Correct any considerable deflection of the septum, as a preliminary step. Remove the anterior end of the middle turbinal, preferably by means of forceps. (2) Clip and sterilize the eyebrow. Make a skin incision extending along the middle of the eyebrow from a point opposite the junction of the frontal, nasal, and maxillary bones. Omit the usual nasal extension of the incision which is made for the purpose of reaching the ethmoid cells, through an opening made by resecting a portion of the nasal process of the superior maxilla. This is not required. It is particularly undesirable to extend the incision along the side of the nose on account of the possibility of producing an objectionable scar. This is especially true when the underlying bony support has been removed. (3) Periosteal incision. The periosteal incision is made parallel to the skin incision. It extends somewhat under the skin at the nasal angle. Then it is separated from the roof and inner wall of the orbit. The trochlea remains attached to the periosteum, and is brought back into position with the closure of the incision, thus preventing diplopia or cyclophoria, which might result from its injury or dislocation from its attachment to the periosteum. (4) Removal of the sinus floor. The orbital contents are separated from the inner wall by means of a retractor, and the nasofrontal angle of the orbit is exposed. The bone is thinnest at this point, which is the usual location of spontaneous perforation, and opening and the anterior portion of the floor of the frontal sinus is removed. (5) Curetting. The septa are removed and all the mucosa of the frontal sinus is scrupulously curetted. All doubtful points of the surface are cauterized with pure carbolic or trichloracetic acid. The remote angles are inspected by a sinuscope—an instrument on the order of a myringoscope, except that the lamp is placed on the side of the instrument. The ethmoid cells are curetted through the opening below the frontal sinus and nasal cavity. The anterior wall of the sphenoid is best removed through the nose. (6) Closing of the wound. The cut edges of the periosteum are united with pyoktannin catgut sutures, care being exercised to insure correct replacement of the trochlea. Horse hair sutures are used to insure more perfect coaptation of the edges of the skin; perfect closure prevents air being forced through the wound, carrying infection from the nose. The wound is sealed with a strip of gauze soaked in collodion, which effectively closes and strengthens the line of union. The after-treatment is not essential, excepting that the patient must not blow the nose. The cavity is wiped out with cotton, saturated with a 25 per cent. solution of alcohol. Healing usually takes place by first intention, and granulations rapidly fill the cavity.

Pellagra.—J. J. Watson has studied 100 cases of the disease as occurring in Italy and South Carolina and gives details of one case. The disease is a chronic affection caused by eating Indian corn infected with specific microorganisms. The author then enters into a general description of the affection, going into the matter of the grain infection with great particularity. The maize theory is based on the following facts: (1) That maize is the staple cereal consumed by the inhabitants in pellagrous countries; (2) that pellagra is now recognized as a disease in every maize producing country; (3) that extracts made from damaged maize will produce in men and animals symptoms similar to pellagra; and (4) that symptoms similar to pellagra have been produced in animals by feeding them on damaged maize. The results of experimentation on men and on dogs are given. On 10 patients the following symptoms followed in varying combination the administration of tincture of bad maize: Diarrhea, increased appetite, soft feces, revulsion to food, weakness, lassitude, erythema, desquamation, and skin lesions. There was also a pronounced effect on the heart and kidneys. There was diminution in weight from four to twenty pounds. Two patients increased in weight six and eight pounds. Many of these symptoms lasted two and one-half months, and in one patient for nine months after the experiment was discontinued. Six of the men were accustomed to alcohol. Two of these had no symptoms and two resisted more than the others. One of the subjects was a victim of psoriasis and the skin disease was cured by the experiment. Since then the tincture of bad maize has been used by Lombroso as a treatment of psoriasis with success. Treatment is rather unsatisfactory. Fowler's solution has been given in increasing doses, also atoxyl, an arsenic preparation, hypodermically. Good hygiene and avoidance of all articles containing Indian corn and hydrotherapy all conduce to improvement.

Journal of the American Medical Association, May 8, 1909.

The Insane Diathesis.—Sanger Brown insists on the importance of early recognition of the signs in the child, youth, or convalescent, that indicate a predisposition to insanity. They may show themselves in physical defects, but these are not of themselves conclusive. Hereditary influence is generally distinct and frequently conspicuous, and in a majority it is mainly material and similar. Children of this type are more liable to such nervous disorders as convulsions, enuresis or chorea, are unsocial in many cases, and while sometimes apparently precocious in some directions, are likely to be backward in their studies. Extreme out-

breaks of temper, insubordination, selfishness, and cruelty are also often characteristic. These characteristics may, if not too marked, diminish or disappear with the onset of puberty, but they may be accented and new ones be added, especially in the sexual sphere. There is also, not infrequently, a certain sort of religiosity which may at the same time be associated with extreme selfishness and egotism. In adolescence, these individuals are agitators and impractical projectors, sexual perverts, etc., in short, they make up largely the class commonly known as "cranks," which grade easily into the insane and criminal classes. Treatment of these cases must consist in encouragement of the healthy development of the nervous system and the use of such measures as will promote the normal activity of the neurons. These last are mainly educational, moral, and disciplinary. With a condition so markedly hereditary as this, home influences are often not the best, and a well-regulated boarding school is preferable. In childhood, the first requisite of treatment is to secure obedience and the control should be firm though kindly. In youth the same influences should be continued and extra effort made to develop the judgment. The lifework should be chosen late and after careful scrutiny of the patient's talents and tendencies. Marriage between two persons with this temperament should be most earnestly discouraged.

A New Disorder from Heat.—W. H. Cameron gives his experience with the disorder known among mill men as "mill cramps," though they give the same name to any sudden painful seizure occurring while they are at work. The unfavorable circumstances under which he saw his cases have prevented a more satisfactory investigation. No toxemia or morbid condition was observable, such as could account for the symptoms, and no cause was ascertained except exposure to extreme heat. This was sometimes as high as 235° F., which seems almost unbelievable, and sometimes ignites the clothing, notwithstanding frequent saturation with water. Another point is that the patients have always been undergoing extreme muscular exertion and the attack occurred, not while they were engaged in work, but shortly afterward. Most of them have been hard drinkers, but there was no evidence to show that they were at all intoxicated at the time. In all the cases there was some indication, however, that the patients were a little out of condition and not at their very best for the kind of work in which they were engaged. It was a common observation, confirmed by his own experience in treating these cases, that one attack produced a predisposition to others, but he might have been somewhat mistaken in his suspicion of a certain natural predisposition or susceptibility. Like Edsall, he has never noticed any thermal change. The pulse is somewhat accelerated, but not more than might be expected in persons suffering intense pain, which is the most characteristic feature of the disorder. The entire length of the attack is from one to four hours, when there is a gradual lessening in the severity and frequency of the seizures for perhaps twenty-four hours. But the tendency generally is to a more or less rapid recovery, leaving only a slight muscular soreness. This is, however, only his experience with his cases. He has never seen the muscles of the face, neck, or back affected, or had a case where he thought the involuntary muscles were involved. He has heard, however, of fatal cases credited to spasm of the heart. With the severity of the symptoms one would suspect severe pathological changes, but the rapid complete recovery with no serious after-consequences is against this supposition. Edsall says that there are absolutely no blood changes, and superficial nerve disturbances as a hypothesis is untenable because if the nerve endings had been involved there would have been no constant pain. Unfortunately, Cameron has never been able to obtain a section of muscle for microscopic examination, and, so far as he knows, no such examination has been made. The treatment has puzzled him; he had not used anesthetics because he has found them injurious when the patient has just been undergoing severe labor. The fact that Edsall has found that chlorides are lacking in the urine may give a clue to the future treatment.

Rattlesnake Bite.—C. S. White reports in detail an account of a case of poisoning by rattlesnake bite which is of interest on account of the rarity of such observations, these accidents not happening often where they can be fully observed. The patient was bitten by a diamond rattler in the Washington Zoological Garden. Though the man received immediate attention, the wounded finger being ligated at once, freely incised and cauterized with a 1 per cent. solution of potassium permanganate, the infection extended as soon as the ligature was removed. It was not until over a month and the finger had been amputated that he was in condition to be discharged from the hospital, in spite of an active sustaining treatment; and he was then in a very subnormal and anemic condition. White reviews the subject of snake bites generally and their therapeutics. The patient was treated according to the Mueller method with strychnine and free stimulation. White says that while it may be taken by the advocates of that special method as an evidence of its efficacy the patient probably would have recovered regardless of the treatment used.

Infantile Pseudoparalysis.—F. C. Neff remarks that apparent paralysis in ailing children is not infrequent, and in the absence of signs of the causative disease it will be difficult to exclude true paralysis, such as anterior poliomyelitis, the cerebral palsies, various spastic paralyses, and other less common diseases of the nervous system. From his case records he groups such cases under three heads, giving illustrative examples of each class, namely, the paralytic symptoms of rachitis, of scurvy, and syphilitic pseudoparalysis. In each case treatment for the original condition relieved the paralysis. His conclusions are summed up in the following: "1. Pseudoparalysis is not rare in rickets, scurvy, and syphilis. 2. When it is the earliest symptom noticed in these diseases diagnosis is difficult. Other evidence should be looked for. 3. It would be hard to group three other such serious conditions of childhood which have so favorable an outcome under early treatment."

The Lancet, May 1, 1909.

A Fatal Case of Splenomegalic Polycythemia.—The patient of W. F. Umney was a woman of 34 years with transient hematuria but a persistent albuminuria. She had never had any rheumatic manifestations or evidence of syphilis. She had noted a bluish color in her complexion, more observable in cold weather, but her general health remained good, except that her menstruation was irregular. A diagnosis was at first made of chronic nephritis with unusual cyanosis. But this was soon discarded, as an enlarged spleen was found and a marked polycythemia, the red cells numbering even 11,000,000 per ccm. She continued in this condition without any obvious alteration for two years. Then chorea gradually came on, affecting body and limbs alike. The arms became edematous, and later other portions of the body. Cough appeared later and after a long illness she died in an attack of intense dyspnea. Thrombosis was one of the later features. No autopsy was allowed. The author discusses in particular the features of thrombosis and chorea. He considers it probable that the former first appeared in the smaller cerebral veins and that the chorea was directly caused thereby. The more general thrombosis he would regard as a logical occurrence in cases of this nature, but he has never noted its occurrence in the cases previously recorded. The cough and dyspnea were referable at their onset to thrombosis in veins and were not accompanied by any physical signs which could be appreciated.

Adenoids, Nocturnal Incontinence, and the Thyroid Gland.—L. Williams gives the histories of patients which go to show that adenoids cannot be regarded as a cause of nocturnal enuresis, but that when these two conditions are associated both are due to a common cause, viz., insufficiency of the internal secretion of the thyroid gland. The administration of thyroid extract will in a comparatively short space of time effect a cure of the enuresis and greatly relieve coexisting evidences of poor general health. In the author's hospital service he has seen twenty-five patients in all and only one failed to respond to the thyroid treatment.

Streptococcal Pericarditis and Colitis Following Tonsillitis.—J. S. Pearson reports two cases. Case I. was that of a healthy girl of 20 years, with lacunar tonsillitis and a history of previous bowel trouble. On admission to hospital her tonsillitis had pretty well cleared up, but she had a high fever and was evidently septic. She died in nine days, having developed a pericarditis and various pustular areas over the body. On autopsy the pericardial sac contained two ounces of thin pus with roughening and thickening of the pericardial layers. There was no endocarditis. The whole of the large bowel was studded with shallow irregular

ulcers. Case II. was that of a girl of 7 years, admitted to hospital with joint pains and a subsiding tonsillitis, with moderate fever. The latter increased, being considerably higher in one axilla than in the other. The child became apathetic and then very delirious, but finally pulled through. Both cases showed the *Streptococcus longus* in the blood. The author says that he has frequently observed in acute pericardial effusions a higher temperature in the left axilla than in the right. Such an occurrence would always suggest to him pericarditis. It may be present when the auscultatory signs are of doubtful significance.

British Medical Journal, May 1, 1909.

Acute Thyroiditis.—The patient of K. H. Jones was a Chinaman of 25 years, complaining of some stiffness and soreness of the neck and some dyspnea, but apparently not very ill. In three days his throat had become much worse and considerably swollen and a symmetrical enlargement of the thyroid could be easily made out. There was slight fever and considerable dysphagia. Iodine liniment was applied and half-dram doses of potassium iodide given in aromatic ammonia spirits three times daily. The author suggests that in these cases of sudden enlargement there may be some temporary lesion of the vasomotor nerves which control the blood supply of the gland. The patient referred to recovered in a week.

Alcohol as a Surgical Dressing.—J. G. Andrew has gradually given up the use of the conventional antiseptics and now confines himself to methylated spirits whatever may be the nature of the wound. He believes that gauze wrung out in spirits withdraws the moisture from the wound owing to the affinity of alcohol for water and thus removes the most essential factor for bacterial growth, viz., moisture. It frequently lessens the necessity for drainage and by its styptic properties shortens the time necessary for securing the smaller bleeding points.

A Fatal Case of Lead Poisoning Due to Diachylon.—The patient of F. S. Heaney was a married woman who, finding herself pregnant against her desire, took a quarter of an ounce of diachylon in mass, rolling it into nine pills and taking it in the course of forty-eight hours. In a few hours she began to have abdominal pains. These were partially relieved. Bowels did not move except by enema. In about a week the mental symptoms of insomnia, hallucination, fainting attacks, etc., came on. At this time she was seen by the author. She was pale, anemic, prostrated, with furred tongue, pulse 138, soft and full, constipated, with retracted abdomen, and scanty and frequent micturition. Magnesium sulphate was given and for awhile they seemed to relieve the constipation and delusions. Digitalis and strychnine were given for the heart. Seventeen days after taking the diachylon she had severe pain in the left shoulder and upper arm and next day the pain had gone, but the muscles of the arm were almost completely paralyzed. Sensation was diminished, but not completely lost. Two days later the same condition appeared in the right arm. Four days after she died in a fainting spell, preceded by a very rapid and irregular heart. The autopsy showed (1) acute inflammation of the mucous lining of the stomach and intestine, extending in some places to actual ulceration, and (2) acute fatty changes in the liver and heart.

The Indications for Nephropexy.—W. Billington regards this operation as a safe and satisfactory surgical procedure. Renal mobility alone is not an indication for operation. Local pain of sufficient severity to diminish working efficiency is an indication for operation. Chronic functional disturbance of the digestive system may be caused by movable kidney. Such cases often resist all kinds of general and medicinal treatment and are greatly benefited by nephropexy. The operation is also indicated in progressive spinal and cerebral neurasthenia occurring in association with movable kidney, when other measures have failed to cure or improvement is followed by rapid relapse. The operation is indicated further when movable kidney is associated with insanity.

Münchener medizinische Wochenschrift, April 20 and 27, 1909.

Coagulation Time of Blood.—Hartmann studied the coagulation of blood after gynecological operations, as well as in pregnancy and in labor. He used the method of determining the time of coagulation proposed by Bürker, which consists of mixing a drop of blood and of water together and then passing a rod through the mixture every half a minute until a thread of fibrin appears upon the rod. This is done in a special apparatus kept at a certain constant temperature. Hartmann has found that age had no influence upon the coagulation time. In pregnancy the coagulation time of blood appeared normal, this finding being opposed to usual teaching in the matter. Time of day also appeared to have no influence upon the speed of coagulation. Only after prolonged and bloody major operations it was found by Hartmann that the coagulation time of the blood was noticeably shortened. The effect of lumbar anesthesia used in most of the operations was excluded by the fact that no such change of coagulability took place in cases in which same anesthesia was used for nonbloody examinations, cystoscopy, etc. Differences in blood-pressure also appeared to be without effect upon the coagulation time of blood. It seemed, therefore, that loss of blood was the only factor responsible for the change in the coagulability of the blood after operations. The primary cause of the change seemed to lie in the suddenness of the loss of blood, for no such phenomena could be observed after bleeding in small amounts continued for a long time. The author thinks it quite probable that coagulation time of blood is quite a different thing from the coagulability of the blood; the latter is frequently increased, if clinical evidence is to be trusted, in cases in which the coagulation time does not seem to have been changed at all. The normal coagulation time, as found by Bürker's method, amounts to four and a half to four and three-quarters minutes, according to Hartmann.

Hot Air in the Treatment of Acute Purulent Inflammations.—Iselin says that the best treatment of purulent inflammations consists in the combination of usual surgical methods with the use of dry, hot air. The surgical treatment, consisting of incision and evacuation of pus, always precedes the baking process. The latter is begun on the day of the operation as soon as the patient has recovered from the immediate effects of the latter. At first the parts are baked twice a day, later only once a day, each sitting continuing for two hours. The bandages are removed before the hot air is applied; as little drainage as possible is used as soon as the wound begins to granulate. Any collections of pus or dead tissue are removed by gentle irrigations with saline solution. Bier's boxes are used as the apparatus for the baking; the effect of the hot air is shown by the formation of an artificial swelling of the parts, which, however, disappears during the night. An especially favorable effect of hot air is seen in the diminution of pain, which is testified to by the great majority of patients. Most of the cases treated by Iselin were suppurations of the tendons in the hand, and the results in such cases were most gratifying. In a few days the wounds assumed a healthy appearance, and in one or two weeks complete healing took place. The scars were usually quite soft and pliable. Of the seventeen cases of suppurations involving tendons destruction of a tendon occurred in only one case. Iselin considers that Bier's hyperemic treatment is much less effective than his hot air treatment. The former leaves much more room for mistakes in the application of bandages and caps, and may often do direct harm. Baking, on the other hand, may be safely applied in all cases in which preliminary incisions have been made. It is apparently a most effective method of assisting the natural processes of repair.

Syphilis Among Physicians.—Waelsch discusses the possibility of general syphilis appearing without the development of a primary sore, and reports four cases, all among physicians, in which this course of the disease could be observed. In all of them secondary luetic phenomena, including fever, sore throat, eruption, etc., were noticed, although a chancre has never been observed. The circumstances were such that failure to observe the primary syphilitic effect could not be considered. These cases lead Waelsch to grant such form of syphilis, called by the French *syphilis d'emblée*, really existed. He then discusses luetic infection among physicians acquired in the discharge of their professional duties; he had occasion to observe six such cases, which formed 50 per cent. of all extragenitally acquired cases of syphilitic infection observed by him in ten years. The seat of the primary sore was in all cases on the fingers, the disease usually beginning in the form of a paronychia, which proved quite obstinate when treated by the usual measures. This course of the lesion and the development of lymphadenitis usually led to a suspicion of the true nature of the case. The course of the disease was in all instances a benign one. Waelsch is, indeed, inclined to deny the truth of the frequent assertion that syphilis acquired in an extragenital manner is usually

very malignant in type. The author considers the prophylaxis of such infections with syphilis and warns against too much manicuring of the hands, which often leaves small wounds that serve as the sites of entry for syphilitic virus. In the presence of any larger cuts and abrasions of the skin the use of gloves is imperative in all surgical and obstetrical procedures. The treatment of any wound acquired in operating upon any person suspected of syphilis should consist of a thorough cauterization with the actual cautery; if a needle has entered the flesh it may be connected with an electric battery and the tissues about it destroyed by the current.

The Points of Origin of the Heart Beat.—Hering says that the normal point of origin of the heart beat lies at the mouth of the superior vena cava in the region of the terminal sulcus; here there has been found by Keith and Flack a peculiar nodule of muscle fibers differing from the rest of the heart muscle. In addition to this origin, cardiac pulsations may also originate in the neighborhood of the bundle of Tahawara, from which the pulsations are transmitted to the mouth of the inferior vena cava and thence to the whole auricle. The interval between contraction at Tahawara's node and the auricular impulse is shorter than that following the contraction at the Keith-Flack node. The former pulsations become evident whenever the pulsations at the Keith-Flack node become too infrequent, or stop altogether or are blocked in any fashion; in all such cases the conduction of the impulses must be regarded as abnormal in type. In cases of permanent irregular pulse it is quite probable that the heart impulse originates at the node of Tahawara.

Deutsche medizinische Wochenschrift, April 15 and 29, 1909.

Gout and Rheumatism.—His says that great uncertainty reigns in the classification and treatment of chronic arthrides, because of the limited knowledge of the etiology and pathology of these diseases. Alfred Garrod has made the term "gout" a specific one, and since his work it has been shown that the essence of the disease lies in a disturbance of purin metabolism, evidenced in the formation as well as in the destruction of uric acid; this disturbance leads to the excess of uric acid in the blood and to a peculiarly retarded elimination of this substance. Purin metabolism, however, does not explain all the symptoms occurring in gout, such as dyspepsia, myalgia, neuralgia, arteriosclerosis and the occurrence of granular contracted kidney. While etiological factors, such as alcoholism, play an important rôle, there is no question that an underlying constitutional fault, a disposition, a diathesis, exists in such patients. His classifies chronic arthritides as follows: (1) Chronic rheumatism, following repeated attacks of acute articular disease; (2) progressive chronic polyarthritis, occurring usually in symmetric joints, involving the small joints of the fingers and toes first, accompanied by slight fever or without a rise in temperature, and progressing in repeated attacks with intermissions; (3) monoarthritis, due to senility or to repeated trauma, a form described by Volkmann; (4) ankylosing affections of the spinal column; (5) Heberden's nodes. Pathologically, these forms may be classified under those beginning with the degeneration of the cartilage, affection of the joint capsule, occurring only later, and those which begin in the synovial membrane and then attack the cartilage. Arthritis deformans, spondylose rhizomelique, Heberden's nodes, and the dry form of chronic progressive polyarthritis belong to the first division; chronic rheumatism and the exudative form of chronic polyarthritis belong to the second division. The etiological factors to be considered in the study of chronic joint diseases are trauma, acute and chronic inflammatory disease, acute articular rheumatism, and infectious diseases. When all these are excluded there remain, however, a large group of arthritides, the cause of which is unknown. His reports a number of such cases, accompanying nephrolithiasis, arteriosclerosis, family type of gout, etc. Most of them seem to be related to family predisposition or diathesis. His has seen various arthritic changes during postmortem examinations of persons who did not give any joint symptoms during life. Such changes very often accompanied chronic disease, so that they may have been due to trophic disturbances. Many cases of chronic arthritis were then studied in reference to their purin, metabolism, and the latter was not found to correspond to the type recently described in cases of gout. His concludes his very suggestive paper by discussing differential diagnosis between gout and other forms of chronic joint disease. Involvement of the big toe is not necessarily limited to cases of gout. *X*-ray pictures help very much, for they usually show that the deformities of the joints do not leave large shadows in cases of gout, deposits of biurates not being marked by the photographs. The surest method of diagnosis is the study of purin metabolism and the examination of uric acid content in the blood. His concludes by pointing out the danger of keeping other but gouty patients on purin-free diet. In them impaired nutrition is often an etiological factor in the disease, and restricted diet simply accentuates such factor.

Cerebrospinal Fluid in Postdiphtheritic Paralysis.—Roemheld says that postdiphtheritic paralysis is often very similar in its symptoms to tabes dorsalis, which, as is well known, is accompanied by certain specific changes in the cerebrospinal fluid. He has made systematic examinations in one such case, and has found that the albumin of the cerebrospinal fluid was markedly increased, equalling the amount obtainable in paralysis of other nature, and in meningitis. The lymphocytes in the fluid were likewise moderately increased in number. Roemheld believes that these changes show that postdiphtheritic paralysis is not due to mere peripheral neuritis, but is occasioned by some central processes. The pathological elements in the cerebrospinal fluid gradually decreased in amount with the improvement of clinical symptoms. Roemheld urges systematic lumbar punctures, and study of the fluid obtained in cases of diphtheria, and of its sequelæ, so that the nature of the changes produced in the organism by the diphtheria toxin may be better understood.

Physiology and Pathology of the Large Intestine.—Rosenheim says that even though all parts of the gastrointestinal canal are interrelated, yet every division retains its individual function and independence. The different parts of the large intestine show altogether different conditions as compared with each other. Rosenheim has found by palpation that normally the cecum and the ascending colon are empty in the morning, if the last meal of the evening has been taken at 8 to 10 o'clock. At this time the sigmoid flexure is always distended with fecal masses. After the morning defecation, not only rectum and sigmoid flexure but the descending colon as well are found empty. The act produced no changes in the transverse colon. Soft masses of gruel-like consistency could be palpated in the cecum about five hours after breakfast. This condition persisted until night, that part of the bowel being apparently emptied during sleep. By six o'clock in the evening fecal masses could be felt in the sigmoid flexure in some cases; at a later hour this condition was always present. The rectum was empty in the evening. These observations show how far from simple are the circumstances in such a common affection as habitual constipation, for abnormality of function in any portion of the large intestine may be responsible for the affection. The diagnosis must therefore be an anatomical and not a functional one, and for this purpose the conditions as found by palpating the patient's intestines must be compared with the conditions outlined above. Rosenheim has found that frequently only the sigmoid flexure is at fault in causing habitual constipation. It was oftenest in a state of tonic contraction in such cases. Cecum and descending colon are much more rarely at fault. Repeated palpatory examinations must be made in order that the real seat of the trouble is correctly diagnosed. The importance of this for therapeutics is evident. One must, however, go still further and diagnose not only the seat but, likewise, the cause of the constipation. This may be found in various inflammatory conditions, such as gastritis, cholecystitis, chronic appendicitis, affections of the genital organs in women, etc. In addition, anomalies of position and neuroses of various sort may be the causative agents.

Blue Rays in the Treatment of Wounds.—Richter says that sunlight has been proved to have an undoubted healing effect upon various kinds of wounds. Dry air and sunlight are, however, not to be had everywhere, and Richter has found a good substitute by employing blue arc light. The apparatus consists simply of an arc light with a reflector and blue glass panes. The wounds are subjected to the effect of the light for one-half hour daily. Such exposures lead to very rapid drying of the wound's surface, followed by the growth of epithelium and the formation of a scar. Nothing but sterile dressings are employed between the sittings. Especially remarkable is the diminution in pain following the exposure to the rays. Richter sees the beneficial effects of the rays in the general hyperemia they produce. He had very favorable results in treating plain granulating wounds, suppurating wounds, and especially chronic leg ulcers by this method. The fact that no immobilization of limbs, nor rest from the usual occupations were required made the method especially acceptable to working people. The final results were always very gratifying, the scars being more elastic, soft, and less painful than after the more usual methods of treatment.

Book Reviews.

Guide to the Clinical Examination and Treatment of Sick Children. Second Edition. Greatly Enlarged and Rewritten. By John Thomson, M.D., Fellow of the Royal College of Physicians of Edinburgh; Physician to the Royal Edinburgh Hospital for Sick Children; Joint Clinical Lecturer on the Diseases of Children, University of Edinburgh; Hon. Member of the American Pediatric Society. With 160 Illustrations. Chicago: W. T. Keener & Co., 1909.

In his preface the author states clearly the object of his book, his intention being to write a work supplementary to the text books on general medicine and introductory to the special treatises on children's diseases. He follows the clinical method, approaching his deductions from the standpoint of a keen observer, and calling the attention of his students to points which only long experience teaches the ordinary man who has not been properly instructed. The early part of the book treats of the clinical examination and history and physiognomical diagnosis, followed by an excellent description of the normal and abnormal growth and development of the child. The succeeding chapters take up the examination of the various regions, the digestive, cutaneous, and urinary disorders, the blood and circulation, respiratory diseases, an extensive account of nervous and mental diseases, and the general diseases. A rather too limited space is given to infant feeding, considering its enormous importance. The concluding portions discuss therapeutics, baths, medicines, mechanical treatments, blisters, poultices, etc., and show how these must be modified to suit childhood. An appendix gives succinct accounts of caretaking, the incubation, infective period, and duration of infections in the acute contagious diseases, recipes, formulæ, etc. In this, the second edition, the writer has doubled the size of the first, and has adhered to the same methods of selecting what he considers of interest or importance rather than trying, often at the price of boring the reader, to make a complete collection of each and every item that has been or might be connected with pediatrics.

Experimental Researches on Specific Therapeutics. By Prof. Paul Ehrlich, M.D., D.Sc.Oxon., Director of the Königliches Institut für Experimentelle Therapie, Frankfort. The Harben Lectures for 1907 of the Royal Institute of Public Health. New York: Paul B. Hoeber, 1909.

Ehrlich reviews and to a certain extent here expands the ideas he has already published in technical German papers. He discusses, first, specific therapeutics, explaining in simple language some of the phases of the side-chain theory and the kinds of antibodies produced by the action of antigens on the cells of the organism. The second lecture is given up to a discussion of another form of immunity, that due to lack of nutritive material for the attacking parasite. This hypothesis of "atrepsy" has been used by Ehrlich to explain the disappearance of tumors in sensitive animals or the immunity which some of these animals show against inoculations of very virulent tumors. The third lecture is devoted to the mode of action of some of the therapeutic agents introduced by Ehrlich in the treatment of trypanosomiasis in animals, and the immunity which the trypanosomes can develop against these drugs.

Constipation and Intestinal Obstruction (Obstipation). By Samuel Goodwin Gant, M.D., LL.D., Professor of Diseases of Rectum and Anus in the New York Post-Graduate Medical School and Hospital; Attending Surgeon for Rectal Diseases at the New York Post-Graduate and St. Mary's Hospitals, and the German Polyclinic Dispensary. With 250 Original Illustrations. Philadelphia and London: W. B. Saunders Co., 1909.

Constipation is perhaps the most frequent ailment which the physician is called upon to treat; it is also the most difficult to cure, and is yet given the least attention in the college courses in medicine and therapeutics. A volume devoted exclusively to the consideration of constipation, and especially to the medical and surgical treatment of it, is therefore especially welcome. The fact that the book before us contains over five hundred pages shows that Dr. Gant has given an exhaustive account of the subject, drawing upon his large experience in functional and organic diseases of the intestines for illustrative material. The volume opens with a complete description of the anatomy and physiology of the organs and structures that may be involved in the production of constipation. Dr. Gant then considers mechanical constipation due to obstruction of whatever nature, its symptoms, its diagnosis, and the various means of treatment at our command. The descriptive chapters are very well illustrated, so that the matter considered is presented much more objectively than is usual in the books on intestinal and gastric diseases. Most space is devoted to the treatment of constipation, this being considered under the headings, educational and prophylactic treatment, psychic treatment, diet, exercise, external and internal hydrotherapy, massage, mechanical vibration, electrical treatment, and, finally, medical treatment." The latter chapter is accompanied by a large and extensive formulary, consisting of original prescriptions and of those culled from previous writers. The consequences and complications of constipation are then considered, much space being devoted to the various surgical conditions that may be met with in this connection. The book is so complete in this respect that the title does not really give justice to its contents, as almost all operations upon the intestines are described in the book. On the whole, Dr. Gant's volume is the best and most complete treatise on the subject that we have seen.

A Laboratory Guide and Outlines in Histology. Revised Edition. By Charles H. DeWitt, M.S. Anatomy and Histology, Chicago College of Medicine and Surgery, Histology and Bacteriology in Chicago College of Dental Surgery, Histology in Valparaiso University, Valparaiso, Indiana: Charles H. DeWitt, 1908.

The efficiency of a course in histology is very much enhanced by the use of a laboratory guide answering the aim and extent of the course. The best guide is usually the one prepared by the instructor to meet his own particular requirements, and this is what Dr. DeWitt's book purports to be. In addition to brief, yet sufficient, instructions in the technique of preparing various histological material, his guide contains descriptions of the appearances that should be noticed by the student, and a number of questions under each heading, directing the student's attention to important points. Instead of elaborate illustrations, such as are met with in textbooks, the author has illustrated his book by original drawings in outline, of the same character as the student may be expected to draw. A few microphotographs are also given, but they are rather mediocre in quality. The book is interleaved for additional note-taking or drawings. It covers the subject of elementary histology quite fully and should prove useful both to students and to instructors of the subject.

Practical Physiological Chemistry. A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science. By Philip B. Hawk, Professor of Physiological Chemistry in the University of Illinois. With two full-page plates of absorption spectra in colors, four additional full-page color plates, and one hundred and twenty six figures, of which twelve are in colors. Second edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co., 1909.

While the first edition of this work was an excellent guide for the beginner, the second has been so much amplified that it forms an admirable laboratory text for even the advanced worker in biological chemistry. A great many of the more recent tests have been introduced, especially in the chapter on the qualitative and quantitative analysis of the urine, which is one of the best in the book. The question and answer scheme, which was rather wearying in the first edition, has been largely given up, and the teacher is left to ask his own questions. The description of apparatus and methods is clear and full, and in the majority of cases is all that is needed to enable the student to proceed very largely by himself. It is unfortunate that more references to the bibliography of the more important subjects have not been given. Students may not often look up the original, but it is a habit to be encouraged. The writer also shows a tendency to be rather too polite in his treatment of some of the older methods, and refrains from expressing his opinions freely; for example, in speaking of the Heintz method for the determination of uric acid, he says: "It is believed to be somewhat less accurate than the method just described" (Folin-Shaffer method). Belief has but little to do with chemistry. If the Heintz method had been a satisfactory quantitative procedure, the Folin-Shaffer method, or rather the Haycraft-Folin-Shaffer, would not have been introduced. If a professor of physiological chemistry cannot be certain which of several methods is most accurate, how should a student be supposed to select? But apart from these slight defects, the volume is one of the most useful of its type, and furnishes a striking evidence of the great development of, and the widespread interest in, biological chemistry, especially in connection with medicine.

Society Reports.

THE AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-fourth Annual Meeting, Celebrating the Centennial of McDowell's Operation, held in New York City, April 20, 21, and 22, 1909.

THE PRESIDENT, DR. J. RIDDLE GOFFE, IN THE CHAIR.

AN Address of Welcome was delivered by Dr. Clement Cleveland of New York, which was responded to by Dr. J. Montgomery Baldy of Philadelphia.

Indications for Cesarean Section in Placenta Previa.—Dr. GEORGE TUCKER HARRISON of New York read this paper. While the cases in which cesarean section for placenta previa was justifiable were very few, they did occur, and when such a case presented itself, he maintained that vaginal cesarean section should be the operation of election. This was a surgically exact method. It fulfilled the requirements of quick scientific surgery, in that one could make a clean incision, deliver, sew up the incision, and get union by first intention.

Cesarean Section in Placenta Previa.—Dr. CHARLES JEWETT of Brooklyn, N. Y., said that in cases of complete placenta previa, when complicated with an undilated and rigid cervix, abdominal section claimed consideration. Certain of the more conservative sectionists accorded a place to the cesarean operation in these conditions when it could be performed in a hospital. But the benefits of a hospital environment obtained in a similar measure for obstetric delivery. Even in complete previal implantation, and with undilated cervix, bleeding was amenable to one or more of the usual obstetric procedures, gauze tamponade or water-bag within the cervix, or the latter passed through the placenta, podalic version, etc. With ligation of the uterine arteries, as proposed by Miller of Pittsburg, the author had had no experience. If its author's claims were borne out by further trial, nothing more was required for the management of the kind of hemorrhage under discussion. Abdominal section was a grave risk after much hemorrhage. In a greatly depleted patient it was almost surely fatal. Cesarean section, when once begun, must be carried to completion, whatever the condition of the woman. On the other hand, no shock attached to the introduction of a hydrostatic bag, and little or none to a Braxton-Hicks version. In nearly 25 per cent. the child was non-viable, and here extraction might be simplified by craniotomy. As between a skilful section and an equally skilful obstetric delivery, less shock should obtain in the latter. The principal claim for cesarean section in placenta previa was its diminished fetal mortality. Under obstetric treatment the death rate of the child was formidable. Many of the children were doomed to death, whatever the method of delivery. Of the possibly viable children, cesarean section might save many lives, but by no means all. Vaginal cesarean section had no greater claim to consideration than the suprasymphyseal operation. While it might offer quite as good a prognosis for the mother, the chances for the child were not so good, owing to the somewhat greater fetal risks in extraction through the natural passages. Not only was there little rational basis for cesarean section in placenta previa, but its claims received scant support from experience.

The Indications for Abdominal Cesarean Section in Placenta Previa.—Dr. HENRY D. FRY of Washington, D. C., said the principal dangers to be overcome by the obstetric treatment of placenta previa were hemorrhage, laceration of the uterus, and sepsis. Delivery from above avoided these dangers to a great extent, because removal of the infant and placenta by a cesarean section did away with the first and second stages of labor. Abdominal cesarean section, however, brought dangers of its own, such as shock, sepsis, acute dilatation of the stomach, and other postoperative complications. The indications for the classical cesarean section were primiparity, small vagina, rigid and undilatable cervix, and placenta previa centralis. This combination would be met with in about 5 per cent. of all cases of placenta previa; therefore, the purely obstetric management would best meet the indications in 95 per cent. of the cases.

The Advisability of Cesarean Section in the Treatment of Complete Placenta Previa.—Dr. FRANKLIN S. NEWELL of Boston said the advocates of cesarean section claimed the maternal mortality under the ordinary methods of treatment was so great that some change must be made. Hirst stated that in the hands of the general practitioner a mortality of approximately 40 per cent. was present in complete placenta previa, but thought that in the hands of experts the ordinary mortality should be in the neighborhood of 1 per cent., or, in other words, an accidental mortality. Other authorities admitted a mortality varying from 3 to 6 per cent. in a large series of cases, presumably under the care of experts. The maternal mortality from abdominal cesarean section for placenta previa was variously given as from 20 per cent. upward, even in expert hands, and it seemed probable that if this was adopted as the routine treatment by the profession as a whole, a constant high mortality would be maintained, since the results of surgery performed by the general practitioner were always worse than those obtained by competent abdominal surgeons. While the maternal mortality in the hands of an expert averaged from 3 to 5 per cent., in the hands of the general practitioner the mortality was 40 per cent. The fetal mortality in cases of complete placenta previa varied from 60 to 65 per cent. under the ordinary methods of treatment, and it would seem at first sight that this was an argument for the performance of cesarean section. However, anyone who studied carefully the causes of the fetal death rate must be impressed with the fact that no such improvement in statistics was to be expected as would seem probable at first sight. Recently, vaginal cesarean section had been urged as the best solution of the problem, and the advocates of this operation claimed that it was simple and easy for the trained surgeon, and carried much less risk with it than the abdominal delivery, but the author's feeling, based on a limited experience with the operation, was that it was not so simple a procedure, even in uncomplicated cases, as was commonly stated.

Cesarean Section in Case of Placenta Previa.—Dr. EGBERT H. GRANDIN of New York said that since, except when the patient could be kept under constant observation, the rule should be to empty the uterus as soon as the diagnosis was made, rarely would the question of section offer. Less radical means would suffice from the standpoint of the woman, and in marginal instances for the child. In central implantation near or at term the child might be disregarded, and unless the cervix was diseased, undilatable and not incisable, the question of cesarean section would not offer. Where time permitted, if the vaginal portion had merged, dilating measures sufficed associated with the Duhrssen operation. In marginal instances vaginal cesarean section might enter into consideration.

Sterilization in Cesarean Section.—Dr. JOHN OSBORNE POLAK of Brooklyn, N. Y., said the obstetric surgeon should sterilize the woman who was subjected to repeated cesarean section, (1) if she requested the procedure; (2) after a second section in the presence of the absolute indication, if the proper consent could be obtained; (3) if the pathological conditions present necessitated extirpation of the uterus in the interests of the patient's life and health, sterilization might be done, if necessary, without consent. In elective and uncomplicated hysterotomies, excision of

the proximal ends of the Fallopian tubes at their origin in the uterus and the occlusion of the severed ends by flattening them out and suturing them to the peritoneum on the posterior fundal wall, was the operation of choice. When infection, disease, or atony with uncontrollable hemorrhage of the uterus was present, hysterectomy or the Porro operation should be elected, in order to secure to the patient immunity from future conception and gestation. Finally, whenever possible, one or both ovaries should be retained, in order that an operative menopause might be averted.

The Justifiability of Sterilizing a Woman After Cesarean Section.—Dr. Charles M. Green of Boston said it was ethically and morally unjustifiable to sterilize a woman in performing cesarean section, even if she and her husband requested it. The burden of proof to the contrary rested with those who advocated it. Opportunity might properly be taken in performing cesarean section to remove pathological organs; and the result might be that the woman could never again become pregnant, as in bilateral salpingo-oophorectomy, or in hysterectomy for neoplasms. But in the presence of disease requiring total ablation of the pelvic generative organs, pregnancy could not again occur were the organs not removed. If the indications for cesarean section were absolute, and husband and wife were so informed, they might abstain from subsequent sexual intercourse and pregnancy. If the indication was relative and the disproportion of minor degree, the woman subsequently might be safely delivered of living children. A husband and wife might not ethically ask that either be sterilized with a view to preventing pregnancy and avoiding repeated section. If such a request was made and acceded to, not only was the operation morally wrong, but, in the event of a second marriage, might be bitterly regretted.

Dr. Albert F. A. King of Washington, D. C., said there were a great many cases of placenta previa that occurred all over this country for which the greatest surgical skill could not be obtained, and hence the question arose, What was the best treatment to pursue in these cases? We had to fall back on obstetric treatment.

Dr. Herbert R. Spencer of London, England, stated that some nineteen years ago he wrote his first paper on "The Diagnosis of Placenta Previa by Abdominal Palpation." At about this time Lawson Tait made a statement relative to the high mortality from obstetric methods of treatment of this complication of pregnancy, and suggested abdominal cesarean section. This was received with great ridicule everywhere by obstetricians in Great Britain, and Tait acknowledged that he had not done obstetric work for many, many years. The speaker looked the subject up in connection with the University College Hospital, in which there is a large maternity under his charge, the number of cases of confinement amounting to 2,500 to 3,000 a year, and found at that time that the mortality of women treated in their own homes and those treated at hospitals aseptically by his predecessor, John Williams, and his own slight experience after him, was about 6 per cent. Tait said the mortality under obstetric methods of treatment was 40 or 50 per cent. The speaker had had practically no experience with abdominal or vaginal cesarean section in the treatment of placenta previa. His own treatment had been usually Braxton-Hicks version, and leaving the case to nature, and usually the child was delivered without any further hemorrhage in the course, on an average, of three hours, but this resulted in a high fetal mortality.

Professor Hofmeier of Würzburg, Germany, stated that abdominal cesarean section in the treatment of placenta previa was limited to a small number of cases, for the reason that it was practically impossible for the general practitioner to follow out this method of treatment. The old method of combined version and slow extraction, which was generally accepted in Germany twenty-five years ago, and the treatment by means of metreurynters in cases of large and strong children, had given good results, and in spite of the results obtained by abdominal cesarean section in placenta previa, combined version and slow extraction was still a useful method of practice.

Dr. Charles M. Green of Boston desired to place himself on record as being in agreement with Dr. Fry and others, who took the position that cesarean section must have a limited application in the treatment of placenta previa.

Dr. A. Lapthorn Smith of Montreal said it was his earnest conviction at the present time that the mortality following abdominal cesarean section in the hands of experts in this country was almost *nil*. This operation was far preferable to accouchment forcé, which, in the hands of the general practitioner and some experts, had quite a high mortality. He hoped this Society and other societies would frown down upon accouchement forcé as a means of delivery in this and other cases, where cesarean section could be resorted to, with practically no mortality. If the woman was operated on before she was touched by septic hands, when the child was not viable, there was no reason for waiting to do abdominal cesarean section, as then the life of the child did not come into question. Cesarean section was a safe operation only when done by an expert.

Dr. Philander A. Harris of Paterson, N. J., said it was hardly in accord with his experience when he heard one of the speakers mention the extreme dangers of dilating the cervix with the hand. He had not done much obstetric work in the last few years, but in forty-odd cases which he attended before that time he had no trouble in dilating the cervix with his hand. Of this number of cases he lost only one by the employment of this method of dilatation. Fatalities sometimes resulted from the injudicious use of accouchement forcé. If one knew how to use the hand and took plenty of time, there was no occasion for a woman having hemorrhage and extensive laceration of the cervix.

Dr. E. W. Cushing of Boston did not think Dr. Green, or even the Boston Lying-In Hospital, had a right to determine whether a woman should be sterilized or not. If she had been malformed by nature and could not be delivered of a child without repeated surgical operations which involved the risk of life, and she desired to avoid that subsequent risk by having a sterilizing operation done, she had a right to do so.

Dr. Henry D. Fry of Washington, D. C., said that his rule was to explain the situation to the woman and her husband, and allow them to decide whether or not she should be sterilized.

Professor Hofmeier of Würzburg, Germany, said he had performed sterilization not only with the consent of the woman and her husband, but at their urgent request. He did not think it was possible for women to abstain from sexual intercourse and subsequent pregnancy, as indicated by Dr. Green.

Dr. Charles Jewett of Brooklyn, N. Y., performed cesarean section two months ago on a woman upon whom he did the same operation two years previously, and at the request of both the husband and wife he felt justified in sterilizing the woman.

Dr. Herbert R. Spencer of London, England, did not consider we were justified in deciding, in the absence of pathological conditions, such as fibroid tumors, cancer, or infection, that a woman should not have any more children. From a purely ethical standpoint, he could not see any difference between consenting to operate on a woman and prevent her from having children by this sterilizing operation and committing an abortion because she asked it. The so-called sterilizing operation was not always reliable. A distinguished abdominal surgeon in England had supposed-

ly sterilized a woman, but subsequently, much to her annoyance and mortification, she again became pregnant, and the speaker delivered her. He subsequently delivered this woman for the seventh time after the operation of so-called sterilization.

Dr. J. Montgomery Baldy of Philadelphia said that nature had so arranged matters that some women, apparently healthy, could not bear children. Pathological processes set in which rendered them incapable of so doing. A woman was not in this world to be a beast of burden, although she had reproductive duties to perform; and there might come a time when, after she had performed them to the best of her ability, nature had so deformed her, perhaps maimed her, that she no longer could be delivered of a child without a surgical operation; then she was the best arbiter as to whether sterilization should be done or not. His sympathies went out largely to women in this respect. They had a right to an exceedingly serious say in regard to many of these operations. If a woman, guided by the conscientious judgment of the physician, decided to be sterilized, the surgeon had a right to sterilize her and prevent reproduction in the future in this individual case, but this did not mean that the operation should be done on every woman who requested it.

Dr. Andrew F. Currier of New York placed himself on the side of those who believed that it was an injustice to a woman, aside from any desire she might have for children, to subject her repeatedly to an operation which risked her life. The mere physical conditions alone which resulted, or were likely to result, should influence us very materially in regard to the question of future pregnancy.

Dr. Seth C. Gordon of Portland, Maine, thought a woman had a right to say whether she should be sterilized or not. When she was subjected repeatedly to an operation which was known to be dangerous to life, in order to be delivered of a child, she certainly had a right to say whether or not sterilization should be performed.

Dr. C. C. Frederick of Buffalo, N. Y., had sterilized women at their request and that of their husbands, in cases in which cesarean section had been done for the absolute indication, with narrowing of the pelvis to a degree that it was absolutely impossible to deliver a viable child through the pelvis.

Dr. Albert F. A. King of Washington, D. C., said that self-preservation was the first law of nature, and preservation of the species was the second law. He agreed with those who had expressed the opinion that women and their husbands had a right to decide the question of sterilization.

Dr. J. Wesley Bovée of Washington, D. C., said the surgeon had not the right to act as he chose to produce sterility. The decision of the question rested largely with the husband and wife, and not with the surgeon. The surgeon had no right to remove a woman's possibility of future pregnancy except for grave pathological lesions in the organs of generation themselves.

Dr. William S. Stone of New York said that one of the impressions gained from this discussion was an exaggerated idea of the frequency of placenta previa. Personally, he never performed either vaginal or abdominal cesarean section for placenta previa. On one occasion, however, in a case of severe hemorrhage, where the placenta was normally implanted, he did a Duhrssen operation. He had no idea of doing it, until he found hemorrhage was profuse and the indication was to empty the uterus just as rapidly as possible, and it occurred to him at the time he could resort to the Duhrssen operation and deliver the woman quickly, which he did with success.

Dr. Reuben Peterson of Ann Arbor, Mich., said that if cesarean section was advised as an operation for this complication of pregnancy, the mortality in the hands of the general practitioner would be enormous. This should always be borne in mind. A safe procedure for the general practitioner was the Braxton-Hicks method, or the bag. Only a very small number of the cases he had seen presented indications for abdominal cesarean section. Vaginal cesarean section was totally unindicated in this class of cases.

Dr. George Gellhorn of St. Louis said that Dr. Fry had clearly shown that in only about 5 per cent. of the cases was cesarean section indicated in placenta previa. He wondered if this percentage could not be still further reduced if the Barnes bag, so widely used, was discarded, and instead the Champetier de Ribes, or the Pomeroy bag, used more generally, as he thought a number of cases would be successfully delivered which heretofore had met with failure. As to cesarean section, it was not only necessary to consider its mortality, but its morbidity, and in placenta previa this operation had certainly untoward complications or after-effects that should be emphasized. With reference to sterilization, he said there was a simple way of sterilizing the man by doing a vasectomy instead of sterilizing the woman. This simple operation could be done in a minute or so under local anesthesia; yet how many men would be willing to have vasectomy done on them? He though we should be more charitable and not do unto others what we did not want done unto ourselves.

Dr. Willis E. Ford of Utica, N. Y., said he hoped the Society would not go on record in favor of the sterilization of women, for if it opened the door, it might be opened still wider for other operations which ought not to be done.

What Shall We Teach the General Practitioner Concerning the Treatment of Abortion?—Dr. Frederick J. Taussig of St. Louis mentioned the never-ceasing argument as to whether the finger or the curette was preferable. The curette was still popular with the general practitioner because it required less technical skill for its use. The summarized experiences of many large clinics showed that no one method of treatment was available for all cases, but that each had its special field of usefulness. An attempt to construct a simple table of operative procedures varied according to (1) the stage of pregnancy at which abortion occurred (first six weeks, second six weeks, third to fifth month); (2) the stage of the abortion (imminent, inevitable, incomplete); (3) the experience of the physician in charge (country practitioner, city practitioner, specialist); (4) surroundings (country residence, city residence, hospital). The author demonstrated a new case of instruments especially designed for the treatment of abortion and miscarriage.

Dr. Joseph Taber Johnson of Washington, D. C., agreed with the author, and said that gynecologists and obstetricians had much to do with the effects of badly managed cases of abortion. The dispensary and charity hospital class of patients, who came for diagnosis and treatment, attributed their present ill-health to their last abortion, and by questioning them it was found that their cases were badly managed in the great majority of instances. As to whether the curette or the finger should be used to scoop out of the uterus the remains of an abortion, he agreed with the essayist that in the first six weeks, when the neck of the uterus was dilated only a little, it would be doing violence to the part to attempt to dilate to such an extent as to permit the index finger to pass into the uterus and scoop out what remained there. On account of the great damage done by the curette, he advocated, in the seventh and eighth weeks, that the woman be anesthetized and the finger introduced into the uterus instead of the curette, and the remnants of the after-birth or membrane removed. The finger was a much more intelligent instrument than the curette.

Dr. William H. Wathen of Louisville, Ky., said the placenta should always be removed immediately after the

delivery of the child, because delay in this regard was dangerous, and one never knew when danger was going to come. Speaking of perforation of the uterus with a curette, not only did practitioners perforate this organ, but they did not know when they used this instrument whether they had removed all the secundines or not. The curette should not be used under any circumstances to remove retained secundines, except in exceptional cases, but one should rely on the educated finger.

Dr. Thomas J. Watkins of Chicago said he not only followed out the old method of the use of the vaginal pack in cases where the uterus could not be emptied without a great deal of traumatism, but packed the uterine cavity. This should be done in all cases where the uterus could not be emptied without considerable traumatism, and especially where the cervix was not well dilated. This treatment could be extended even to the cases of infection.

Dr. Malcolm McLean of New York wanted to know how a man's finger had become so elongated and prehensile that he could reach the corners of the uterus and safely feel that he had removed all detritus. There were undoubtedly men, such as Dr. Wathen, who could do this. He could not. He thought the mistake was made very frequently by good operators, who thought they had emptied the uterus by the finger, but nature came to their rescue and emptied it afterwards of pieces of after-birth which otherwise might give trouble.

Dr. Eugene C. Gehrung of St. Louis said that if we waited three or four hours after the expulsion of the ovum, we would have very great difficulty in inserting the finger, while if it was done immediately it could be effected with great ease. When the finger was inserted into the uterus, if one took care to put the other hand on the fundus of the uterus, and pressed the area over the finger, the little spaces in the uterus could be cleaned out. He had succeeded in removing retained pieces of placenta in this way.

Dr. Joseph E. Janvrin of New York agreed with Dr. Watkins in regard to the propriety and the effectiveness of passing a small wad of gauze up into the cervix and tamponing the vagina thoroughly to excite contractile pains. This had been his method of treatment for many years.

Dr. Taussig, in closing, said that he presented his paper not as a subject for discussion by the Fellows as regards their own technique, but with regard to the technique that they would advise the general practitioner to use, and he thought in this respect they should be very clear and definite in instructions.

Latero-Lateral Anastomoses of Ileum and Sigmoid Flexure for Chronic Mucous Colitis.—Dr. George H. Noble of Atlanta presented a preliminary report of 27 cases in which he had resorted to this operation. The results showed cures in the majority of cases, considerable improvement in others, and little improvement in a small percentage of them. Mucous discharges were cured in the first series of older cases, and decreased in those recently operated on. Colic and soreness of the abdomen had been cured or relieved in almost all cases. Headaches from intestinal toxemia had also been relieved, and the general health of the patients improved to a greater or less extent in all cases, but in face of this fact, patients with constipation reported either cures or improvement in the mucous colitis.

Dr. Egbert H. Grandin of New York said a simpler method sometimes answered for the cure of mucous colitis, and this was the removal of the appendix. Since it had been his custom to take the appendix out, as a routine measure, whenever in the course of an abdominal section for other lesions the condition of the patient allowed the extra few minutes, he had noticed frequently that mucous colitis had disappeared. The removal of the appendix in one case cured a mucous colitis of twelve years' standing.

Dr. Lewis S. McCurtry of Louisville said that since a large number of men had been in the Philippines and contracted dysentery, this subject had received more consideration and had developed the rather surprising fact that as far north as Cincinnati amebic dysentery was indigenous. He had been surprised at the number of cases of amebic ulceration of the colon that had been discovered in people who had never been out of this country, nor even in any tropical climate. No operation had been more useful in the treatment of this class of cases than appendicostomy. He had seen in the hands of his colleagues half a dozen of these cases that had been treated by this operation in the last year, with good results. The scrapings from the ulcers, when examined, had been found to be literally alive with amebas.

Dr. Franklin H. Martin of Chicago said that perhaps there was a similarity between the operation described and the one suggested by Arbuthnot Lane, namely, the removal of the colon for the treatment of constipation. This operation provided a remedy for that part of the colon which was dead, leaving a portion of it unused by the Arbuthnot Lane operation.

Dr. J. Riddle Goffe of New York said, with reference to the presence of amebic dysentery below the Ohio River as having been discovered in the last few years, he had heard the explanation that it had been brought back by soldiers from the Philippines, and might have become indigenous at the present time from that cause.

Dr. Noble, in closing, said he purposely avoided saying anything about amebic dysentery and similar conditions for the reason that the treatment of them was so well known, and that so many operations had been done for their relief. As to the remarks of Dr. Martin, such a radical operation as the removal of the colon would hardly be justifiable in mucous colitis. That operation belonged to another disease.

Dr. Thomas J. Watkins of Chicago described the operative treatment of extensive cases of uterine prolapse and cystocele.

Dr. William M. Polk of New York described the suprapubic operation upon the pelvic floor for procidentia uteri.

The Choice of Time of Operation for Pelvic Inflammation of Tubal Origin.—Dr. F. F. Simpson of Pittsburg said that in his judgment abscesses easily accessible for evacuation without traversing the free abdominal cavity were often best treated by early drainage. In other instances, delay with definite but simple treatment would probably prove the better course. Many patients would thus have the normal functions of their organs restored and avoid operation. For the remaining cases which demanded operative relief, the writer was in the habit of choosing a time: (1) When the patient had recovered from her acute illness, and when her margin of reserve strength had been raised to its highest point of efficiency; (2) when her temperature had been normal for a minimum period of three weeks; (3) when the inflammatory exudate about the diseased tube had been completely absorbed; (4) when a careful pelvic examination was no longer followed by a decided or persistent rise of temperature.

Dr. Herman J. Boldt of New York said it was dangerous to operate during an acute suppurative salpingitis, and in ninety-nine cases out of a hundred it was possible to wait until the acuteness of the attack had passed. As to how long that took was a question; it would depend entirely on the condition of the patient. One might operate in the interval, if there was sufficient indication for operation. Whenever the Fallopian tubes were distended with pus to such an extent that one could readily palpate them through the cul-de-sac of Douglas, the tube should be opened and the pus evacuated.

Dr. J. Wesley Bovée of Washington, D. C., said he would not be so conservative as to wait three weeks, without a single rise of temperature during that time, before operating. His experience with such appendages had been that they did not return to normal; that rarely did they get into a condition for functionating, and that in most cases in which vaginal incision had been done for the emptying of pus the appendages and tubes required removal subsequently, and with them the uterus in some cases.

(*To be continued.*)

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held March 25, 1909.

Dr. John O. Polak in the Chair.

Perforation of the Uterus by Curette.—Dr. C. Clarence Sichel reported the case of a woman, twenty-eight years old, married, who was admitted to the hospital with a temperature of 99.2° F. and a pulse rate of 96. An exploratory laparotomy disclosed a uterus that was torn from the fundus down to the right side of the cervix; there was also a puncture of the fundus uteri. The abdomen contained about a pint and a half of fluid blood. The uterus was rapidly sutured, the abdomen filled with saline solution, and the abdominal wound was closed by the usual method. The patient did fairly well until the next morning, when her condition rapidly grew worse. An arteriovenous transfusion was asked for, but no member of the family could be persuaded to be a donor. A failure of heart and respiratory centers brought the case to a fatal termination. It was learned that a curette had been introduced into the uterus, and pushed through forcibly, perforating the organ. As it was withdrawn the curette tore the lateral wall of the uterus down to the right side of the cervix. The puncture in the fundus was caused by the introduction of a sound.

A Series of Cases of Pyosalpinx.—Dr. Sichel reported these cases:

Case I.—This patient was admitted to the hospital on January 29, 1909, with a temperature of 99°, and a pulse rate of 68. She had a white blood count of 17,000, and the polynuclears were 85 per cent. The left tube was removed because of a pyosalpinx. Two weeks later she had a temperature of 100°, the white cells numbered 12,400, and the polynuclears were 79 per cent. A subcutaneous abscess was found, opened, and drained. She was discharged cured March 6.

Case II.—This patient was forty-seven years old, married, and was admitted to the hospital on November 11, with a temperature of 102°, pulse rate of 60 and respirations 20. The white cells numbered 20,000, and the polynuclears were 80 per cent. A right sided pyosalpinx was removed after it had ruptured. The abdomen was flushed with oxygen and drained abdominally and vaginally. She was discharged cured on December 13.

Case III.—This patient was forty-three years old, married, and was admitted to the hospital February 6, with a temperature of 103°, pulse rate of 100 and respirations 24. Her white blood count was 17,600, and polynuclears were 82 per cent. A left pyosalpinx was found and the diseased organ removed. She was discharged cured February 20.

Case IV.—This patient was thirty-two years old, married, and was admitted to the hospital November 30, with a temperature of 104°, pulse rate of 112, and respirations 28. The white cells numbered 19,800, and the polynuclears were 82 per cent. The left tube was removed, and the abdomen was flushed with oxygen and drained both abdominally and vaginally. She was discharged cured on December 24.

Case V.—This patient was twenty-three years old, single, and was admitted to the hospital January 19, with the history that a criminal abortion had been attempted two weeks previous. She had a temperature of 105.4°, pulse rate of 120, and respirations were 44. The white cell count before operation was 15,000, and the polynuclears were 85 per cent. Double pus tubes were found and removed. The white cells after operation numbered 11,000, and the polynuclears were 78 per cent. The temperature and blood count reached normal in five days, and the patient was discharged cured.

Case VI.—This patient was twenty-nine years old, single, and was admitted December 24, with a temperature of 102°, pulse rate of 90, and respirations 20. The white cells numbered 10,000 and the polynuclears were 77 per cent. The gonococcus was not found on admission, but subsequently. On February 11 a pus tube and cystic ovary were removed. The white cells before operation numbered 12,000 and the polynuclears were 71 per cent. The patient was placed on antigonococcic serum and was discharged cured on March 22.

Case VII.—This patient was twenty years old, single, and was admitted December 7, with a history that three days before a criminal abortion was done. The temperature was 101°, pulse 102, and respirations 32. She was curetted at once. The white cells numbered 10,000 and the polynuclears were 84 per cent. The vaginal discharge contained the gonococci. Venereal warts in the vagina were present and showed spirochetes. On December 11 both tubes were removed and the abdomen drained. On December 15 the white cells numbered 30,000 and the polynuclears were 85 per cent. On admission this patient showed signs of a beginning consolidation of both bases of lungs. The patient was discharged February 12 under protest. She had improved.

Dr. S. Wiener said that so far as the gonorrheal cases of pyosalpinx went, in the acute or subacute stage, it was hard to state how far the process had advanced and how much resolution would occur. The condition was somewhat similar to those cases of epididymitis or epididymo-orchitis, with chill and high fever; in such cases one would not think of doing an orchidectomy.

Dr. Rosenthal recalled a case seen a few years ago in which the uterus was perforated during attempts to dilate that organ. He said he had seen a number of cases of infection of the tubes, with high temperature, chills, rapid pulse, etc., which, after the application of an icebag for a week, had resulted favorably.

Dr. S. M. Brickner said he had seen fifteen or eighteen of these cases, five of them having occurred in the Mt. Sinai Hospital and in the hands of the house surgeon. All agreed that the perforation of the uterus was caused by the heavy stroke of the curette against the wall of that organ. All these were clean cases. Dr. Brickner referred to a paper published six years ago in Vienna in which was tabulated all such cases that had occurred up to that time. So far as the streptococcic infection cases were concerned, he said he could see no reason for removing the tubes, because the infection started in another place. He asked what good the removal of the tubes would accomplish if the infecting focus was left *in situ*. However, men had diverse opinions on this subject. Some operated upon these cases and the patient got well. Others waited and allowed the surrounding tissues to become accustomed to the bacteria. Dr. Brickner believed in the non-operative treatment of these cases if one excluded pelvic abscesses.

Dr. Sichel said that in his series of cases there was but one that was acute, or accompanied by acute symptoms, of gonorrheal origin. These pus tube cases were those in which there was no possibility of subsequent cure without operation. Such women became invalids for life, and a subsequent operation would have to be done some time or

other. In three of the cases there was an acute exacerbation on top of an old condition.

A Study of the Anatomy of the Sacroiliac Joint and Its Clinical Importance.—Dr. Fred H. Albee said that he had been very much surprised in reading the literature of the minute anatomy of the sacroiliac joint to find such a marked disagreement among the most prominent anatomists and gynecologists, and he was therefore induced to ascertain, if possible, by the dissection of a sufficient number of joints, the true anatomy. In a careful dissection of fifty specimens, a perfect joint, composed of all its elements, was found in each instance, and proved to be as constant in its size and relations as that of any other joint. The anteroinferior portion of the capsule was very thin, and this accounted for the fact that infection of this joint was very prone to discharge by this avenue into the pelvis and never through the very thick part of the capsule posteriorly. The lumbosacral cord passed in close proximity to the joint at its lower third, and undoubtedly was frequently involved in affections of this joint, thus explaining the presence of persistent pain in the distribution of the sciatic nerve. Sixteen of the cadavers were placed in Walcher's position, *i.e.* patient on the back with her legs hanging over the edge of the table, and the true conjugate diameter of the pelvis averaged an increase of 8 mm. (one-third of an inch). Walcher obtained 9 mm. on the living subject. Under favorable circumstances this joint would stand much abuse, as in the case of a symphyseotomy. This articulation was liable to all the infections of other joints and the prognosis was often serious; first, because it was very likely to be a metastatic infection from some other part of the body, and, secondly, because of the danger of spontaneous drainage forward into the pelvis. Six illustrative cases of relaxation of the sacroiliac joint were reported. Goldthwait's symptom was present in the majority of the cases. This consisted of pain in the region of the sacroiliac articulation, when the thigh was flexed with extended leg to a right angle or less. These patients never lay on the back, but on the side; this was an important point in assisting to differentiate relaxation of the sacroiliac joint from disease of the lower lumbar spine. Relief promptly followed the encircling of the pelvis with tight bands of adhesive plaster, or with long corsets with a webbing belt. Dr. Albee read the following conclusions: (1) The sacroiliac articulation had all the elements of a joint, and it therefore had a similar pathology. (2) It undoubtedly was the cause of many obscure and unexplained backaches and persistent sciaticas. (3) Its anatomy was such that drainage into the pelvis was very liable. (4) The anatomy of the joint was such that in case of symphyseotomy the sacrum and ilium swung open on the strong posterior ligaments as a door on its hinge, and little permanent damage to the joint was done. (5) A relaxation of this joint should be guarded against by support of the lumbar spine with pillows, etc., in cases of protracted postoperative convalescence. Undoubtedly many could recall instances of nature's warning in the form of a convalescent's backache, which the nurse had so readily relieved by a mere pillow rightly placed under the lumbar spine.

Dr. C. Clarence Sichel said the sacroiliac joint was of interest to the gynecologist in two ways: First, because of the anatomical conditions which existed in reference to the operation of symphyseotomy; secondly, because in conditions of this kind, as mentioned by Dr. Albee in his paper, the symptoms often simulated those of an ordinary dysmenorrhea, and one was likely to slip up in his diagnosis. He now had a woman whom he was treating for dysmenorrhea. She had pain of an intense character across her back, and he was glad to be able to examine her again with a view of changing his diagnosis to sacroiliac joint trouble. Recently Dr. Sichel had seen an interesting case with Dr. Wells. It was a postoperative case. She had been curetted several times and was sent to the hospital. She complained of pain over the sacroiliac joint, and had a high temperature. The only physical findings were the tense and tender uterosacral ligaments. The uterus was in perfect position. The blood examination showed nothing suggestive of any infection. Dr Wells suggested that the joint be cut down upon, and this was done. They then decided to leave her alone. The pelvis was tightly strapped and the relief was immediate. With this relief of pain and tenderness the temperature gradually subsided. The interesting point was that the only symptoms present were the pain over the uterosacral articulation when the thigh was flexed and the temperature.

Dr. William S. Thomas thought there might be some difficulty in differentiating Kernig's from Goldthwait's sign, and he asked if the latter was not present in cases of sciatica, or a neuritis of the sciatic nerve.

Dr. Albee said one must be very careful in stretching the sciatic nerve in these cases. With the symptom complex, the tenderness over the sacroiliac joint, the location of the pain, and the temperature, there was little danger of confusing the two conditions.

Dr. John O. Polak asked if the psoas muscle acted very much.

Dr. Albee replied that this muscle acted a great deal; when this muscle was cut there resulted an enormous increase in the anteroposterior diameter of the joint.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS

Missouri State Board of Medical Examiners.

Kansas City, November 23, 24, and 25, 1908.

ANATOMY.

1. Name all bones of the foot, giving articulations of same.
2. Describe the refractory media of the eye.
3. What constitutes the middle ear?
4. Give gross and minute anatomy of the kidney.
5. Give the histological anatomy of the skin.
6. Give the gross anatomy of the pancreas and give ferments of same.
7. Name all muscles attached to the scapula, giving function of same.
8. Describe the temporal bone.
9. Give coverings for direct and indirect inguinal hernia.
10. Describe and give minute anatomy of the pleura.

PHYSIOLOGY.

1. Describe leucocytes and give their function.
2. What is meant by hyperemia, and give its cause.
3. Give the relative value of different kinds of foodstuffs in the nourishment of the human body.
4. What part does the bile play in the process of digestion?
5. Describe the process of hearing.
6. Describe the process of glycogen formation.
7. Describe transfusion and give occasion for its use.
8. What is the effect of removing the spleen from healthy individuals?
9. Give the portal circulation.
10. Describe the muscles of the heart—differentiate from other muscular tissue.

CHEMISTRY.

1. Give the chemical properties of albuminous substances.
2. Give toxicology of chloroform taken by stomach; also by inhalation.
3. What is the formula for chlorate of potassium? Give two methods by which it may be obtained.
4. Tell use of thermometers. Give kinds used, and show how to convert readings in one scale into terms of another.
5. Relate what precautions you would take in case of suspected poisoning.

THERAPEUTICS.

1. Give the physiological and therapeutical action of veratrum viride.
2. Give the physiological and therapeutical action of phytolacca decandra (poke root).
3. Give the physiological and therapeutical action of carbolic acid.
4. Give antidote for carbolic acid.
5. Give the therapeutical action and uses of salicylic acid.
6. Name some of the emetics and their uses.
7. Name some of the principal laxatives.
8. Give the physiological and therapeutical action of baptisia.
9. Name some of the principal diuretics.
10. What is apiol, and for what purpose is it used?

BACTERIOLOGY.

1. Define fermentation, putrefaction, and ptomains.
2. What is meant by mixed infection?
3. What conditions are essential in order that infection may occur?
4. What is meant by agglutination? What is Widal's reaction of agglutination? Give its technique.
5. Give the general characteristics of the *Bacillus diphtheriæ*, and the pathogenesis of diphtheria.

PATHOLOGY.

1. What are the structural changes of the spinal cord in locomotor ataxia?
2. Give process of and termination of simple inflammation.
3. Discuss caseation.
4. What is scar tissue? Give process of formation and function.
5. Describe the pathological lesions and their locations resulting in calcification.

PRACTICE.

1. Give etiology, symptoms, and treatment in each of the following diseases: (1) Phlebitis, (2) Addison's disease, (3) Pneumatothorax, (4) Marasmus, (5) Herpes zoster.
6. Give cause and treatment of enuresis.
7. How would you diagnose pleurisy with effusion? Give treatment.
8. How would you diagnose mitral insufficiency?
9. Discuss hypostatic congestion.
10. Give various causes producing hiccough, and give treatment for same.

OBSTETRICS.

1. Describe post-partum hemorrhage, giving causes and treatment.
2. Define post-partum chill, puberty, and menopause.
3. Describe a normal case of labor, giving care of case before, during, and after delivery.
4. Describe puerperal septicemia. Give treatment.
5. Describe puerperal eclampsia, giving treatment.
6. Differentiate head, breech, and transverse presentations. Give management of transverse presentation.
7. Describe the signs of pregnancy.
8. Differentiate hydramnios from multiple pregnancy.
9. Define false pains, true pains, abortion, miscarriage, and premature birth.
10. When should the forceps be used in labor? Give method of applying the same.

GYNECOLOGY.

1. Define menstruation, amenorrhea, and dysmenorrhea.
2. Give causes, symptoms, and treatment of prolapsus uteri.
3. Define endometritis. Give treatment of each form.
4. Describe gonorrhea in the female. Give treatment.
5. Give uses of uterine sound. When is it contraindicated?

SURGERY.

1. Describe the clinical symptoms of a fractured rib. Give the ordinary complications and the symptoms by which we would recognize a pneumothorax associated with rib fracture.
2. Describe the clinical symptoms of osteomyelitis of the tibia.
3. Describe in detail an amputation at the ankle joint which is done after a crushing injury of the foot.
4. Describe the symptoms and treatment of a penetrating wound of the trachea.
5. Describe the boundaries of a scalp abscess and differentiate it from erysipelas of the scalp.
6. Describe the treatment of an open, oblique fracture of the humerus at the juncture of the lower and middle third.
7. Describe the symptoms of acute gonorrheal arthritis of the knee and give its treatment.
8. What are the clinical symptoms, how do you make the laboratory diagnosis, and what is the treatment for pyonephrosis?
9. Describe the symptoms and give in detail the treatment of cellulitis of the hand consequent upon an infected wound of the finger.
10. (*a*) Differentiate between a subphrenic abscess and an empyema on the right side. (*b*) Give the treatment of a subphrenic abscess.

JURISPRUDENCE.

1. What was the penalty for producing an abortion under the old or common law?
2. What is the penalty for producing an abortion under the laws of Missouri?
3. What is the penalty for giving advice and recommending medicines for the purpose of producing an abortion?
4. When is a physician justified in performing an abortion?
5. What are the constitutional and legal safeguards in criminal cases (as abortion)?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

MISSOURI STATE BOARD OF MEDICAL EXAMINERS.

Kansas City, November 23, 24, and 25, 1908.

ANATOMY.

9.

COVERINGS OF INGUINAL HERNIA.

DIRECT.	INDIRECT.
Skin.	Skin.
Superficial Fascia.	Superficial Fascia.
Intercolumnar Fascia.	Intercolumnar Fascia.
Conjoined Tendon.	Cremasteric Fascia.
Transversalis Fascia.	Infundibuliform Fascia.
Subperitoneal areolar tissue.	Subperitoneal areolar tissue.
Peritoneum.	Peritoneum.

10. "The *pleuræ* are two serous sacs enclosing and investing the lungs. Each pleura consists of a visceral and parietal layer. The *visceral* portion covers the lungs, and the *parietal* layer lines the inner surface of the chest walls, the upper surface of the diaphragm, and the sides of the pericardium. The visceral and parietal layers of the corresponding pleura become continuous in front and behind the root of the lung; and below the root a fold, the *ligamentum latum pulmonis*, extends downward along the inner surface of the lung to the diaphragm. The mediastina are formed by the visceral layers of each side approaching one another toward the median line.

"The limits of the parietal pleuræ are as follows: Each extends upward into the neck, forming a domelike process over the apex of the lung about two inches above the first costal arch; from this the pleura passes downward and forward to the posterior aspect of the sternoclavicular joint of each side and meets its fellow in the midline at the manubriogladiolar articulation; they pass down together to level of fourth costal cartilages, where *right pleura* passes vertically to level of seventh right costal cartilage in midline; then outward, crossing ninth rib in midaxillary line; then downward and backward along eleventh rib to reach spine at neck of twelfth rib. Behind, it passes upwards on right side of bodies of vertebræ to apex. At level of fourth costal cartilage the *left pleura* arches outwards, leaving uncovered part of anterior surface of pericardium, and lying about ¾ inch from the margin of sternum, to reach seventh costal cartilage, where it follows same line as on right, but is placed at a slightly lower level." (*Aids to Anatomy.*)

PHYSIOLOGY.

1. The *leucocytes* or white blood cells are spheroidal masses, varying in size, having no cell wall, and containing one or more nuclei; there are about 7,000 to 10,000 of them in each cubic millimeter of blood. They differ much in appearance, and are divided into (1) small mononuclear leucocytes, or lymphocytes, (2) large mononuclear, (3) transitional, (4) polynuclear, or polymorphonuclear, or neu-

trophile, and (5) eosinophile. They are all more or less granular, particularly the last two varieties named. They are probably formed in the spleen, lymphatic glands, and lymphoid tissues. Their fate is uncertain; it has been asserted that they are converted into red blood cells; they play a part in the formation of fibrin ferment; they are sometimes converted into pus cells. Their *functions* are (1) to serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

2. By *hyperemia* is meant an increase in the physiological allowance of blood to a part. It may be due to an increase in the amount of blood entering the part, or to some obstruction of the outflow.

3. *"The relative value of foods.*—Dried proteins contain about 15 per cent. nitrogen, 54 per cent. carbon, 7 per cent. hydrogen, 22 per cent. oxygen, a little sulphur, and frequently some phosphorus. A large proportion of their carbon and hydrogen is available for combustion. Fats contain 75 per cent. of carbon, and a considerable quantity of hydrogen available for combustion; carbohydrates, 40 per cent. of carbon, with hydrogen and oxygen in the proportion in which they occur in water. If one gramme of protein is oxidized to the condition of urea, carbonic acid, and water, sufficient heat is liberated to raise the temperature of 4,100 grammes of water 1 degree centigrade. Its calorific value is therefore expressed as 4,100 calories, the unit of measurement—a calorie—being the amount of heat needed to raise 1 gramme of water 1°. The calorific value of 1 gram of fat is 9,300 calories; of 1 gram of starch, 4,100 calories. Thus the energy potential in protein and starch is the same; that in fat more than twice as great as that in either of the other foods." (Hill, *The Body at Work.*)

4. In the process of digestion it is the function of the bile: (1) to assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach, and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

5. "The waves of sound are gathered together by the pinna and external auditory meatus, and conveyed to the membrana tympani. This membrane, made tense or lax by the action of the tensor tympani and laxator tympani muscles, is enabled to receive sound waves of either high or low pitch. The vibrations are conducted across the middle ear by a chain of bones to the foramen ovale, and by the column of air of the tympanum to the foramen rotundum, which is closed by the second membrana tympani, the pressure of the air in the tympanum being regulated by the Eustachian tube. The internal ear finally receives the vibrations, which excite vibrations successively in the perilymph, the walls of the membranous labyrinth, the endolymph, and, lastly, the terminal filaments of the auditory nerve, by which they are conveyed to the brain."—(Brubaker's *Physiology.*)

6. Glycogen is chiefly formed from the carbohydrates. The liver cells act upon the dextrose into which the carbohydrates have been converted by the action of the ptyalin and amylopsin of the digestive juices. This *may* occur by a simple process of dehydration:

$$C_6H_{12}O_6 - H_2O = C_6H_{10}O_5$$

But the precise process by which it occurs in the liver cells is not known.

8. The *effect of removing the spleen* may be: A diminution in the percentage of hemoglobin and in the number of red blood corpuscles; an increase in the number of white blood cells, and enlargement of the lymph glands. There is some difference of opinion as to these results, but the above are the ones usually given.

CHEMISTRY.

1. The *chemical properties of albuminous substances*: Some of them are soluble in water, some are insoluble in water, and some are soluble in water provided certain salts are present; they are coagulable by heat, have large molecular weights, and are of unknown constitution. They are insoluble in chloroform, alcohol, ether, or benzene; they are composed of carbon, hydrogen, oxygen, and nitrogen; some contain phosphorus or sulphur. They give certain color reactions.

2. "No chemical antidote for chloroform is known. When it has been swallowed, stomach-lavage and emetics are indicated; when taken by inhalation, a free circulation of air should be established about the face; artificial respiration and the application of the induced current to the sides of the neck and epigastrium should be resorted to."—(Witthaus' *Essentials of Chemistry.*)

3. The *formula* for chlorate of potassium is $KClO_3$. Two methods by which it may be obtained: (1) By passing chlorine through a solution of potassium hydroxide; (2) by passing chlorine over a mixture of milk of lime and potassium chloride, heated to 140° F.

4. *Thermometers* are instruments for the measurement of temperature. The kinds used are: Centigrade, Fahrenheit, and Réaumur. To convert the readings in one scale into terms of the others:

$$C° = \frac{5}{9}(F° - 32) \qquad C° = \frac{5}{4}R°$$

$$F° = \frac{9}{5}C° + 32 \qquad F° = \frac{9}{4}R° + 32$$

$$R° = \frac{4}{5}C° \qquad R° = \frac{4}{9}(F° - 32)$$

5. "First of all, the physician should keep his suspicions to himself. In the next place, he should himself test the urine or feces, or both, and govern his treatment and his actions toward the patient and those surrounding the patient by the results of his examination. Should the case terminate fatally, he should at once communicate his suspicions to the prosecuting officer, and require a post-mortem investigation, which should, if at all possible, be conducted in the presence of the chemist who is to conduct the analysis.

"The following portions of the cadaver should be preserved: The alimentary canal from the cardia to the middle of the rectum, *unopened*, and the contents enclosed by ligatures at the esophagus, duodenum, and lower end of gut; the liver, including the gall-bladder; one kidney; the spleen; a piece of muscular tissue from the leg; the brain, and any urine which may remain in the bladder.

"Any suspected food articles, and any obtainable vomited matter are to be also preserved. All of these are to be placed in *clean* and *new* glass jars, closed with glass or cork covers or stoppers.

"Jars with metallic caps should never be used. Tapes or cords should be tied about the jar and cap, to which they should be attached by sealing wax bearing impressions of a seal, in such a manner that access can be had to the interior only after breaking the seals or cutting the tapes or cords. Great care must be exercised that no sealing wax can get into the jars. Each portion should be placed in a jar by itself."—(Witthaus' *Essentials of Chemistry and Toxicology.*)

THERAPEUTICS.

1. Veratrum viride. *Physiological action*: "On the skin it causes tingling, numbness, and anesthesia, and, applied to the mucous membrane of the nose and throat, violent sneezing and coughing. Internally it produces gastro-intestinal irritation, prolonged relaxation of striped and cardiac muscle, reduction of arterial pressure, depression of respiration, convulsions from stimulation of the spinal cord, free diaphoresis, and reduction of temperature."

Therapeutical action.—"As a circulatory depressant, given early, in croupous pneumonia, pleurisy, hepatitis, maniacal delirium, etc., with strong, bounding pulse and other sthenic conditions; in puerperal convulsions and the early stage of peritonitis, phlebitis and other inflammatory affections of the puerperal state; also acute rheumatism, tonsilitis, aneurysm, and wounds of the head, pericardium and peritoneum."—(Wilcox, *Materia Medica.*)

2. Phytolacca decandra. *Physiological action*: Cathartic, emetic, slightly narcotic, cardiac and respiratory depressant, irritant to throat.

Therapeutical action: In diphtheritic sore throat, tonsilitis, pharyngitis, rheumatism; also as a laxative, and for obesity. Locally it has been used for mastitis, varicose ulcers, eczema, and other skin conditions.

3. Carbolic acid. *Physiological action*: "Irritant; caustic; antiseptic; disinfectant; deodorant; parasiticidal; antizymotic; antipyretic; in solutions of moderate strength, locally anesthetic. The heart and respiration are at first stimulated and afterward depressed. Smokiness of the urine is a characteristic feature."

Therapeutical action: "As a disinfectant for surgical instruments, soiled linen, hospital apparatus, drains, privies,

etc.; as an application for burns, carbuncle, endocervicitis, lupus, condylomata, and various other conditions; as an injection for leucorrhea and gonorrhea in the female; as a local anesthetic. Its antipruritic and parasiticidal qualities render it useful in many cutaneous affections; and it is employed locally in hay fever, influenza, and nasal catarrh. In the treatment of wounds it has been largely superseded by more powerful germicides. Internally: gastrointestinal irritation; malarial fever, typhoid fever, scarlet fever, and other zymotic diseases; influenza; by hypodermic injection in tetanus and bubonic plague."—(Wilcox, *Materia Medica.*)

4. *The antidote for carbolic acid* is pure alcohol, or a soluble sulphate such as sodium sulphate.

5. Salicylic acid. *Action*: "Antiseptic; irritant; strongly cholagogue; antipyretic; diaphoretic; diuretic (markedly increasing the excretion of uric acid). In exceptional instances skin eruptions are caused, and in some individuals a train of symptoms analogous to those of cinchonism, and designated as *salicylism*, results from the use of salicylic preparations."

Uses: "Externally as antiseptic and stimulating applications and for the checking of abnormal perspiration; also in parasitic and other skin diseases. Internally, rheumatic fever (in which it seems to act as a specific); gout; migraine; sciatica; diabetes; cholelithiasis."—(Wilcox, *Materia Medica.*)

6. *Some of the emetics*: Apomorphine, ipecac, tartar emetic, zinc sulphate, copper sulphate, subsulphate of mercury, tepid water and mustard.

Uses: To empty the stomach, to remove poisons, to remove croupous membrane, to remove foreign bodies from pharynx or esophagus.

7. *Some of the principal laxatives*: Sulphur, magnesia, olive oil, cascara, tamarinds, figs, prunes, honey, cassia.

8. Baptisia. *Physiological action*: Laxative, emetic, cathartic, gastrointestinal irritant, antiseptic and stimulant of the glands of the gastrointestinal tract.

Therapeutical action: It has been used in typhoid, scarlet fever, smallpox, dysentery, and amenorrhea. Locally, for ulcers and gangrenous sores.

9. *Some of the principal diuretics*: Alcohol, digitalis, potassium acetate, potassium bitartrate, potassium citrate, ammonium acetate, lithium citrate, convallaria, squill, calomel, water, caffeine, sparteine, juniper.

10. Apiol is a substance obtained from the fruit of Petroselinum sativum; its other name is Parsley. It is *used* in cases of amenorrhea, scanty menstruation, dysmenorrhea; it is said to be an abortifacient.

BACTERIOLOGY.

1. *Fermentation* is a chemical transformation of *carbohydrates* as the result of the activity of microorganisms.

Putrefaction is the decomposition of dead *protein* material as the result of the activity of certain microorganisms.

Ptomains are the putrefactive products of dead animal tissue, or fluids; they are basic, nitrogenous, and resemble alkaloids in their action.

2. By a *mixed infection* is meant the association of two or more kinds of bacteria in a given diseased condition.

3. *In order that infection may occur* the following conditions are essential: (1) The host must be susceptible; (2) the microorganisms must be present in sufficient numbers; (3) they must be sufficiently virulent; (4) they must enter by the appropriate avenue of infection.

4. *Agglutination* is the property possessed by the blood or blood serum of animals (and men) whereby, after an attack of an infective disease, the blood causes "clumping" of the infective agent in liquid cultures to which the serum is added. It is particularly noticeable in the case of typhoid fever.

Widal's reaction of agglutination "depends upon the fact that serum from the blood of one ill with typhoid fever, mixed with a recent culture, will cause the typhoid bacilli to lose their motility and gather in groups, the whole called 'clumping.' Three drops of the blood are taken from the well washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover glass, and this is inverted over a sterile hollowground slide and examined. A positive reaction is obtained when, all the bacilli present gather in one or two masses or clumps, and cease their rapid movement inside of twenty minutes."—(From Thayer's *Pathology.*)

5. The *characteristics of the bacillus of diphtheria*: The bacilli are from 2 to 6 mikrons in length and from 0.2 to 1.0 mikron in breadth; are slightly curved, and often have clubbed and rounded ends; occur either singly or in pairs, or in irregular groups, but do not form chains; they have no flagella, are nonmotile and aërobic; they are noted for their pleomorphism; they do not stain uniformly, but stain well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue.

PATHOLOGY.

1. In *locomotor ataxia* the posterior columns of the spinal cord and the posterior nerve roots are involved.

The posterior columns of the spinal cord are gray and shrunken, and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upward from the lumbosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent. Some of the cranial nerves may also atrophy, notably the optic, but also the motor oculi and vagus. The process is destructive and progressive.

OBSTETRICS.

2. *Postpartum chill* is a chilliness or rigor experienced by the patient either during the third stage of labor, or shortly after labor is terminated. It is of nervous origin and has no pathological significance.

Puberty is the period when the child becomes sexually mature and in the case of the female when menstruation commences.

Menopause is the period when menstruation ceases.

5. *Puerperal eclampsia* is an acute morbid condition, occurring during pregnancy, labor, or the puerperal state, and is characterized by tonic and clonic convulsions, which affect first the voluntary and then the involuntary muscles; there is total loss of consciousness, which tends either to coma or to sleep, and the condition may terminate in recovery or death.

The *causes* may be: Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are renal disease and imperfect elimination by the skin, bowels and kidneys.

The line of *treatment* as laid down by Edgar is as follows: For *preventive treatment*:—(1) the amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ.

The *curative treatment includes*: (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

7. *Positive signs of pregnancy.*—(1) Hearing the fetal heart sound; (2) active movements of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle.

Doubtful signs of pregnancy.—(1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness.

8.

HYDRAMNIOS	MULTIPLE PREGNANCY
The uterine tumor is more distinctly tense.	The uterine walls are not so uniformly distended and tense.
Fluctuation may be elicited.	Fluctuation is absent.
There is inability to palpate the fetal limbs.	A number of fetal limbs may be palpated.
The lower uterine segment is unusually distended, tense, and elastic; the presenting fetal part is recognized with difficulty.	There is no undue distention of the lower uterine segment; the presenting part of a fetus may be readily detected.
The fetal heart-sounds are faint or altogether absent.	The fetal heart-sounds are distinct; heart-sounds of different rates, corresponding to the two fetuses may be heard.

(From Dorland's *Obstetrics.*)

9. *False pains* are irregular uterine contractions which occur before the beginning of labor, and which may be either painful or painless, and which do not cause the "show," nor yet dilate the os.

True pains are uterine contractions occurring at the beginning and lasting through the first two stages of labor. They are usually very painful; they advance labor, dilate the os, and cause the "show."

Abortion is delivery of the product of conception before the twelfth week.

Miscarriage is delivery of the product of conception between the twelfth and twenty-eighth weeks.

Premature birth is delivery of the fetus between the twenty-eighth week and full term.

10. *Indications for the use of forceps* are: "1. *Forces at fault*: Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. 2. *Passages at fault*: Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. 3. *Passenger at fault*: A.—Dystocia due to (*a*) occipito-posterior, (*b*) mento-anterior face, (*c*) breech arrested in cavity. B.—Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). 4. *Accidental complications*: Hemorrhage; prolapsus funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both."—(From Jewett's *Practice of Obstetrics.*)

GYNECOLOGY.

1. *Menstruation* is a periodical disturbance in the female, characterized by a bloody mucus discharge from the uterine cavity; it lasts during the period of woman's sexual activity, but is temporarily suspended during pregnancy and early lactation.

Amenorrhea is absence of menstruation.

Dysmenorrhea is painful menstruation.

5. The *uses* of the uterine sound are: (1) to demonstrate the mobility of the uterus; (2) to show the size of the uterus; (3) to show the presence of intrauterine growths; (4) to indicate deviations in the cervical canal; and (5) as an aid in the diagnosis of uterine displacements.

Contraindications: (1) The least suspicion of even the possibility of pregnancy; (2) menstruation; (3) acute endometritis; (4) malignant disease of the uterus or vagina; (5) acute pelvic inflammation.

JURISPRUDENCE.

2. If the woman dies, the person who committed the abortion is guilty of manslaughter in the second degree and punished accordingly; in case no such death occurs the person is guilty of the felony of abortion, and upon conviction may be punished by imprisonment in the penitentiary for not less than three years and not more than five years, or by imprisonment in jail not exceeding one year, or by fine not exceeding $1,000, or by both such fine and imprisonment. If the person convicted be a licensed physician or surgeon in the State, he is liable to have his license revoked by the State Board of Health.

3. The penalty for giving advice and recommending medicines for the purpose of producing an abortion is (in Missouri) the same as for producing an abortion. See Answer 2, above.

4. The chief conditions that justify the induction of abortion are: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of the fetus toward the end of pregnancy; (6) hydatidiform mole; (7) habitually large fetal head.

BULLETIN OF APPROACHING EXAMINATIONS †

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery.	Montgomery	July 13
Arizona*	Aneil Martin, Phoenix	Phoenix	July 5
Arkansas*	F. T. Murphy, Brinkley	Little Rock	July 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	Aug. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	July 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 13
Delaware	J. H. Wilson, Dover	Dover	June 15
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	July 13
Florida*	J. D. Fernandez, Jacksonville	Tallahassee	
Georgia	E. R. Anthony, Griffin	Atlanta	Oct. 12
Idaho*	W. F. Howard, Pocatello.	Boise	Oct. —
Illinois	J. A. Egan, Springfield	Chicago	June —
Indiana	W. T. Gott, Crawfordsville	Indianapolis	May 25
Iowa	Louis A. Thomas, Des Moines	Des Moines Iowa City	June 1 June 8
Kansas	D. P. Cook, Clay Center	Kansas City	June 7
Kentucky	J. N. McCormick, Bowling Green	Louisville	
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	
Maine	Wm. J. Maybury, Saco.	Augusta	July 1
Maryland	J. McP. Scott, Hagerstown.	Baltimore	June 15
Massachusetts*	E. B. Harvey, State House, Boston.	Boston	July 13
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Detroit	May 24
Minnesota	W. S. Fullerton, St. Paul	St. Paul	June 1
Mississippi	S. H. McLean, Jackson	Jackson	
Missouri	J. A. B. Adcock, Warrensburg	St. Louis	June 7
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 5
Nebraska	E. J. C. Sward, Oakland	Lincoln	May 25
Nevada	S. L. Lee, Carson City	Carson City	Nov. 1
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	June 29
New Jersey	J. W. Bennett, Long Branch	Trenton	June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	July 12
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York. Albany Syracuse Buffalo	June 22
N Carolina	B. K. Hays, Oxford	Asheville	June 3
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	July 6
Ohio	Geo. H. Matson, Columbus	Columbus	June 9
Oklahoma*	F. P. Davis, Enid	Guthrie	July 18
Oregon*	B. E. Miller, Portland	Portland	July 6
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	June 22
Rhode Island*	G. T. Swarts, Providence	Providence	July 1
S Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota*	H. E. McNutt, Aberdeen	Watertown	July 14
Tennessee	C. A. Abernathy, Pulaski	Memphis. Nashville Knoxville	May, 1910
Texas	C. B. Foscue, Waco.	Cleburne	June 22
Utah	R. W. Fisher, Salt Lake City.	Salt Lake City	July 5
Vermont	W. Scott Nay, Underhill	Burlington	July 13
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	K. Turner, Seattle	Seattle	July 6
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	July 13
Wisconsin	J. Y. Stevens, Jefferson.	Madison	July 13
Wyoming	S. B. Miller, Laramie.	Laramie	June 23

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Results.—The following table (from the *Journal of the Medical Society of New Jersey*) will show the recent passes and failures in several States:

	Exam.	*Passed.*	*Failed.*
Arizona	8	5	3
Arkansas	30	18	12
California	62	34	28
Connecticut	20	15	5
Delaware	4	4	0
Florida	59	52	7
Georgia	32	30	2
Indiana	59	53	6
Iowa	33	26	7
Kentucky	43	19	24
Louisiana	21	13	8
Massachusetts	77	53	24
Michigan	13	9	4
Mississippi	101	31	70
Missouri	46	25	21
Montana	50	30	20
Nevada	6	6	0
Nebraska	18	16	2
New Hampshire	22	15	7
New Jersey	56	40	16
New Mexico	7	6	1
North Carolina	121	95	26
Oklahoma	44	34	10
Pennsylvania	80	69	11
Pennsylvania (June)	395	362	33
Rhode Island	13	9	4
South Dakota	35	32	3
Texas	60	59	1
West Virginia	31	28	3
Wyoming	1	1	0

North Carolina.—The North Carolina Legislature in 1909 meeting adopted an amendment to the Medical Laws, adding at the end of section 4498 of the revisal of 1905 the following: "*Provided still further*, that the said board may, whenever in its opinion the conditions of the locality where the applicant resides are such as to render it advisable, make such modifications of the requirements of this section, both as to application for examination and examination for license, as in its judgment the interests of the people living in said locality may demand, and may issue to such applicant a special license, to be entitled a 'Limited License,' authorizing the holder thereof to practise medicine and surgery within the limits only of the district specifically described therein. The holder of the limited license practising medicine or surgery beyond the boundaries of the district as laid down in said license shall be guilty of a misdemeanor, and upon conviction shall be fined not less than twenty-five dollars nor more than fifty dollars for each and every offense; and the said board are empowered to revoke said limited license, in its discretion, after due notice."

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending May 15, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	550	176
Diphtheria	318	32
Measles	1,578	32
Scarlet Fever	338	33
Smallpox	..	..
Varicella	167	.
Typhoid Fever	56	4
Whooping Cough	111	14
Cerebrospinal Meningitis	11	8
Malarial Fever	..	.
Totals	3,129	299

Hematogenous Origin of Pyonephrosis.—Fortunato Broccolo has studied experimentally in animals the production of pyonephrosis by ligation of one ureter and later injection into the blood of *Staphylococcus pyogenes aureus*. He gives us these conclusions: ligature of one ureter is always followed by hydronephrosis of the corresponding kidney, without any other cause. The dilatation of the pelvis is appreciable after six hours. As the transformation of the kidney into a sclerotic sac goes on the function is destroyed by destruction of the epithelial elements. Urinary stasis realizes all the necessary conditions for hematogenous origin of the infection. Pyonephrosis may be caused by the injection into the blood of pyogenic germs, provided they be in sufficient numbers, contain isolated forms, and the bacteria are of slight virulence. Infection occurs at the first injection. If the dose is exceeded suppuration will occur in the other kidney, the liver, and other organs. The opposite kidney never remains healthy, since the overwork required of it and the poisons to be absorbed always affect it also.—*Lo Sperimentale.*

The Treatment of Plague.—In an article read before the Grant College Medical Society of Bombay, Dr. R. Row recommends the treatment of plague by the method of inoculation with living pyogenic organisms. He does not enter into details of the character or mode of preparation of the material with which he claims to have produced useful results, but states, somewhat vaguely, that "the chief part of the matcrial consists of a species of *Staphylococcus pyogenes.*" This material is introduced by local scarification round about the plague bubo in six or eight points, and "allowed to remain there for eight to ten hours, so as to take root." Dr. Row enters into a lengthy discussion about the various physiological and pathological processes whereby these inoculations lead to a beneficial result, the gist of his argument being that the pyogenic organisms inoculated counteract the action of the plague bacilli.—*British Medicol Journal.*

Contribution to the Knowledge of the Function of the Hypophysis Cerebri.—A. Gemelli has studied the function of the hypophysis cerebri by ablation of the organ in animals. His conclusions are these: the organ is not indispensible to the life of the animal because animals survive indefinitely the removal of the organ without any untoward symptoms. In all probability other organs of similar structure and functions take the place of the removed organ. In young animals from whom it has been removed there are more effects noticed than in adult animals; there is an arrest of development, shown by lessened weight, length of the limbs, etc. The glandular lobe of the hypophysis has a marked antitoxic action. The other lobe is an ancillary organ of the kidney.—*La Riforma Medica.*

Obliteration of the Tubes After Resection.—I. Ronsse advocates the sterilization of women after laparotomy, when there are conditions present that render future conception dangerous to the patient by section of the Fallopian tubes between two ligatures. Some observers have stated that pregnancy has occurred after this procedure, and that the tubes do not remain permanently closed. The author has experimented on animals and has found that the tubes do remain closed. The tubes when examined histologically were seen to be closed by a mingling of cells of muscular, epithelial, and connective tissue character. The author has also examined three tubes that had been removed at a second operation after sterilization had been performed previously, and he finds that the closure of the tube was of a permanent nature.—*Bulletin de la Société Belge de Gynécologie.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending May 14, 1909:

SMALLPOX—UNITED STATES

		CASES.	DEATHS.
California, Berkeley	Apr. 17–24	1	..
Oakland	Apr. 19–26	2	..
Sacramento	Mar. 1–31	2	..
Georgia, Macon	Apr. 25–May 2	7	.
Illinois, Danville	Apr. 25–May 2	8	.
Galesburg	Apr. 24–May 1	1	.
Springfield	Apr. 23–30	1	.
Indiana, Fort Wayne	Apr. 17–24	1	..
Indianapolis	Apr. 25–May 2	1	.
La Fayette	Apr. 26–May 3	3	.
South Bend	Apr. 25–May 1	3	.
Iowa, Cedar Rapids	Apr. 1–30	2	.
Council Bluffs	Apr. 25–May 3	1	.
Sioux City	Apr. 1–30	1	.
Kansas, Kansas City	Apr. 25–May 1	1	.
Wichita	Apr. 25–May 1	4	.
Kentucky, Lexington	Apr. 25–May 1	2	.
Louisiana, New Orleans	Apr. 25–May 1	5	..
Minnesota, Duluth	Apr. 22–29	2	..
Missouri, St. Louis	Apr. 25–May 1	1	.
Montana, State of	Mar. 1–31	55	.
Nebraska, South Omaha	Apr. 3–10	1	.
New Jersey, Trenton	Apr. 25–May 1	2	.
New York, Niagara Falls	Apr. 25–May 1	1	.
Ohio, Ashtabula	Apr. 25–May 1	6	.
Cincinnati	Apr. 23–30	18	.
Cleveland	Apr. 23–30	1	.
Tennessee, Knoxville	Apr. 25–May 1	13	.
Texas, Hidalgo County	Jan. 1–Apr. 1	16	.
San Antonio	Apr. 25–May 1	4	.
Utah, State of	Mar. 1–31	136	.
Washington, Spokane	Apr. 17–24	6	.
Wisconsin, La Crosse	Apr. 25–May 1	1	..
Superior	Apr. 25–May 1	3	..

SMALLPOX—INSULAR.

Philippine Islands, Manila	Mar. 13–20	4	2

SMALLPOX—FOREIGN.

Brazil, Bahia	Mar. 13–27	8	2
Pernambuco	Mar. 1–15	.	5
Canada, Halifax	Apr. 17–24	1	.
Toronto	Feb. 27–Apr. 17	14	..
Ceylon, Colombo	Dec. 12–Jan. 16	64	12
China, Amoy	Mar. 20–27	..	Present
Hongkong	Mar. 20–Apr. 3	2	..
France, Paris	Apr. 10–17	1	.
India, Bombay	Mar. 30–Apr. 6	..	17
Calcutta	Mar. 20–27	..	446
Madras	Mar. 27–Apr. 2	..	3
Rangoon	Mar. 20–27	..	3
Indo-China, Saigon	Mar. 14–21	2	1
Italy, general	Apr. 10–18	61	..
Catania	Apr. 10–17	1	.
Naples	Apr. 11–18	11	.
Java, Batavia	Mar. 13–20	3	..
Mexico, Guadalajara	Apr. 15–22	.	1
Mexico City	Feb. 27–Mar. 27	..	91
Monterey	Apr. 18–25	.	8
Veracruz	Apr. 18–25	2	2
Persia, Karmanshah	Feb. 17–Mar. 17	.	22
Portugal, Lisbon	Apr. 11–17	6	..
Russia, Batcom	Feb. 1–28	1	.
Moscow	Mar. 27–Apr. 10	52	23
Riga	Apr. 10–17	2	..
Warsaw	Feb. 6–13	..	2
South Africa, Durban	Mar. 20–27	1	Imported
Spain, Almeira	Mar. 1–31	..	1
Barcelona	Apr. 1–10	..	1
Straits Settlements, Penang	Mar. 20–27	1	Imported
Switzerland, Zug, canton	Apr. 11–17	1	..
Tripoli, Tripoli	Mar. 27–Apr. 10	90	10
Uruguay, Montevideo	Feb. 1–28	..	11

YELLOW FEVER.

Brazil, Bahia	Mar. 13–27	21	12
Pernambuco	Mar. 1–15	..	1
Ecuador, Guayaquil	Mar. 27–Apr. 3	..	18
Mexico, San Bernardo, vicinity of			
Maxcanu	Apr. 24–May 1	1	..
Ticul	Apr. 10–17	2	.

CHOLERA—INSULAR.

Philippine Islands, Provinces	Mar. 13–20	118	72

CHOLERA—FOREIGN.

Ceylon, Colombo	Dec. 12–Jan. 2	4	3
India, Bombay	Mar. 27–Apr. 6	..	14
Calcutta	Mar. 20–27	.	143
Madras	Mar. 27–Apr. 2	.	3
Rangoon	Mar. 20–27	..	4
Russia, St. Petersburg	Apr. 16–21	22	2

PLAGUE.

Brazil, Bahia	Mar. 13–27	5	1
China, Hongkong	Mar. 20–Apr. 3	.	11
Chile, general	Apr. 2–8	2	1
India, general	Mar. 20–27	6,059	5,035
Bombay	Mar. 30–Apr. 6	..	407
Calcutta	Mar. 20–27	..	6
Rangoon	Mar. 20–27	..	16
Japan, Formosa, island	Mar. 13–27	99	85
Kobe, vicinity	Mar. 27–Apr. 3	1	..
Port Louis	Jan. 1–31	12	12
Straits Settlements, Singapore	Mar. 13–20	..	1
Turkey, Jiddah	Apr. 19–21	1	2

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Original Articles.

THE ETIOLOGY OF PAIN.*

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NEW YORK.

The subject which has been chosen for this evening's consideration—the etiology of pain—though very broad, seemed possessed of the merit that it will enable each to add from his special fund somewhat of interest. I shall endeavor from my experience to draw attention to certain cases and conditions which have seemed somewhat unusual.

While the interpretation of a particular pain may be easy of solution, there occur, as we all know, pains whose correct understanding may need not only careful study but also the critical examination of coincident conditions. Idiosyncrasy, sex, defective ability of expression, a foreign language, the use of an interpreter, and also racial peculiarity may each add to our trouble. So, again, we may have malingering, the denial of habits which would, if known, be illuminating, the desire for drugs or intoxicants all stand in the way of successful search for the true cause.

The following illustration will show the fallacy of the hope entertained by a lady that an autopsy would reveal the cause for pains in the abdomen, which had anoyed her from time to time. As a result she had left an insistent request that, in the event of her death, a port-mortem examination should be held, as she hoped thus that her sufferings would prove of benefit to humanity. She died of pneumonia, which had no relationship to her previous troubles. A careful study of the viscera did not reveal any abnormality nor any such condition as would justify the opinion that this or that had been able to produce her sufferings. The condition of the gall-bladder, of the ducts of the pancreas, of the kidneys, etc., were studied. The possibility of hernia in usual and unusual positions was likewise investigated. In fact, the results of the autopsy were entirely negative. It did seem the irony of fate that where there existed so unusual a desire for a method of research, which is so generally avoided because of the prejudice against it, that it should not accomplish its end. I had only seen this lady during her attack of pneumonia. The exact character of her pains were not made very clear to me, though to her they had evidently been very real.

Early in my medical career, as a student visiting the wards of a hospital as member of a class, the professor in attendance showed us how to distinguish in a young woman, who had complained of abdominal pain, the hysterical nature of her complaint, peritonitis having been suggested as possible. Pressure under ordinary circumstances elicited signs of distress, but when the patient's attention was diverted fairly deep pressure was made without evidences of manifest discomfort. Two days later an autopsy disclosed peritonitis as the cause of her illness and death. Since then I have encountered other cases, denominated hysterical, which have terminated fatally from organic causes. For illustration, a patient entering a hospital for headache was on several occasions discharged as hysterical until she returned with severe attack followed by coma and death, whose cause was a tumor of the brain. Again, a woman at menopause had complained of severe precordial pain with which a heart murmur coexisted. The patient's physician and her husband were informed that this was hysterical, and that she was in no danger. Against this view I was obliged to take issue. A short time later the lady uttered a scream while her physician was in an adjoining room; he was barely able to keep her from falling to the floor, and lay her on a bed—she had died of angina pectoris.

It would be unwise to consider each severe pain in a female of organic origin, otherwise it might be that operations would be performed and normal parts removed, as has happened. These instances, among others, have taught me to be very cautious in labeling a severe pain as hysterical.

Pain dependent upon toxic influences may perhaps baffle us unless we make diligent inquiry even in spite of the patient's protestations. We are obliged at times to adopt devices such as a quiet inquiry of the friends, at the same time impressing upon them the necessity that we should know the truth for the patient's own benefit. More than once I have been enabled thus to rightly name a pain, or its causative pathology, as alcoholic neuritis. Each of us has no doubt been witness to the sad picture of the shattering of ideals, or idols, as you may choose to designate, the effect of knowledge by relatives of the injurious habits of their relations. But it is otherwise often when we look for the cause of vague aches and pains unless we are helped by the characteristic line on the gum in the case of lead, or unless we have the help of the associated paralysis.

Perhaps an illustration will serve best to set the matter a little more clearly. I was consulted in the office for pain in the abdomen by the proprietor of a saloon. The examination had not made me certain of the nature of the malady, when fortunately I examined the gums. These gave the indication, but I little felt that I had thus found that as in the case of Eve the woman was at fault, for upon a little cross-examination it came out that he had been drinking cider which was pumped through a lead pipe from the barrel in the cellar below. Then it was that the patient told his wife that it was her fault, as she had made him give up whiskey. The opportunity for a rejoinder was at hand, for it was not difficult to tell him that it served him right because of such unhygienic method of drawing cider.

*Read at a meeting of the Practitioners' Society of New York, February 5, 1909.

So all could, without doubt, enumerate instances of difficult detection of the method of entrance of poisons from hair dyes to galvanized tacks held in the mouth, or thread bitten by the teeth.

It behooves us, however, to be on our guard lest we be too zealous in our search and lay the blame on some condition which covers lack of diagnostic ability, as in the celebrated Boston case with which I take it you are all familiar. In this instance an autopsy made to show that the patient was a victim of arsenic inhaled from the material on the walls, showed that a carcinoma of the stomach was the true cause of the symptoms during life and of the fatal issue.

The diagnosis of sciatica seems and usually is simple enough, yet not infrequently pains taken to be those of simple neuralgia usher in a much more serious condition. Notwithstanding a careful examination, not alone of the bones of the pelvis inside and out at the inception of treatment of a case, yet a growth may gradually develop, and either the physician be surprised on a second investigation, or else a subsequent examiner discover a growth instead of simple neuralgia to the discomfiture of his predecessor. Hence it is a wise rule to make a critical reexamination after a moderate lapse of time of any patient whose history contained points of doubt. While the above remarks are the result of the review of several illustrative histories, yet I will draw attention to the salient points of one particularly. He came to me because he thought he had sciatica, and his impression had been confirmed by medical pronouncement. There was found on the posterior part of the ilium a small rounded portion tender to pressure. This was not removed, nor were the pains relieved by the employment of antisyphilitic measures, given with the bare hope that this swelling indicated that we had to deal with a specific development rather than a malignant growth. The patient was advised to obtain a surgical opinion as regards the possibility of operative interference. Two surgeons, both members of this society, advised that nothing could be hoped for from the employment of the knife. Later he was operated upon abroad by the removal of the affected bone, together with the whole lower limb. The operation was said to have been successful, though death happened shortly after (within 36 hours) according to my informant. This introduces as a subject the etiology of pain, especially nocturnal pain, when relieved by specific medication. In the above outlined case marked improvement apparently happened at first.

The following more marked illustration occurred in a male under 40 years of age. His main complaint was of pain in the region of the left fourth rib near the nipple and in the back, which occurred mainly at night. He made no complaint of gastric distress, nor was there any evidence of impaired digestion. The left fourth rib was somewhat prominent, but without the proof of a morbid condition. A trial was made of specific measures, and a marked improvement for a time resulted in complete absence of pain. Later the pain returned, and failed to be relieved as at first. Then a partial collapse occurred, with vomiting of a dark fluid in the street where it could not be had for examination. No doubt of its hemorrhagic nature was entertained, as he became quite anemic. Moreover, symptoms of perigastritis followed for a time. Examination of the stomach contents showed a normal state, and there was no retention of gastric contents. No tumor was manifest. On the development of these phenomena the etiology was transferred from possible specific disease to either gastric cancer or ulcer. Only when a nodule became evident in the left lobe of the liver could the positive diagnosis of cancer of the stomach be arrived at. The secondary spread was rapid, and an autopsy showed carcinoma of the lesser curvature of the stomach, not impeding the entrance nor the exit of food.

We can reconstruct this case in the light of the above. The pains occurred more at night because at this time the recumbent posture brought the stomach contents in contact with the lesion.

I have already made allusion to the lady who desired others to know the cause of her pains. So, we, as physicians, would be very glad at times if we could solve the problem of the source of pain in the abdomen. In not a few cases would the kidney be opened instead of the appendix removed. It requires very careful inquiry and search in order to be sure in certain instances which of the three parts, kidney, gall-bladder or appendix would be the right organ to be attacked. But I will not now mention these, nor the possibility of the duodenum or pancreas being at fault, but rather draw attention to the possibility of the pains of nervous disorder, especially of ataxia leading to laparotomy or even to the study of the ureter and kidney It is necessary to ascertain whether there are any such features present as would warrant a suspicion of ataxia or other cord disease before deciding. The etiology will be best understood if in the first place we find out whether there has been a preceding leutic infection. To me experience is very strong which connects these conditions. The crisis and at times, also, the desire for the relief afforded by medication intensify the expression of pain; as, on one occasion, the recurring pains were accompanied by extreme gastric irritability, and the more characteristic signs of ataxia were not in evidence, a surgeon in one hospital removed the appendix. After recovery from this, the patient, with the pains as severe as before, entered another hospital in a different city where the question came as to possibility of gastric ulcer. Again, as above stated, prior to the comprehension of the nervous condition as causative I have known the ureter and bladder to be explored and the question of nephrotomy to be raised.

If too much stress is laid upon the character and direction of the pain we may consider a case to be due to renal colic when in truth we have to deal with an aneurysm of the aorta, as in one case which came to autopsy under my observation, but those who had seen the patient during life considered the condition to be the former.

A still more interesting observation relates to a gentleman visiting in this city who was seized with a sudden pain in the left side of the abdomen in the kidney region. This was violent and led a physician because of the location and radiation of the pain to consider the condition one of renal colic. When I examined him the next day there was the history as above, and, in addition, a considerable swelling on the left side of abdomen could be observed which had an incomplete pulsation. The question came as regards renal distention or aneurysm. I decided upon aneurysm. By the next day the swelling had increased and towards the median line—pulsation continued. He died the day following, and at an autopsy it was found by Dr. Prudden that there was a rupture of the aorta and a very large subperitoneal extravasation of blood, and a rupture

through the peritoneum. He had as atheromatous an aorta as I had seen.

The possibility of mistaking pancreatic for biliary colic and the reverse happened in one instance which came under my observation at different times. In the first instance there had been very severe pains continued off and on for some time, and calculi had been obtained from the fecal evacuations. These, however, upon chemical examination, were of the nature of pancreatic calculi. So that in that attack we could only say that pains which seemed to be due to biliary calculi were dependent upon pancreatic. Upon the next occasion, about a year later, this lady was under the case of a different physician who made all preparations for a careful study of the fat digestion in the intestines which were carefully conducted. However, at this time, the lady passed biliary calculi, and not, as on the previous occasion, pancreatic. Neither I who had observed her on both occasions nor she herself could differentiate between the pain during these seizures. At the last seizure jaundice developed.

Angina Pectoris.—Pain in the chest particularly requires study of the coincidences. We all meet those lighter cases whose symptoms impose upon the patient and at times even upon the attending physician. When the attack is severe and characteristic, but little doubt can be entertained. Yet it is the coincidence of relief experienced by belching of gas which makes the invalid assume that his trouble is simply an indigestion and desire treatment to that end, while the physician looks for the coincidence of increased blood pressure or some demonstrable cardiac lesion to prove the heart-nature of the malady. But the absence of any marked cardiac trouble on examination should not impose upon us, for I presume we have all encountered cases which have succumbed to an attack and in whom no very marked cardiac change had been noted on examination. It has seemed to me that the development of an ashy gray hue of the lips, etc., has been a coincidence which was in a measure not only diagnostic in conjunction with the characteristic pain, but was also possessed of a serious prognostic import. How doubtful the nature of a case may be, the following will illustrate. This consisted in a postmortem examination of a man of 50 years. The history at first was that he had died suddenly in his room late in the evening. The peculiar feature was that only a housekeeper and he were in the house at the time. He had at first been said to have been previously well, though a more thorough inquiry resulted in developing the fact that three weeks prior to the fatal evening in walking across a field he was obliged to stop, lean against a fence for a time owing to severe pain in his chest. The preliminary examination did not disclose sufficient evidence of diseased change to account for death. The heart had been removed, but in the light (candle) no very evident changes were noted. It was put aside with the remark that later the coronary arteries would be examined. As the other viscera showed nothing of note it was feared that possibly the death might have been dependent upon toxic influences. Questions were asked in regard to the last meal, when he had partaken of it, and of what it consisted. The opening of the coronary arteries disclosed the cause of death as one contained a thrombus completely obstructing, and the other was three-quarters obstructed. The pain three weeks prior to death was thus explained, and the fatal issue as well. There was nothing in the appearance of the valves of the heart to indicate that in this case there would have been a murmur to assist the ante-mortem diagnosis. Moreover, the housekeeper was freed from such suspicion as sudden death under the circumstances might have implied.

In a previous portion I have alluded to a lady in whose case a very competent physician had, notwithstanding the presence of an aortic murmur, considered the condition as hysterical. Cases come to my mind where the ashy gray color has enabled me to consider the condition as angina in connection with the pain. On the other hand, I recall in particular two men who were relieved of the severe distress which they considered cardiac by the passage of a stomach tube and the removal of the stomach contents. One said that we must have removed a lizard or other reptile which had been gnawing at his vitals. In his case there were coincident circumstances which pointed to a nervous origin of his symptoms. The possibility of nausea which might produce a pallor should be carefully considered for occasionally its existence has prevented me from laying too great stress on this phenomenon as a determining factor in deciding on the etiology of precordial pain.

Continued pain in the back, if of considerable duration, will rarely be rightly designated by the term "lumbago" which is no uncommon term applied to it. Rightly to understand the nature of such distress requires close observation and study of coincidences. Much help has been afforded by the *x*-ray of late years, but it will only be by careful thought that the physician will be enabled to decide which of the three causes that are the usual is the particular one. These three are: Aneurysm of the aorta, Pott's disease of the spine, or tumor. My own experience could bring out many illustrations of the difficulties. For instance, I recall the case of a man transferred from a medical ward of a hospital, where he had been treated for lumbago, to a surgical ward, upon the discovery of an angular curvature of the spine, who died suddenly from rupture of an aneurysmal sac the day after he had served as the subject for a clinical lecture upon Pott's disease. So, again, allusion could be made to a case which required medico-legal notoriety because it related to the plaintiff in a law suit against the city, defended by expert witnesses who each testified differently from the other, while Prof. Lewis Sayre and the writer defended the etiology as being that of Pott's disease, which an autopsy later confirmed.

In no other instance do we so often witness the obtuseness of our surgical friends than when pain in the back follows the operation of tumor removal. There is a hesitation to consider the right cause. Yet physicians are liable to err at times on the tumor side too quickly. Where there has been no preceding tumor observed or removed, pain in the back may be inferred to be due to tumor development in the spine, but certainly, notwithstanding the employment of the *x*-ray, may only be reached by secondary developments as the appearances of growths in other bones discernable by the *x*-ray while the possible primary source cannot be disclosed. In the chest we have the added help of the recurrent nerve, whose paralysis may throw much light upon the investigation of cause. Yet even under these circumstances the *x*-ray picture may show an abnormal shadow which, not pulsating with the fluoroscope, may leave a contention between two

examiners, one taking the ground of aneurysm with clot, and the other of new growth which, as specific trouble had existed, should be called a gumma.

In a portion of this communication mention has been made of the supposition that neuralgia was present when in reality tumor development in bone existed; also of abdominal or intrathoracic aneurysm as the cause for severe pain in the back. At times an aneurysm of the intrathoracic aorta may give rise to severe cervicobrachial neuralgia, imposing itself thus on those in charge.

Perhaps mention might also be made of the vagaries of the pains which occur with herpes zoster. At times, if the pains are severe before the eruption, the physician may be unnecessarily alarmed at possible developments. Or, again, we may encounter a well-marked outbreak when we have the patient ready for examination, having from the history, given supposed that the malady was of internal origin.

The feet are so open to observation and palpation, as well as to other methods of examination, that it would seem as if pain in them would be rightly named. But no doubt to you, as has happened to me, cases have demonstrated the error of this opinion. Some years since a young man consulted me regarding his heart, about which he was apprehensive. A careful study revealed no proof of organic disease. Then he made the following statement: He had been treated at a prominent bath resort in Germany for heart disease following rheumatism, the proof of the existence of which was found in the pain in his feet. He did not improve, and consulted Prof. von Noorden, who had a radiograph of his feet made, a reproduction of which he brought to me. This showed that there was calcification in the plantar ligament. Thus was made manifest the non-rheumatic character of the pains in the feet, and with this the rheumatic character of the affection. The heart disease went by the board, as Prof. von Noorden told him, and I had done later, that he had no evidence of rheumatic endocarditis.

Particularly in elderly people, but a wise rule in others also, we should take the pulsations of the arteries of the feet. We are enabled to find thus those persons whose pains are dependent upon poor circulation. It has been a matter of surprise to me to discover the frequency with which this study has been omitted. The result has been that people have been treated for gout, or more often for gouty tendency when in reality defective circulation was proven by absence of the pulse in the dorsalis pedis and the posterior tibial arteries. These pains are the presage at times of gangrene. The very interesting study made of limbs amputated at Mt. Sinai Hospital by Dr. Leo Buerger gives details of the anatomical conditions found. The comment on the clinical condition by Dr. Sachs is to be considered with the pathological. The etiology of certain types, at least, of erythromelalgia and of Raynaud's disease is thus placed upon a pathological basis, though the inquiry may be justly promulgated, Why was the thrombosis started and what was the condition upon which it was dependent?

If my purpose to bring before you certain cases and suggestions as regards the etiology of pain has been successful, then a number of illustrations possibly more to the point will follow from those whose work in special fields may have led them to think that neglect was the lot on my part of their favorite study. Thus I have left out of account that fruitful source of pain, the female pelvis; as, also, some may think that headache did not receive its due of consideration. There are present those who can do justice to this portion of the field, though I will add one observation made to me once by a school girl—that hers was not a "school headache" on that particular occasion. I did not wish to annoy you with detailed histories, but rather to use the pith of the statements.

HAY FEVER AND OTHER RHINOLOGICAL CAUSES OF ASTHMA.*

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When I responded to the request of the president to bring this subject before you to-night, I must say that it was with much trepidation and a feeling that there are among you many far better qualified for the undertaking. However, I have been encouraged by the hope that this effort may bring forth in the discussion suggestions that will throw additional light upon the subject and be of material help to us in the treatment of this extremely annoying affection.

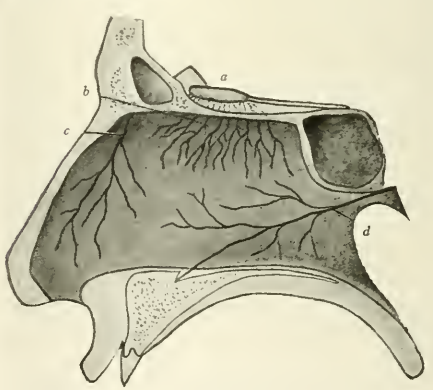

Fig. 1. *a*. Olfactory bulb; *b*. olfactory nerves; *c*. branches of nasal nerves; *d*. branches of nasopalatine nerve.

The season is almost upon us when the importunities of the hay fever sufferer will fill the air. The recently developed cases will come to us for diagnosis, advice, and treatment; while old sufferers, wise in the lore of their affliction, will drop in for post-graduate instruction or skeptically to inquire if there are any new experiments to be tried, and if we have yet caught the slightest glimmer of the light that will lead us out of the darkness. Among these there are some patients who may ask these questions with propriety, but there are others who would be greatly benefited or cured but for carelessness in following directions or a disinclination to consult the physician, preferably during the quiescent period, and submit to a proper course of treatment systemic and local.

Hay fever is an affection of comparatively recent date; there is no positive evidence that it had been recognized prior to 1819, when Bostock read

*Read at a meeting of the Society of Alumni of Bellevue Hospital April 7, 1909.

before the Royal Medico-Chirurgical Society of London a paper entitled "A Periodic Affection of the Eyes and Chest," in which he described his own affliction and attributed it to the sunshine and heat of summer.

In 1839 Elliotson associated the disease with the presence of pollen in the air. Blackley, whose painstaking experiments extended over several years, confirmed his views and added many new data to our knowledge of the affection.

Recently Dunbar proved beyond the shadow of a doubt that the disease is due to pollen of certain grasses and plants. Out of 130 plants examined by him he found that the pollen of twenty-five grasses and only seven other plants had a definite effect upon a susceptible subject.

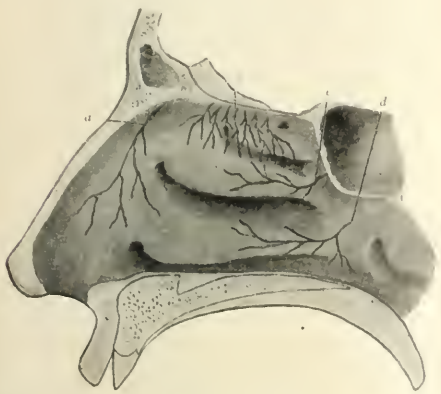

FIG. 2. *a*. Branches of nasal nerve; *b*. olfactory nerves; *c*. superior nasal nerve; *d*. inferior nasal nerve.

Beard of New York called attention to the marked neurotic tendency of hay fever subjects and disclosed much valuable information on the etiology. In his recent work Grayson classifies it as a neurosis, and this view is now generally conceded to be correct.

Hay fever is an affection having no pathology of its own, therefore it must be studied and discussed entirely from a clinical point of view. Its etiology is so inseparably linked with its treatment that a consideration of this is necessary to make clear the application of the various measures for its relief.

The remarkable increase of this malady during the past half century at once arrests our attention and we seek an explanation. This increase has been more marked in the United States than in any other country in the world; there are within our boundaries in the neighborhood of 100,000 hay fever subjects, and this number is being rapidly augmented. The explanation of this is self-evident when we consider the prominence of the neurotic element in the affection and how this is favored by the constantly increasing demands of modern civilization upon the nerve centers.

Hay fever like other reflex neuroses is preeminently an affection of civilized man, and is most common in our large cities where it is increasing *pari passu* with the increased demands for nerve energy. On the other hand, the farmer who comes in contact with more pollen than any one else is practically never affected. In this case the immunity may have been acquired by constant contact with the exciting cause of the disease; but what is more likely it comes as a compensation for his simple habits of life. He is early to bed and early to rise, he enjoys three plain meals a day and takes plenty of healthy exercise, while his mind is free from the strain endured by those who throng the marts of civilization. Among my own patients, all belong to the brain-working class. I do not remember ever having seen a case of hay fever among those who earn a livelihood by manual labor.

Hay fever is not a hospital disease. In the Manhattan Eye, Ear and Throat Hospital, among 384,901 out-of-door patients treated during the past eighteen years, there were only 205 cases, and these include intumescent rhinitis, sympathetic rhinitis, hpyeresthetic rhinitis, and vasomotor rhinitis. It is safe to say that a large proportion of these were not cases of true hay fever.

Heredity plays a most important part in this affection, and is recognized by various writers in from 40 to 50 per cent. of their cases. In my own practice in fully 75 per cent. of cases more than one member of the family is affected. In one New York family where the father and two uncles are affected, five out of seven children have hay fever and two of these have also asthma.

According to the statistics compiled by Blackley, Wyman, Lloyd, and others, the disease is more apt to occur for the first time between the ages of fifteen and forty-five years, the extreme limits according to these statistics being five and seventy years. I have recently heard of a patient three and one-half years old, the case occurring in the practice of one of our New York physicians; the child was the offspring of neurotic parents and had a typical attack of hay fever.

In regard to the predisposing causes of this affection, I have found in my studies that there is confusion in the minds of some writers. This I believe is due to the fact that these men have failed to observe that sufferers from hyperaesthetic rhinitis may be divided into two classes: those in whom there is a morbid susceptibility to the toxin of pollen, and those in whom there is some pathological condition in the nose or its accessory sinuses; here thermal and various chemical and mechanical irritants may act as exciting causes.

For the sake of making clear this important distinction the term hay fever should be applied to the former only, and *intumescent rhinitis* or *pseudo-hay fever* to the latter.

It is beyond the scope of this paper to enter into a discussion of the evidence bearing upon pollen as an essential etiological factor in this disease; suffice it to say that the experiments and clinical observations of a large number of reliable men have adduced what seems to be an incontrovertible fact, namely, that true hay fever and hay asthma are reflex neuroses always dependent upon the pollen of certain grasses and plants acting as the exciting cause upon the mucous and cutaneous end organs of the fifth nerve, chiefly in the nose, throat, conjunctiva, and on the face.

Pollen is a yellow powder thrown off from grasses and plants only during the flowering season. The pollen grains are round or oval, covered with spicules, and vary in size from .01 to .001 of an inch in diameter. Each grain consists of an envelope enclosing a granular substance which constitutes the toxic principle.

When the pollen grain comes in contact with the

mucous surface the envelope under the influence of the natural secretion bursts, the toxic material comes in contact with the nerve endings in the mucous membrane, and in the susceptible subject immediately exerts its characteristic effect, that of a vascular dilator, while in the normal individual its influence is merely mechanical like that of common dust.

This toxic substance is very powerful. Blackley found that he had symptoms of hay fever when as many as ten pollen grains fell in twenty-four hours on a cover-glass one centimeter square.

The first mild symptoms of the disease may be produced by inhaling in twenty-four hours 1/120,000 of a grain of the toxic substance, while 1/3,427 of a grain in twenty-four hours will keep up hay fever in its severest form.

Kammann of the Hygienic Institute of Hamburg states that 1/400,000 of a milligram, when placed on the conjunctiva of a susceptible subject, will cause itching and burning for several hours.

Why, in the hay fever subject, the vasomotor center is susceptible to the toxic effect of pollen acting on the end-organs of the trigeminus, whereas it is inert in the normal individual, is a problem still open for solution. It may be compared to the idiosyncrasy which some people exhibit for certain drugs, as iodine and quinine, and the violent reflex disturbances which some individuals experience after eating certain articles of food, such as shell-fish, strawberries, etc. I know of three hay fever subjects whose symptoms are made worse and who have urticaria after eating strawberries. There has been noted by many writers a close relationship between urticaria and hay fever.

The primary cause of this peculiar susceptibility in the hay fever subject may depend upon a faulty metabolism in the tissues causing a change from the normal in the body fluids, the latter affecting the physiological condition of the nerve centers.

In true hay fever, as we have observed, there is no distinctive pathological lesion. When the disease has lasted for some time the turbinate tissues are hypertrophied, but this is the result of repeated attacks of turgescence.

In some cases areas of hyperesthesia can be mapped out in the nose, but in the majority of cases I have found a uniform condition of hyperesthesia, certainly no definite, constant hyperesthetic area is known.

In this affection three conditions are necessary: (1) An irritable nerve center; (2) hypersensitive nerve endings in the mucous membrane; (3) an exciting cause. The absence of any one of these will prevent an attack.

Before this audience it is unnecessary to detail the symptoms of this well known malady. Suffice it to say that the itching and burning in the nose and eyes, the constant sneezing and running from the nose, the headache, the photophobia and lacrymation, and in some cases the asthma endured by the wretched sufferer for six weeks or longer every summer, should excite our deepest sympathy and call forth our best efforts for its relief.

The average hay fever sufferer is an extremely difficult patient to treat. He is nearly always a skeptic, having been told by his friends that his only chance of relief is to change his residence. Then again he seldom places himself under treatment until the attack has begun, when the conditions for successful treatment are not so favorable; he realizes also that the affection never results fatally and is careless in following directions and usually discontinues treatment as soon as the acute symptoms are relieved.

In considering all forms of treatment we must constantly bear in mind that we are dealing with a reflex neurosis, a condition resulting from perverted nerve impulses. As in all troubles of this kind our chances for effecting improvement, other things being equal, are in direct proportion to the time the affection has lasted, for once the nerve impulses to and from the center are established in perverted channels, in my opinion, our only recourse is to palliative measures. Therefore the slightest tendency to hay fever, and especially to asthma, should at once be given our serious consideration.

The benefit to be derived from a change of residence is usually thoroughly understood by the patient, who knows more about it than we do, for individuality in selecting a favorable locality is a peculiarity of the affection. The resorts in the White Mountains, Maine, and Nova Scotia are favorites in this country, but some of these are being spoiled by the cultivation of gardens.

A sea voyage offers the surest immunity, but the patient must not return until after the hay fever season.

In regard to the use of drugs, with a view to curing the affection, I must say that my own experiences have been most unsatisfactory, and I am inclined to think that those observers who have reported favorably on this or that drug have been misled by the normal variations in the severity of the affection due to the varying amount of pollen in the air, which in turn is dependent upon the season, atmospheric conditions, etc.

I have used quinine, belladonna, arsenic, and protiodide of mercury. From quinine I obtained no good results, and the discomfort was in some cases increased. Belladonna and Fowler's solution, given for two months before the attack, were not followed by the good results credited to this treatment by some writers. Protiodide of mercury administered for the same length of time before the expected attack seemed to modify it, but in this I may have been mistaken, for the number of cases treated was not large enough to yield positive conclusions.

On the supposition that the affection is based primarily upon a faulty metabolism, in addition to the drugs used, I paid particular attention to diet and elimination in the treatment of these cases.

Palliative Measures.—If the patient is unable to go to a hay fever immune district, there are some measures, both general and local, that will as a rule enable him to pass the critical period fairly comfortably.

He should avoid excitement and hurry. Exercise increases the number of respirations, consequently the amount of pollen inhaled. Then, too, the perspiration is a solvent for the pollen and in the susceptible subject causes the face to itch and burn.

Bright sunlight and dust aggravate the symptoms. When once the disease has become established and the catarrhal stage has been reached, ordinary dust from the street or from the railroad train will keep it up, though this dust may also contain pollen.

The skin, bowels, and kidneys should be kept active and the diet must be frugal. Well known reflex excitants, such as shell-fish and strawber-

ries, should be avoided and meat should be taken only sparingly.

Among the local applications, unfortunately, those that give the most relief at first are followed by a disagreeable reaction, and on being continued rapidly lose not only their beneficial effect, but actually favor the vasomotor paralysis, making it practically continuous and depriving the sufferer of those delightful periods of relief that should normally come to him during the course of the affection. This is especially true of adrenalin, atropine, and cocaine.

I have recently operated upon a patient for intumescent rhinitis whose symptoms were those of true hay fever. She had used cocaine and adrenalin excessively for six years to allay the disagreeable symptoms. Both drugs had lost completely their physiological effects and the blood vessels of the mucous membrane were relaxed and toneless.

Adrenalin, 1/10,000 in normal saline solution, is very grateful to the patient and does not lose its beneficial effect if used sparingly during the attack. According to Cohen suprarenalin in 1/20 grain tablets dissolved on the tongue, one every ten or fifteen minutes, is very satisfactory. Adrenalin taken internally is not effective.

I have found menthol, twenty grains to the ounce of albolene, almost as effective as adrenalin and preferable to it for general use. I have obtained good results also by cleansing the nose with warm Dobell's solution and then applying carbolic acid six grains to the ounce of albolene.

Dunbar's pollantin, a serotoxin prepared from the pollen of various grasses, can in no sense be considered curative; it merely acts locally by neutralizing the pollen toxin, and hence to control the affection would have to be applied to the susceptible mucous surfaces continuously during the critical period. My experiences with the preparation have been altogether unsatisfactory.

Hay asthma occurs according to various authors in from 25 to 50 per cent. of the cases of hay fever. Thost, in a report on 400 cases of hay fever, states that 266 suffered with asthma.

This complication comes on as a rule after the hay fever has been established for several years and develops during the later stages of the attack. It may be regarded as an extension of the nasal irritation into the lower respiratory tract. The reflex impulse in this case is conveyed to the trachea and bronchi through the thoracic branches of the vagus. After asthma has become established it may come on at any season and seems to lose its connection with the hay fever, which it sometimes appears to replace.

As to the local condition in the trachea and bronchi there are three views: (1) That the obstruction is due to the contraction of the muscular coats of the bronchi; (2) that it is due to vasomotor paralysis and turgescence of the blood vessels in the submucosa; (3) the theory of Curschmann that it is caused by a special form of inflammation in the smaller bronchioles.

I am inclined to the view that it is due to turgescence of the mucous membrane of the trachea and bronchi and is analogous to the condition in the nose of the hay fever subject, or in the larynx in urticaria of the larynx. The fact that when the attack is passing off there is an increase in the secretion, seems to support this view, for this phenomenon always accompanies deturgescence of a mucous membrane.

In the treatment of hay asthma I have obtained good results only from morphine and atropine by hypodermic injection, cocaine spray in the nose, and chloroform inhalations. A cup of strong coffee I have on several occasions found very effective in relieving the attack.

During the intervals potassium iodide and such nerve tonics as arsenic, phosphorus, iron, and valerianate of zinc should be given and the diet carefully regulated, for the attacks seem to be closely allied with digestive disturbances. If the attacks are brought on by the latter, the iodides should not be used.

I wish here to call attention to the frequency with which ordinary spasmodic asthma is associated with pathological conditions in the nose and nasopharynx; especially is this so in the case of polypi, ethmoiditis, hypertrophy of the inferior turbinates, and adenoids. These cases furnish some of the most brilliant results obtained in rhinological surgery, for many of these may be cured by a simple operation.

It has long been my belief that mouth-breathing, due to nasal obstruction, is an important factor in the development of asthma. The impact directly upon the walls of the trachea and bronchi, of air unfiltered and imperfectly warmed and moistened would certainly seem to be a strong predisposing factor. Especially would this be true in the case of hay-asthma, where a large amount of pollen would be carried direct to the bronchi. The fact that asthma seldom develops until several years after the hay fever has become established and the turbinates have become hypertrophied and obstructive to respiration, in my opinion lends considerable strength to this view.

We do not concede, however, that all cases of spasmodic asthma are due to nasal disturbances, for the large proportion of cases reported by some writers are not substantiated by the majority of operators.

Temporary relief from asthma frequently follows operations of any kind on the nose, but this is not sufficiently constant to warrant resort to indiscriminate operating and cauterizing as a routine measure in the absence of distinct pathological conditions.

Before considering further the local treatment of hay fever it is well to recall the nerve supply of the nose.

Special sensation is supplied by the olfactory nerve through its twenty or more branches distributed to the upper part of the nose. The chief nerve supply and that which concerns us in hay fever comes from the trigeminus. Indeed it is upon the extensive mucous and cutaneous distribution of this great nerve that hay fever depends.

The anterior portion of the nose is supplied by the nasal nerve, a branch of the ophthalmic, while the posterior portion, including the greater portion of the turbinates, is supplied by the superior and inferior nasal nerves and the nasopalatine, all branches of Meckle's ganglion. Where the nerves are very superficial and the end-organs are especially aggregated are located the sensitive spots, here the mucous membrane seems especially sensitive to the pollen toxin in hay fever subjects, however, we do not yet know of any constant irritable area. The extensive distribution of the trigeminus to the conjunctiva and to the skin of the face explains the eye symptoms and the irritation of the skin after excessive exercise during the critical period.

In hay fever the nerve impulse passes to the medulla and is transferred to the root of the vagus through association fibers. This connection is especially important in hay asthma, where, as we have seen, the vasomotor impulse is conveyed to the trachea and bronchi through the thoracic branches of the vagus which is in close relationship with the sympathetic system.

Intranasal procedures for the relief of hay fever have for their object either to destroy the sensitive end-organs or to disconnect these from the nerve center.

The intranasal conditions in hay fever present what I believe to be one of the few opportunities for the legitimate use of the electrocautery. To destroy the sensitive spots, the mucous membrane should first be sprayed with a solution of half and half cocaine 10 per cent. and adrenalin 1/1,000. The surface of the cautery at white heat should be gently touched to the anterior ends of the inferior turbinates and to the septal mucous membrane opposite the anterior end of the middle turbinate. The burn in these cases should be made very superficial. I never cauterize the middle turbinate nor do I care to attack the posterior end of the inferior turbinate for it is a step in the dark. I touch these areas with a solution of carbolic acid in albolene, six grains to the ounce.

Hypertrophied inferior turbinates may be reduced by applying the sharp edge of the cautery knife at cherry red heat and burning deeply to the bone. The cicatricial contraction following this certainly does diminish to a marked degree the disagreeable symptoms of the disease. An interval of ten days should be allowed to elapse before treating the opposite side. After the use of the cautery I always introduce narrow strips of sterile vaseline gauze; this modifies the inflammatory reaction and prevents adhesions. This treatment I have found fairly satisfactory as a palliative measure for both hay fever and hay asthma.

All operative procedures in the nose should be done if possible during the quiescent periods of the disease, though in hay fever this is not obligatory, for at least during the early stages we are dealing not with an inflammatory condition, but with a condition of complete vasomotor paralysis, due to the specific action of pollen. The nasal discharge at first may be considered a flux, and it is only later that it becomes catarrhal in character. The effect of the cautery at this stage, therefore, is stimulating as well as destructive. It is upon this principle that Grayson advises pin-point applications of chromic acid to the sensitive areas; he claims good results from this method of treatment.

There has recently been introduced by Stein of Chicago a method of procedure which theoretically at least promises to be a valuable addition to the palliative treatment of hay fever. I refer to the injection of alcohol into or near the principal nerves at the point where they enter the nose. Five drops of alcohol are introduced at these points by means of a hypodermic syringe having a long curved needle. This method depends for its efficiency upon the disorganization of the nerve elements at the point of injection, thus interrupting the passage of various stimuli from the point of irritation in the nose to the nerve center. While we know from experience that nerves in other parts of the body sooner or later resume their function after being treated with alcohol, yet we may reasonably assume that in the nose this will not occur until after the critical period of hay fever has passed. Stein has not made a final report on his cases, but the immediate results he assures us have been satisfactory.

There are some extremely radical operations that have been recommended which should be mentioned only to be condemned; such are: *Complete removal of the turbinates.* It is unnecessary to say that were this procedure entirely effective in securing comfort to the patient during the critical period of six weeks, we would be unwarranted in subjecting him during the balance of the year to the dangers and discomforts resulting from complete loss of turbinate tissue.

Resection of the Nasal Nerve.—Younge has recently advised resection of a portion of the nasal nerve in certain intractable cases. His method is to make an incision from the inner extremity of the eyebrow downward along the root of the nose. He then dissects up the tissues from the inner wall of the orbit until he reaches the nasal nerve where it enters the anterior ethmoid canal. He resects ¼ inch of the nerve at this point. A reference to the chart will show what a small portion of the nasal mucous membrane (only that portion anterior to the ends of the turbinates) is supplied by this nerve. To me it seems altogether improbable that anesthesia of this small area would give sufficient relief to warrant so formidable an operation.

It is necessary to consider in connection with hay fever the so-called pseudo-type of the disease, because of the very common mistake made in confounding the two. The symptoms are in many respects the same, but this affection may occur at any season of the year and is more common in the winter. The etiology is entirely different. True, hay fever is due to the specific action of pollen toxin upon the end-organs of the trigeminus in a person having an idiosyncrasy for this poison; pseudo-hay fever has on the other hand for its predisposing cause some abnormal condition in the nose or its accessory sinuses, and its exciting causes may be thermal, chemical, or mechanical and are too numerous and varied to mention. Among the conditions most frequently acting as predisposing causes are deflections and spurs of the septum when they are extensive enough to come in contact with the turbinates, polypi, hypertrophied turbinates, suppurative disease in the accessory sinuses, and adhesions caused by operations and the use of the galvanocautery.

In a great many of these cases where the proper measures are employed the prognosis is good, and yet I have learned never to risk offering a positive prognosis based upon intranasal appearances. For it has been my experience on several occasions for hyperesthetic rhinitis to persist in spite of the removal of what apparently was the exciting cause. Some of these failures occurring in the summer time I regarded as cases of true hay fever due to pollen, while in others I am satisfied that constitutional conditions were responsible for the continuance of the affection.

In a series of over three hundred cases in which I did the submucous operation for deflected septum, about 20 per cent. had hyperesthetic rhinitis attended by excessive sneezing and running at the nose; these symptoms disappeared after the operation. One patient, referred to me by an oculist, had suffered almost continuously for three months with violent attacks of sneezing and profuse lacrymation. She was being treated for detachment of the retina, which we thought had been caused by

the violence of her sneezing attacks. The latter were caused by a badly deflected septum coming in contact with the middle turbinate. The septum was straightened by a submucous operation and the attacks ceased.

In conclusion I wish to say that:

In every case of hyperesthetic rhinitis, hay asthma, and spasmodic asthma, all pathological conditions in the nose and its accessory sinuses should be corrected. In true hay fever this may prove to be only a palliative measure, while in the pseudo form in many cases it will be curative.

In cases of hay fever known palliative measures, if judiciously applied, will in the majority of cases carry the patient through the critical period in a state of comparative comfort.

I believe that true hay fever and hay asthma can be cured only by correcting the basic nutritive fault that is responsible for the susceptibility to the pollen toxin, and this can be accomplished only by a complete reform in the personal hygiene of the patient before the affection has reached the stage of chronicity.

69 West Fiftieth Street.

REPORT ON A CASE OF MYELOGENOUS LEUKEMIA.*

By CONDICT W. CUTLER, M.S., M.D.,

NEW YORK.

The patient, Mr. H., presented himself at my office in September, 1905, with the following family history: His father died of pneumonia at the age of 60 years, having been in previous good health; his mother died at the age of 75 years of pernicious anemia, having had anemic conditions for about ten years previous to her death, this being the only case in the family history of any so-called blood disease. His brothers and sisters are living and in good health. The patient himself was an active business man, a broker in Wall Street, 47 years of age, married with one child, a boy 17 years old, in good health.

He had never had syphilis or venereal disease of any kind, nor had he ever had any serious illness. He was a moderate drinker and smoker, never dissipated, and had always taken good care of his health. He was fond of out-door exercise and frequently played golf and rode horseback; his appetite and digestion had always been good; he slept well and his weight had kept about the same for a number of years; in fact, except for being nervous and easily worried, he considered himself perfectly well, until six months before consulting me.

His reason now for consulting a physician was the fact that for the past few months he had felt continually tired, lacked energy and ambition, and could no longer ride and play golf without physical effort and expenditure of so much nerve force as to produce great fatigue.

On inspection and examination, I found Mr. H. nearly 6 feet in height; weight about 151 lbs.; he was pale and had a sallow complexion. Nothing was found wrong with the heart, lungs, liver, or kidneys; the spleen was slightly enlarged, but there was no enlargement of the lymphatic glands or any tenderness or swelling of the bones or cartilages. In fact, all the physical and rational signs pointed toward an anemic condition, perhaps the result of malarial infection, although there was no previous history of chills and fever.

A blood examination taken at this time gave the following results: Red cells, 3,500,000; white cells, 85,000; hemaglobin, 78 per cent.; color index, 1 1/10 per cent.; Myelocytes, 31 per cent.; mast cells, 2 per cent.; neucleated red cells, few; no plasmodia of malaria found. From the result of this analysis, the diagnosis of myelogenous leukemia was made.

One month's treatment by rest and internal administration of iron and arsenic did little to improve the patient's condition. The iron given in various forms upset the digestion and produced headache, and was stopped at the end of this period.

At this time a second examination of the blood was made which showed a decided increase in the number of red cells, and hemaglobin. Also an increase in the number of white cells, but a decrease in the number of myelocytes. The spleen had in the meanwhile increased in size and the patient's weight had diminished. A consultation was now held with Drs. Delafield and Janeway, and it was decided to continue the rest for another month and give strychnine and cacodylate of sodium hypodermically. The blood test at the end of this month showed a decided improvement. The number of red cells had increased from 3,700,000 to 4,800,000; the white cells had decreased from 91,000 to 61,500, and the myelocytes from 26 per cent. to 11 per cent. The general condition of the patient, however, remained about the same, while the spleen had increased considerably in size. The hypodermics of strychnine and cacodylate of sodium were ordered continued for two months and a course of *x*-ray treatment given twice a week for the same period.

At the end of March, 1906, six weeks after beginning the *x*-ray treatment, 12 or 13 treatments in all having been given, owing to a superficial dermatitis over the splenic area, the treatment was discontinued. As a result of this *x*-ray treatment, the spleen had rapidly decreased in size so that it was nearly normal, when it was stopped. Also as a result of this treatment, the number of white blood cells had greatly diminished, being reduced from 61,500 to 26,000; otherwise the condition of the blood remained about the same. During this period the general health of the patient had not improved. He felt weaker, and although allowed to go out every day and take some exercise, he felt too prostrated to do so; he lacked ambition, and would not even go out for a drive, unless urged to do so. His appetite remained fairly good and he slept well.

In April, Mr. H. felt that he was losing ground and decided to stop all treatment and move to the country, which he did in May. At this time the spleen had greatly increased in size and a blood examination showed the white cells had increased from 26,000 to 44,000, which proved that the beneficial results of the *x*-ray treatment had only been temporary. In fact, as soon as the *x*-ray treatment was discontinued, the spleen began to increase rapidly in size, so that when the patient left the city in May, two months after the *x*-rays had been stopped, it was probably twice as large as it was before they had been used at all.

After stopping all treatment and going to the country, living out-of-doors all the time, his general health greatly improved, so that he was able to play golf in moderation without great exhaustion. Improvement continued until an attack of appendicitis with operation kept him in bed for several weeks. My examination in September, several weeks after

*Read before the Society of the Alumni of Bellevue Hospital, February 3, 1909.

the operation, showed that the spleen had increased in size since the previous examination in May. It was now extending about one inch beyond the median line and downward into the pelvis, making the abdomen decidedly prominent. He complained of some pain in the region of the spleen, but no tenderness on pressure. An examination of the blood at this time showed an increase in white cells from 44,000 to 81,000 and the myelocytes from 17 per cent. to 36 per cent. with hemoglobin at 54 per cent. The patient was now urged to resume the x-ray treatment and hypodermics of cacodylate of sodium, but refused. With my consent and approval, he decided to change his medical attendant and secure thereby a radical change of treatment. Homeopathy and Christian Science were seriously considered and afterwards Osteopathy, but at my suggestion and at my earnest request, in October he placed himself under the care of Dr. A. A. Smith, who treated him until he (the patient) went to Europe in February, 1907.

The patient's treatment through this period was principally, I understand, one of diet and rest, living mostly or exclusively on Kumys and beef. I have invited Dr. Smith to be present this evening to hear the reading of this report, and have extended to him an invitation to tell you more particularly of the patient's progress and treatment while under his management and care.

In February, Mr. H. went to Europe to consult the physicians on the Continent. While abroad, he consulted with physicians in Italy, France, and England, with great uniformity of opinion as to diagnosis and prognosis, but with varied opinion as to treatment. While in London, he had a bad attack of hemorrhoids and was operated upon successfully. In June his general condition became so alarming that after a consultation of physicians he was advised to return home as soon as possible, as he could not live more than one month.

He returned to this country in July and with Dr. Smith's approval again placed himself in my care. I found him very weak and emaciated. The spleen was painful and tender, extending well down into the pelvis, and two inches beyond the medium line. The abdomen was greatly distended by the enlargement of the spleen and by gas. His appetite and digestion were poor, the bowels were constipated, and there was great restlessness at night. It was with great effort that he could walk across the floor even with assistance.

The urine showed a small amount of albumin, but no casts. The blood examination gave 4,000,000 red cells, 318,000 white; 56 per cent. hemaglobin, and 68 per cent. myelocytes on differential count.

I advised his going into the country, living out of doors, taking inhalations of oxygen, colon irrigations of normal saline solution, and hypodermic injections of cacodylate of sodium, and although the treatment was not very conscientiously carried out, there was a decided improvement in his general health, and he was able to go to Southern California in November to spend the winter, although still unable to walk, except for a few steps and then only with assistance.

While in California, Mr. H. was practically confined to his bed, and suffered greatly from neuritis in both legs, more especially in his left, requiring the use of morphine for the relief of pain. He remained West until the latter part of February of last year, and then very much against the advice of his physicians, who told him he would probably die on the train, he returned to New York. His condition on his arrival here was very bad. He was exceedingly weak, not being able to sit up in bed, and was greatly emaciated. His spleen was very large, extending down into the cavity of the pelvis and the lower edge was below the crest of the pubis, the right border reaching the anterior superior spine of the ilium. The greatly distended abdomen now gave the appearance of a woman at about the seventh month of pregnancy. The liver was also found increased in size although difficult to map out owing to the great size of the spleen. The heart's action was rapid and weak; feet and ankles were edematous, and the urine contained considerable albumin and a few hyaline casts.

With assistance he could stand and walk a few steps, but the slightest exertion tired him and made him short of breath, although his lungs on examination were found normal. Lifting his arms or feeding himself was a great effort and to talk for a few minutes was distressing. He had no appetite, and was greatly distressed by gas distention. He complained of a great deal of pain running down both thighs; this had been diagnosed as neuritis, but was probably due to the pressure of the enlarged spleen on the nerve trunks. He also complained of some pain in the region of the spleen and of obstinate constipation, due undoubtedly to partial intestinal obstruction from splenic pressure. He had almost constant pain deep in the pelvis, especially on the left side, also probably a result of pressure. The temperature was normal. The patient was very much discouraged, prayed for death, and frequently talked of suicide. He refused at this time to have another blood examination or to take any form of treatment, except to relieve symptoms such as constipation and pain. Early in April, he had an acute attack of hemorrhoids causing much pain. He called in a surgeon, who without the consent or presence of either Dr. Smith or myself operated at once. The operation consisted simply of opening the pile, turning out the blood clot, packing the cavity with iodoform gauze, and applying pressure with a T-bandage. As might have been expected, there was a copious and continuous hemorrhage from the wound, which packing and pressure failed to keep in check. This continued for 48 hours, when I was sent for by the rectal surgeon, saying that the hemorrhage could not be checked and that the patient was dying. When I reached Mr. H. I found him nearly exsanguinated and the surgeon in charge seemingly unable to cope with the conditions present. At the request of the family he resigned from the case, and I called in consultation Dr. B. F. Curtis and assisted him in stopping the hemorrhage by means of a plastic operation which succeeded in closing the venous cavity. Neither of us expected the patient to survive the operation or to live longer than a few days, but from that moment he began rapidly to improve. Within a few days the spleen had been reduced in size to nearly one-half. It reminded me very much of a big wet sponge which had been squeezed and shrunken in size. His appetite and strength gradually returned, so that he was able to sit up in bed. The albumin disappeared from the urine, and no casts were found. The edema entirely disappeared from the lower extremities, the neuritis also disappeared, and the constipation was much less obstinate. In fact, all the symptoms due directly or indirectly to the splenic pressure were either relieved or entirely disappeared. Besides the improvement in the patient's general health, he was

much less despondent, slept better, and said that he felt better than he had at any time during the past two years. He believed that he was going to get well, and was very hopeful. A blood examination was now made with the following result: Red cells, 2,000,000; white cells, 528,000; hemaglobin, 62 per cent.; myelocytes, 30 per cent., and a large number of normoblasts. This improvement continued for some two or three weeks, and then the spleen began gradually to increase in size, and with this increase in size there was a return of the previous conditions and symptoms, except there was no return of the pain. The patient himself recognized the change in his condition and begged to be bled again, believing that was the only cure or at least the only help.

During my absence from the city this past summer, the patient was left in the care of Dr. Carlyle. No special plan of treatment was at this time being carried out, the symptoms alone being treated as they demanded attention. *X*-ray treatment was again urged but refused, the patient having no faith in their curative properties, and great fear of being burned. On my return in September, I found him in about the same condition as when I left. He had been practically bed-ridden during the whole summer. The latter part of this month he ran an irregular temperature with frequent sweats and slight chills. Accompanying this, was a bronchitis and a bronchial pneumonia. He looked and acted decidedly septic. There was an entire loss of appetite and much insomnia, with general aching and great despondency and melancholia, begging for an opportunity to take his own life.

It was at this time I began to give the patient without his knowledge, small tonic doses of morphine and large doses of glycerophosphate of lime, which resulted in a decided improvement in his condition, although he continued to run until the time of his death an even temperature of about 101°. The lungs cleared up, the appetite returned, sleep became natural and refreshing, and a general buoyancy of spirits replaced the depression. I have never known tonic doses of morphine to act to better advantage than in this case. From the time he began to take it regularly, he more than held his own in every way for over two months. His appetite continued good, his sleep was refreshing, his digestion improved, the bowels were less constipated; his strength returned so that he was able to sit up for an hour or more every day and walk around the room with assistance. The circulation improved and the edema of the legs and feet entirely disappeared. The size of the spleen, however, remained about the same, but it never quite reached the size it was before the hemorrhage. The size of the dose of morphine did not have to be increased, it ranging from 1-8 to 1-4 of a grain in divided doses during the day. An examination of the blood taken in December, two months after the beginning of the morphine, showed a decided improvement. The red cells had increased from 2,000,000 to 2,420,000; the number of white cells decreased from 528,000 to 397,000 per cubic millimeter, and the myelocytes from 30 per cent. to 22 per cent.; a large number of normoblasts were still present.

On Jan. 10 Mr. H. had an attack of grippe which greatly prostrated him. However, the active symptoms wielded to treatment kindly, and he was feeling very much better and able to sit up in bed and smoke on the 15th inst., although he complained of a catarrhal condition in the nose and throat with considerable deafness in the left ear, for which he called in Dr. Chas. H. May, who had previously treated him for ear trouble. Dr. May stated he could find no cause for the deafness in the ear itself. On the 16th he felt about as usual, although the deafness continued. He ate his noon dinner with relish and slept for three hours in the afternoon. When he awakened, he complained of great pain in the top and back of his head and in his neck. It was only partially relieved by hypodermics of morphine. He also complained of his sight being greatly impaired, seeing double all objects directly in front of him, with inability to see objects at all on the left side. With either eye covered, he could see objects singly, but only if placed directly in front of him. The pupils were even, but greatly contracted, and responded poorly to light. There was no sign of paralysis in either the facial muscles or those of the extremities. His speech was not affected in any way, and his mind was clear. He vomited freely, first partially digested food and about an hour afterwards a dark-colored fluid blood and bile. His temperature remained about normal, and his pulse which had previously been good, now became very weak, intermittent, and slow, beating about 50 per minute. His extremities were cold and clammy and he became semicomatose and vomited some fresh blood clots. From this time he gradually passed into a state of coma with slow, deep breathing, and died less than 12 hours from the time he awakened with the headache.

An autopsy was performed by Dr. J. E. Welch in the presence of Dr. Sondern and myself, and he has kindly consented to give you the result.

I have briefly recited the history of this case, not only on account of the general interest taken by the medical profession in all cases of splenic leukemia, but also to show: (1) the effects of *x*-ray treatment on this particular case in reducing the size of the spleen to nearly normal and considerably improving the condition of his blood without improving to any extent the general health of the patient. (2) The great temporary beneficial effects of the severe hemorrhages, not only on the size of the spleen, but also on the general condition of the patient, to such an extent that he frequently since then threatened to open the veins in his own arm, so as to produce bleeding, and thus get the good results before experienced. (3) The very slight, if any, beneficial results obtained by any course of therapy or diet on the general course of the disease, with the exception perhaps of the tonic doses of morphine which certainly seemed to hold the disease in check for some time and greatly to improve the mental and physical condition of the patient. Perhaps it was the combining it with the large doses of glycerophosphate of lime which increased its beneficial effects, for leaving off one and giving the other resulted in the patient's loss of apetite and general depression in health and spirits. However, this was decidedly more marked on the withdrawal of the morphine than it was when the glycerophosphate of lime was stopped. (4) The absence all through the disease of any spontaneous hemorrhage or diapedesis until a few hours before his death, when hemorrhage occurred, as shown by the postmortem, into the left occipital lobe of the cerebrum, into both lobes of the cerebellum, and into the stomach.

Lastly, through the whole course of the disease, up to the time of his death, it is interesting to note that the bones were not at any time either swollen or tender.

In connection with this case, it is of interest to contrast in a few words this history with that of another patient of splenic leukemia, who at the same time was under my care and for the first year was placed under the same plan of treatment, including rest, diet, iron, hypodermic injections of cacodylate of sodium, and *x*-rays. Both patients were nearly of the same age, had been in previous good health, were active business men, with about the same sized spleen, and with blood counts, made by Dr. Sondern, not very different. In both cases, treatment seemed to have very little effect on the general health of the patient, but the effects of the *x*-ray given by the same operator (Dr. Cole) had very different results both on the spleen and on the blood. The blood examination in Mr. H's case at the beginning of the *x*-ray treatment showed red corpuscles, 4,800,000; leucocytes, 61,500; myelocytes, 11 per cent., and at the end the same number of red corpuscles; leucocytes, 27,000; myelocytes, 14 per cent., with the spleen reduced in size to almost normal.

In the other case, at the beginning of the *x*-ray treatment, the blood examination gave red corpuscles, 4,250,000; leucocytes, 100,000; myelocytes, 30 per cent., and at the end, red corpuscles, 3,700,000; leucocytes, 210,000, and myelocytes, 20 per cent., with the spleen increased considerably in size. Both patients experienced slight *x*-ray dermatitis and neither felt his health had been at all improved by the treatment.

At the time one patient left me to place himself in the care of Dr. Smith, the other also left to take up Christian Science, but with different results. Dr. Smith kindly returned his patient to me in as good condition as could be expected considering the nature of the disease; but after the healers, both absent and present, had for a few months practised their Eddycisms on their patient, it was only left for the undertakers to fulfill their duties, for he in some unaccountable way had absorbed an error and passed on.

BLOOD EXAMINATIONS

Date	Red Cells	White Cells	Hem.	Col. Indx.	Myelocytes	Other Forms
Oct., 1905	3,500,000	85,000	78%	1.1	31%	Mast cells, 2%
Nov., "	3,700,000	91,000	82%	1.1	26%	" " 3%
Jan., "	4,800,000	61,500	68%	.7	11%	
Feb., 1906	4,700,000	56,000	62%	.6	10%	
Mar., "	4,500,000	26,000	67%	.7	13%	
Apr., "	4,700,000	27,000	72%	.7	14%	
May, "	4,200,000	44,000	70%	.8	17%	
Sept., "	4,225,000	81,000	54%	.6	36%	
Jan., 1907	3,400,000	146,000	80%	..	66%	
Feb., "	3,620,000	119,800	82%	..	..	
May, "	3,420,000	137,800	74%	..	16%	Mast cells, 6%
June, "	3,240,000	254,000	76%	1.1	49%	
Aug., "	3,987,000	318,000	56%	..	68%	Normoblasts, 1½%
May, 1908	2,000,000	528,000	62%	1.4	30%	" large no.
Nov., "	2,420,000	397,000	68%	1.4	22%	" " "

POSTMORTEM RECORD.

Body: Is medium build and well developed, but very much emaciated. The abdomen is very prominent. There is a very marked general pallor of the body surface and no postmortem hypostasis. Rigor mortis is very marked. The superficial veins of the arms and chest are engorged. There is an old cicatrix about two and a half inches long over the site of the appendix. The superficial lymph nodes are just palpable in the inguinal, epitrochlear and axillary regions, but are not in the cervical. The pupils are equal and slightly dilated.

Head: Scalp tissues are slightly congested. Skull cap is thin but normal in density. Dura mater shows slight congestion posteriorly but is not thickened or adherent. Pia mater shows general congestion but no thickening or adhesions. Microscopically are found slight edema and an exudate of leucocytes composed for the most part of mononuclear cells. The vessels are all very much engorged with leucocytes with very few red cells visible. The prevailing type of cell in the vessles is a large mononuclear, many of which contain eosinophile granules in their protoplasm. There are also a few polynuclear leucocytes and an occasional small lymphocyte present. The walls of the larger vessels show slight cloudy swelling.

Brain is symmetrical and well developed. The convolutions over both cerebral hemispheres are somewhat flattened but much more over the right than the left hemisphere. The right occipital lobe is extensively lacerated and occupied by a large mass of blood. The laceration and hemorrhage extend to the posterior part of the right parietal lobe and into the posterior part of the right lateral ventricle filling the lateral horns. There is some oozing of blood to the under surface of the right hemisphere through the hippocampal fissure. The blood of the hemorrhage is neither fluid nor coagulated but has a viscid mushy consistence and is brownish red in color. Section through the brain substance shows the vessels engorged with blood, which has the appearance of that found in the hemorrhage. Miscropically the contents of the vessels is found composed almost exclusively of leucocytes mainly of the mononuclear variety. Very few red cells can be seen in the vessels. The walls of the larger vessels show cloudy swelling and there is a slight perivascular edema about some but this is absent for the most part. The neuroglia appears very well preserved. The pyramidal cells of the cortex show cloudy protoplasm and in some there is an excess of brown pigment. The nuclei are well preserved. Sections through the corpus striatum, optic thalamus and pons all show marked vascular engorgement with leucocytes as above described. The large nerve cells in these regions show an excess of pigment and a diffuse clouding of their protoplasm. Through the right corpus striatum are scattered many large corpora amylacia. The epithlium lining the ventricle is intact.

Cerebellum is well developed. On the upper surface of the right hemisphere near the posterior part of the upper worm is a small deposit of blood which lies over a laceration. Section shows this laceration connected with a hemorrhage in the posterior part of the upper worm and adjacent part of the right cerebellar hemisphere. Microscopically the hemorrhage appears composed almost entirely of leucocytes mostly of the mononuclear variety. The vessels through the cerebellum are congested with leucocytes. The cells of Purkenji show clouding of their protoplasm.

Medulla oblongata shows engorgement of the vessels with leucocytes but no other change.

Pituitary body is normal in size. The vessels show engorgement with leucocytes. The epithelial elements are very granular.

Middle ear cavities are both normal. In the base of the cranium are about three drams of edema fluid.

One section of the body panniculus is very scant and brownish red in color. Muscle is scant and very pale. The striations of the muscle cells are fairly well preserved. Some show slight atrophy. There is a general very marked engorgement of the vessels and capillaries with leucocytes. In some places the capillary engorgement has caused pressure atrophy of the intervening muscle fibers.

Retrosternal cellular tissue is slightly adherent to the sternum. Retrosternal glands are not enlarged.

Pleural cavities both contain a few drams of straw-colored fluid and there are a few old adhesions at both apices which extend a short distance down the posterior borders of both lungs. There are no lymph nodes in the pleura.

Pericardium. The wall is thin and covered by a thin, imperfect layer of superficial fat. The cavity contains about two drams of clear serum.

Heart. The epicardium is slightly congested. All cavities are very much dilated and filled with blood which has the appearance of very soft splenic pulp, grayish pink in color. There is no fluid blood or clot present.

Endocardium is normal.

Valves are all normal except the large cusp of the mitral which shows a small amount of fatty degeneration at its base.

Myocardium is thin and pale. Microscopically the vessels show marked engorgement with leucocytes which fill the spaces between the muscle cells and cause a diminution in their size from pressure. There appears to be no extravasation of cells from the vessels. The striations of the muscle are indistinct. There is an excess of pigment about the nuclei and the nuclei show considerable irregularity.

Respiratory system. Trachea is slightly congested and the mucous membrane is coated with mucus.

Bronchi are slightly congested and contain a small amount of mucus.

Lungs are both slightly emphysematous and pigmented. The vessels and capillaries are engorged with leucocytes. There is extensive desquamation from the walls of the alveoli and air spaces. The air spaces contain edema fluid, large phagocytes filled with brown pigment and about some of the bronchi they are completely filled with leucocytes. The pleura at the apex of the right shows a thick cicatrix of dense fibrous tissue.

Abdomen. Peritoneal cavity contains about 500 c.c. of straw-colored fluid. There are firm old adhesions binding the caput coli to the anterior and lateral abdominal walls. There are no adhesions between the viscera.

Spleen is very much enlarged. The upper pole reaches the fourth intercostal space, the lower to the brim of the pelvis. The body occupies the left half of the abdomen and extends a little to the right of the median line. It weighs 4.6 kilograms. The resistance to pressure gives the sensation of a fluctuating tumor. Microscopically the capsule shows slight thickening but there is no thickening of the fibruos trabeculæ. The normal retiform arrangement of fibrous tissue through the pulp appears absent and in its place there is a rather uniform infiltration with leucocytes mostly of the large mononuclear variety many of which contain eosinophile granules in the protoplasm. The malphaghian bodies can not be distinguished from the general infiltration. There is a large amount of brown pigment scattered through the organ. Near the hilum is a small accessory spleen about three centimeters in diameter which has a structure like the larger spleen.

Pancreas is normal in size. Microscopically the glandular and connective tissues appear normal. The vessels show very marked congestion with leucocytes.

Liver is very much enlarged, especially the right lobe which occupies almost the entire right half of the abdominal cavity, extending downward as far as the brim of the pelvis and to the left almost to the median line where it lies in contact with the spleen. The capsule is smooth and glistening and free from adhesions. Section shows in the gross a uniformly pale appearance of the tissue. There are no nodular accumulations of lymphoid tissue visible. Microscopically the capsule is found not thickened. The lobular arrangement found in the normal liver is entirely absent. The portal areas with their vessels and the central veins cannot be identified. The cords of liver cells are disarranged and appear in irregular groups. This apparent disorganization is produced by extreme engorgement of the vessels and capillaries with leucocytes. The capillaries appear especially distended by leucocytes and the liver cells between them have suffered complete atrophy in many places which gives the appearance of large communicating blood spaces filled with leucocytes. The liver cells are granular and in places swollen. They show considerable vacuolation and in many there is a large amount of brownish-yellow pigment.

Gall-bladder is filled with dark-colored bile. The bile ducts are patent.

Adrenals are both normal in size, but very soft and friable. Microscopically they both show congestion of their entire vascular system with leucocytes. In the cortices the congestion pressure has caused considerable atrophy of the parenchyma.

Kidneys are both slightly increased in size and rather pale. The capsules strip easily. Microscopic section shows small areas of fibrous tissue through the cortex and slight thickening of some of the glomerular capsules. The vessels and capillaries throughout are much distended by leucocytes. The tubular epithelium in the cortex shows marked cloudy swelling. The glomeruli are congested with leucocytes and the spaces about some of them contain leucocytes. There are no nodular accumulations of lymphoid tissue in either organ.

Gastrointestinal tract. Esophagus show slight dilation of the veins in its lower part.

Stomach is about normal in size. The cavity contains three or four hundred cubic centimeters of coffee-colored liquid in which is mixed some mucus. Microscopically all coats show congestion with leucocytes. The glandular coat shows extensive desquamation of epithelium and the capillaries are much distended by leucocytes. There are many leucocytes found adheing to the inner surface of the mucosa.

Intestine shows the vessels of all coats congested with leucocytes. The epithelium of the mucosa shows marked degeneratiove change and desquamation.

Vermiform appendix has been removed by operation.

Colon shows congestion and extensive desquamation of epithelium.

Circulatory system. The right coronary artery shows a very small patch of fatty degeneration near its origin.

Aorta shows a few very small points of fatty degeneration in the ascending part of the arch. There were no changes found in any other part of the arterial or venous system. Through all organs and tissues of the body cross sections of the vessels give the appearance of small abscesses filled mostly with mononuclear cells some of which are eosinophiles. Only a few polynuclear leucocytes are found and an occasional small lymphocyte.

Lymphatic system. Bronchial nodes are slightly

enlarged and anthracotic. Their vessels are congested with leucocytes. The follicles do not show hyperplasia. A few giant cells are found in different places without any relation to any inflammatory process that is apparent.

Mesenteric nodes are very slightly enlarged. Their vessels are engorged with leucocytes and there are a few giant cells present.

Retroperitoneal nodes are considerably enlarged. The vessels show congestion with leucocytes. The follicles show hyperplasia and there are giant cells present. In all of the lymph nodes, in many of the blood-vessels and in the bone marrow mitoses in the leucocytes are found.

Osseous system. The bones are normal and regular in contour and size. The marrow as expressed from the sternum and ribs has a grayish-pink color and is semifluid. Microscopically sections of the sternum and ribs show the spaces enlarged and filled with large mononuclear cells among which are many eosinophiles. There are also a few polynuclear leucocytes, small lymphocytes, red cells, erethroblasts and giant cells present.

THE FUTURE OF THE ALCOHOL PROBLEM.*

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PUBLIC opinion in 1860 was distracted and confused. There were signs of revolution and change, and everyone was reading these signs and predicting what they meant. The political horizon was a great tumultuous cloud bank of conflicting theories and opinions. To-day, in 1909, the political and social sky is overcast with doubts, theories, dogmatic predictions, and opinions of every sort concerning the meaning and direction of the great temperance movements, and a feeling of alarm is pervading all society concerning alcohol and the diseases associated with it.

The efforts of reformers have assumed startling prominence with revolutionary consequences, and the dealers in spirts are alarmed and read in these movements the doom of their business. Everywhere in the pulpit, press, and platforms are explantations, predictions and appeals concerning the alcoholic problem, but through all this there are unmistakable signs of the direction of the movement and the coming changes that are sure to follow.

In 1860 nothing was very clear and settled. There was a conflict ahead and no one could predict where it would end. To-day there are unmistakable indications, through the gloom and confusion of theories, that a new era is coming, and that the solution of the great problem with all its influences is not far away.

Every advance in scientific study of disease and degeneration shows that alcohol is one of the most prominent agents, and is very vitally concerned in the destruction of diseases of the human race. Statistical studies of the causes of accidents, injuries, diseases, and the great forces of hereditary which enter into our civilization bring out the same fact in greater prominence, that alcohol in some form is the most influential factor of these losses.

Medical, sociological, and economical studies all confirm these facts, and make prominent the conviction that alcohol in some way is a source of danger imperfectly recognized and yet powerful beyond measure in degeneration and increased mortality. These facts have created a sense of alarm in the public mind which is materializing in various ways and is apparent in very remarkable forms.

Thus in the legislatures now in session in thirty-four States of the Union there have been introduced 221 laws restricting and regulating the use of alcohol as a beverage. Sixteen of these laws urge the prohibition of both its manufacture and sale. Ninety-two laws concern the sale of spirits and the control of saloons, and others refer to punishment for various enactments concerning the alcohol question.

A second indication equally significant is the fact that over two-thirds of the territory of the United States have specifically voted to prevent the sale of alcohol as a beverage. Such sections are called "drys."

There are over one million men and women organized in societies and working through churches for the specific purpose of driving out the saloons and stopping the use of alcohol as a beverage. In addition to this there are over half a million voters who have expressed the same conviction in some form or other, although not in organized parties. From these facts alone it is evident that the movement toward total abstinence is not the enthusiasm of reformers or a matter of sentiment among hysterical men and women, or even a psychological craze, but a deep settled conviction of danger and a consciousness of the possibility of removing and destroying it.

It is becoming more and more evident every day that the theories which have come down from the past, and opinions and conclusions of our forefathers, however respectable and apparently based on wide experience, cannot be accepted unless they are able to pass the bar of scientific inquiry and be judged in the light of modern science.

Thus the great evils, diseases, and questions of mortality, losses, and obstacles which limit progression and development are to be measured by the same standard and tested by a critical examination of the facts and their meaning. The theory that alcohol as a beverage has tonic or stimulant properties, coming down through the ages to us with historical prestige, must be sustained by the laboratory research and clinical experience of this new century if it be accepted.

Within a half century research and experience have pointed out the errors of the past theories, and now it is proven beyond question that alcohol is simply a narcotic and depressant in its effects. That it has no stimulant or tonic properties, and that as a beverage it has no claim or reason for existence.

Consumption, insanity, epidemic diseases, and many of the great scourges of civilization are found to be the direct result of causes which are traceable and which move with a uniformity and certainty that cannot be mistaken. In the same way inebriety, marked by an insane-like impulse or craze for spirits with a full knowledge of the results, is traceable to causes and to physical conditions which can be understood, controlled, and prevented with the same certainty as any other disease. All questions of will-power, moderate drinking, culture, control have about the same meaning as dispensation of Providence so often used in explanation of the mysteries of life. A deep-seated conviction is growing in the public mind that the alcoholic problem is a physical

*Read at the Washington Meeting of the Society for the Study of Alcohol and Narcotics, March, 1909.

and not a moral one, and that the same laws which govern the slow development of human life work with equal exactness in tearing down and destroying the unfit and removing those who disobey the exact requirements of physical laws.

The realm of devolution and degeneration is as exact and clear as that of evolution and progression. Theories which urge that alcohol in some way favors evolution and progression, are really evidences of degeneration and revolution. Its warmest patrons and defenders are the most pronounced promoters of its destructive influence upon the race and civilization. Everywhere the accumulated facts concerning the saloon and its influence show that its doom is near and the cosmic consciousness of its evil and the tremendous opposition to it show that its disappearance is only a question of time.

The pecuniary powers bound up with the manufacture and sale of alcohol, while making tremendous efforts to conserve their interests and prevent the destruction of their business, are strangely oblivious to the great commercial revolution that is rapidly coming into prominence. The stupidity of carrying on an organized combat with these mighty forces of evolution and the money and energy spent beating the air and shouting to check the march of the race from the lower to the higher is startling.

Scientific research has pointed out beyond question that alcohol possesses tremendous powers for heat and light which can be made force producers equal to electricity. Every year new discoveries show that alcohol can be made from a great variety of substances, many of which are now regarded as waste products, and these can be produced very cheaply. Already this has become practical in Germany and other Continental countries where alcohol is manufactured from potatoes, beets, roots, and other substances, and used for power and light at a cost of 20 cents per gallon. As a fuel it is far superior to coal, wood, and oil, and in the manufacture of electricity it is cheaper than steam. The recent laws denaturing alcohol, rendering it poisonous as a beverage, have opened up a new realm and new uses in the arts and in other directions. As a competitor with gas and electricity it has already been demonstrated to have equal and greater capacity for power and work. Inventors have turned to this problem and have confirmed the wildest expectations and possibilities of its practical use in the world's work. They have shown beyond question that the only obstacles are the discovery of apparatus and means to utilize it. To-day a small army of experimenters are working to perfect boilers which will make available the tremendous power of alcohol lamps, and means for utilizing this new force and turn its vast powers of light and heat into commercial channels.

Already great progress has been made in this direction and the question is simply one of the means and methods of harnessing this great new power and turning it into practical uses. It can be made cheaply in great abundance on the farm, in the factory, and in every section of the country. It will do equally as great work as electricity, and with that force it will bring about a new and higher civilization, enabling us to use both these forces in ways undreamed of at present.

The great liquor interests with their millions of money will turn to the manufacture of this product with greater profit and will find an increasing demand for it, and this is a positive indication of its future. Alcohol as a fuel will take the place of coal; as a power it will supplant gasoline, and the great alcoholic problem will merge into the utiliation of this force for the benefit of mankind and the world. A number of different manufactories in the West have begun to change their products from refined liquors to crude alcohols for the trade. New inventions and new possible methods are growing in many directions.

Thus a tremendous revolution of industrial energies has already begun and promises to constitute a new era in the economies of the race. The extinction of the saloon will follow early, the change in the breweries and distilleries is bound to come, and the frantic efforts of the trade to obstruct progress will disappear. Far-seeing men recognize this already and refuse to take an active part in the great pro-alcoholic struggle. They realize the oncoming of a new force in the economics of the world. Alcohol, which has so long been regarded as a beverage and the destructive effects of which are now beginning to be realized, will be changed to a great motor power to propel machinery, heat buildings, and in many other ways contribute to the advancement of the human race.

With the extinction of the saloon and alcohol as a beverage many of the very active causes of criminality, pauperism, inebriety, and insanity will disappear. A new realm of cause and effect will come in and a new step forward will be made to lengthen life and avoid its present perils.

Another evident indication is that inebriates and alcoholic victims will be gathered into hospitals and treated as sick and diseased. In nine different States in the Union there are bills introduced for the organization of such hospitals and the appropriation of money to build them.

It is also evident that this great alcoholic problem, urged with such enthusiasm by laymen and philanthropists, is particularly a public health and hygienic question, and one in which physicians should be the leaders and teachers. They must tell the public what to do and how to avoid the causes of this and other diseases. These are some of the great facts rising higher and higher in the confused public opinion of to-day which indicate clearly the new dawn and the new solution along scientific lines of the great alcoholic problem.

THE ADMINISTRATION OF ANESTHETICS.*

By H. J. BOLDT, M.D.,

NEW YORK.

I BELIEVE it may be conceded that the competency of the anesthetizer is, in many cases, more important to the surgeon than the competency of the latter's first assistant.

As to the safest anesthetic, it has been demonstrated that of ether, chloroform, and the A. E. C mixture, ether is the least dangerous to life. This was shown in an investigation of about 380,000 anesthesias made by me for my paper in 1897. It would be misleading, however, to make this statement without modification. Some patients do not take ether well; fall, in fact, into a condition that renders a continuance of its administration very hazardous, but will tolerate chloroform with no untoward symptoms whatever during the anesthesia.

*Read at a meeting of the American Gynecological Society, April 20-22, 1909.

The belief that ether is more injurious to the kidneys than is chloroform, does not coincide with my experience. In nearly every instance of either ether or chloroform narcosis, there has been subsequent transitory albuminuria of mild degree, with renal elements in the urine. The casts were usually noted for periods of from three to fourteen days after the anesthetization.

To assert that any one anesthetic is devoid of risk, or that any one method of administering an anesthetic is entirely free from danger, is to assert a fallacy. I have been particularly unfortunate in having had several deaths from ether and from chloroform, and one even from the supposedly safe nitrous oxide gas. So, after long experience, I have become more often fearful of the effect of the anesthetic than of the result of the operation. I may say, however, that I believe nitrous oxide gas mixed with oxygen, is the safest anesthetic of any at our command; and the time for which it may be administered is almost unlimited. On one occasion I had a patient under this form of anesthesia for nearly three hours, Dr. S. Ormond Goldan being the anesthetizer. It was a Meyer-Halsey operation for carcinoma of both breasts in a woman of 70. She lived six years before any sign of recurrence showed itself. Then it was remote from the original site of the neoplasm; it was in the uterus.

During the past few years it has become customary with a number of surgeons to have the anesthetizer administer before operation, in three divided doses, $\frac{1}{4}$ of a grain of morphine with 1/50 of a grain of scopolamine. This idea of preliminary narcosis, first advised in Germany, has found many followers. While I was very favorably impressed with it in the beginning, I now believe there is a risk connected with it—a risk otherwise absent. I have had three deaths on the table that might possibly have been avoided had not the preliminary narcosis method been used. It has been asserted that with the substitution of hyoscine for scopolamine, and the addition of cactine, there is no risk. I have had one death with such combination; and I have seen two patients so close to death that it was a grave question as to their recovery. In hospital work, where unfortunately we may have inexperienced members of the house staff to administer the anesthetic, I have discontinued preliminary narcosis.

To consider in detail the methods of administering an anesthetic is not my purpose. This has been done so frequently that I believe it is understood, at least in theory, by every practising physician. I shall limit myself, therefore, to a few remarks as to how it should not be done.

Do not give an anesthetic on a full stomach. If an emergency present itself, always have thorough stomach lavage before the anesthetist starts with his work.

A patient who is very nervous and apprehensive as to the outcome of the anesthesia, should have a single preliminary dose of a narcotic. Twenty or thirty minutes before the anesthetic is given, an injection of morphine with atropine should be made. It is always preferable to start the anesthesia with nitrous oxide gas, rather than to begin directly with ether. If ether is used from the beginning, it should not be forced upon the patient; it should be administered gradually with reassuring words spoken by the anesthetizer. Minimize the quantity of ether to be inhaled so far as is consistent with retaining the patient under complete anesthesia.

This requires the abandonment of the almost universal custom of making the final preparation of the patient during the process of anesthesia. I regard such practice as entirely uncalled for. It is certainly bad practice. A patient can be fully prepared for operation before the beginning of the anesthesia. Surgeons alone are to blame if they omit this prior preparation.

Furthermore, the quantity of ether administered can be greatly reduced if the anesthetizer uses the "drop method," as he should do when giving chloroform. After a patient is fully under the anesthetic, complete relaxation may be continued by constantly adding fresh ether, drop by drop, on a chloroform mask. Or, if preferred, a closed inhaler may be used; then, a few drops of ether, occasionally added, will suffice to keep the patient quite under its influence.

Do not continually touch the cornea to ascertain whether the corneal reflex has subsided. It need not be touched at all. There is risk of causing conjunctivitis by such procedure.

Do not use alcoholic stimulation when a patient is suffering from the effects of excessive etherization.

Do not permit the anesthesia to begin until a careful physical examination has been made and the urine examined.

In nephritis, the choice of some other method than the inhalation of ether or chloroform should be considered, and, if at all possible, the method that has no injurious effect on the kidneys should have the preference. For instance, on two occasions I have found it possible to do major operations under the scopolamine-morphine narcosis. (If no ether or chloroform is used, this narcosis seems safe.) On several occasions I have used only nitrous oxide gas combined with oxygen; the abdominal parietes, however, were not so thoroughly relaxed for the satisfactory performance of the abdominal section, as would have been the case with ether or chloroform. A number of times I have used lumbar analgesia with perfect result in complicated abdominal operations.

Do not permit indiscriminate use of hypodermic injections of strychnine; a practice which is prevalent and against which I have repeatedly protested.

The anesthetist should never divert his attention for a moment from the patient; he should remember that he is scarcely less important than the surgeon. His finger must not be removed from the pulse of the patient, especially if chloroform is being used. He must be a thoroughly trained person, ready for any emergency, or the surgeon will be needlessly harassed.

I now come to a question which has given me much thought for many years, and on which I read a paper before the Society of Medical Jurisprudence of New York City in April, 1897 (*Medical Review of Reviews*, April, 1897) "Should Legislation Regulate the Administration of Anesthetics?" Dr. Baldy, in his address at the last meeting of this society, called attention to this subject, and suggested that nurses be trained for the giving of anesthetics. This undoubtedly would be the best solution of the problem in some localities, but not in all. For instance, in this State the surgeon would be liable in case of a fatal termination should the anesthetic be administered by any but a physician legally entitled to practise medicine. Yet who doubts that an intelligent non-medical person, who has been properly trained, would be as capable as

most of the internes of hospitals to whom this duty is assigned?

In very many localities it is legally permissible to have a non-medical person take charge of the administration of the anesthetic, and that, too, where the requirements for the practice of medicine are as strict as in the State of New York. If the statute cannot be so amended that a non-medical person may administer the anesthetic without the surgeon being held responsible, then a law should be passed which will compel all institutions where anesthetics are used to employ a thoroughly qualified anesthetizer, whose duty it shall be to be present and to give instruction at every anesthetization (for not less than 100 consecutive anesthesias) to every interne who is assigned to such duty. This would mean extra expense to the respective hospitals; yet in justice alike to the patient and to the surgeon, there should be such a law.

39 East Sixty-first Street.

Feeding of the Sick Infant.—Séverin Lachapelle believes that we do not consider the nourishment of the sick infant as of enough importance. We cannot successfully combat infections without a resisting power in the organism that can only be sustained by thorough nourishment. The well child also must have enough food to cause his growth, and this condition is present in the sick child as well. All children would be able to pass through their sieges of infectious disease if they were sufficiently fed and nourished. Complications appearing after the infection is spent require nourishment to resist them and the infectious agents must be destroyed so that they may never be able to renew their ravages in the organisms. Owing to the loss of appetite due to fever, the stomach rejects nourishment. We must then make use of the rectum by injecting eggs and broths, and by the use of suppositories of peptones in powder. We must add the glycerophosphates, and lecithin to reconstitute the precious nervous energies of the patient.—*Le Journal de Médecine et de Chirurgie.*

Contribution to the Study of Pararenal Tumors.—E. T. Pietrabissa distinguishes between pararenal and renal tumors and refers to an illustrative case observed by him. He concludes from his studies that, while these tumors are easily differentiated anatomically, clinically they cannot be diagnosed in life, since their symptomatology is in no way peculiar. The opening of the abdomen for operation alone will make the diagnosis certain. The indication for treatment is the ablation of the tumor by the abdominal route. Prognosis should be reserved even in case of benign tumors, on account of the high mortality from this growth. —*La Riforma Medica.*

Painful Abdominal Paroxysms in the Course of Infantile Purpura.—M. L. Ginnon describes a form of purpura characterized by its sudden onset, with intense abdominal pain, meteorism, retraction of the abdomen, vomiting and diarrhea, both streaked with blood. Fever is slight. The hemorrhages may be severe internally while there is only a moderate or no purpura externally. The autopsies show intestinal hemorrhages and ulcerations. The prognosis is relatively benign. This form of purpura is frequent in infants and young children, and an exploratory laparotomy may be necessary to make the diagnosis. It is probably of toxi infectious origin, the poison having a selective action on the nervous centers, especially the medulla.—*Revue Mensuelle des Maladies de l'Enfant.*

Treatment of Some Acute Pulmonary Affections of Infancy.—Delearde gives revulsion as the primary indication in the treatment of bronchopneumonia and capillary bronchitis in children. It should be applied energetically four times every twenty-four hours throughout the diseases until the fall of temperature and the disappearance of the principal signs. The methods recommended are sinapisms and hydrotherapeutics. The mustard leaf may be made use of, but a much more effective application is made by wringing out a napkin in a thin mustard paste and enveloping the chest in it. The child is then wrapped in flannels and left for fifteen minutes. After this he is unwrapped and bathed in warm water to remove the loose mustard, and dressed and put to bed, when he usually goes to sleep comfortably. This should be repeated two or three times in twenty-four hours. The rubefacient effect lasts several hours. The mustard bath also produces a good revulsive effect. This form of application is appropriate when the extension of the lesion gives us a bad prognosis, rather than degree of the infection. Two sinapisms and four hot baths at 38° may be given daily. When the involvement is small in area and the infection severe the prostration would be increased by hot, while cold baths will lessen it and stimulate the child, lessen pulse tension and increase diuresis. Cold packs have the same effect. Another application that the author finds useful is the fixed abscess, which is produced by the injection of turpentine subcutaneously over the seat of the lesion. An aseptic abscess is produced which heals up rapidly and has an excellent counterirritant effect. The child is treated with expectorants and heart stimulants as indicated, and is allowed to sit up in bed to relieve passive congestions of the lungs.—*Revue Française de Médecine et de Chirurgie.*

Diphtheritic Paralyses.—M. H. Chêne admits the toxin of diphtheria bacillus as the cause of the paralyses that occur in the course of diphtheria. The poison probably ascends from the peripheral nerves to the brain centers, especially the bulbs. Constant myocardial lesions are found at autopsies and few nerve lesions, which favors the idea that the paralyses are of cardiac origin, resulting from emboli. The prognosis depends on the extent of the paralysis and the time of its appearance. When the paralysis is confined to the soft palate the prognosis is generally good. If it is extensive and comes on slowly and late, the prognosis is good again. But an extensive paralysis coming on suddenly and early is unfavorable, especially when the symptoms show the heart to be involved. Treatment consists of antidiphtheritic serum administered even when it was given early in the diseases, in doses sufficient to counteract the toxins. Cardiac stimulants and faradism to the pneumogastric nerve may be of use in cases of urgent heart symptoms.—*Gazette des Hôpitaux.*

Toxicity of Mother's Milk.—Raymond François believes that he has seen cases in which the milk of its own mother has been an evident poison to an infant, while it would thrive on the milk of a wet nurse or on artificial feeding. He believes that there are conditions in which the human milk has a toxic effect on the infant. This poison is evidently in the milk, and is due in general to some form of intoxication in the mother, the poison of which is carried over into the milk. It has been shown that coloring and other matters, diphtheria antitoxin, etc., are carried over into the milk. Menstruation, dyspepsia, constipation, and similar conditions may produce this poison.—*Journal de Médecine de Paris.*

Syphilitic Myelitis.—Jh. Ferrux gives the etiology of myelitis as in general some infectious disease which determines an acute infection of the spinal cord. Traumatism and cold act as predisposing causes. Anemia favors its occurrence. The tubercle bacillus, gonococcus, and malarial organism all act as causes of such disease. The spirochetes of syphilis produce very active effects on the spinal cord; their virulence exalted by traumatism, cold, or intercurrent affections creates an especial toxemia and insufficiency of the nervous system and the spinal medulla especially. The symptoms are proteiform, and difficult of diagnosis. Granular tissue formed of round cells covers the outside of the cord. The alterations of the dura involve especially its external surface. A granular exudate separates it from the cord. An obliterating arteritis and phlebitis are frequent. The spinal nerve roots are affected by gummatous deposits. Any region of the cord from the medulla to the lower lumbar region may be affected. In hereditary syphilis the cerebral syndrome dominates. Premonitory symptoms consist of weariness, difficulty in walking, pains, hyperesthesia rigidity and paralyses. The prognosis should be reserved.—*Gazzetta Medici di Roma.*

Arterial Hypertension and Eclamptic Seizures.—J. J. Chérie finds as a result of his observations and experiments on animals that the high tension to be observed in puerperal eclampsia has no causal relation to the eclampsia. It is rather dependent on the condition of the kidneys. In normal pregnancy arterial tension is normal. Also in some cases of albuminuria there is a normal temperature. There seems to be no constant relation between this rise of tension and the amount of albumin found in the urine. The high tension is of prognostic value in these cases. When a seizure is imminent there will be found a rise of blood pressure, and, conversely, when we have no rise of tension we need not fear eclampsia. There is a definite relation between the tension and the capillary hemorrhages which occur in eclampsia in the internal organs. The walls of the capillaries are weakened by the poison and yield to the high blood pressure, and hemorrhage occurs. Venesection is of value to relieve this tension.—*Annales de Gynécologie et d'Obstetrique.*

Medical Record.

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SOME NONTUBERCULOUS THROAT COMPLICATIONS OF PHTHISIS.

Whatever field of medicine a man may eventually follow, he has at some time or other under his care cases of pulmonary tuberculosis, and though their progress may be steadily downward he feels it is his duty to make his patients as comfortable as possible. It is therefore also his duty to consider the various complications which may arise and to have clearly in mind the measures of relief which may properly be employed.

The great throat complication is tubercle in the larynx, but Harold Barwell reminds us in the *Lancet* of May 1, 1909, that this is by no means the only condition requiring our care. He repudiates the existence of a "pretuberculous" condition in the sense that there is any distinctive state of the larynx which is always or frequently followed by tuberculosis. Pallor of the larynx is but a local manifestation of the general pallor so common in these patients. In fact, it is probably true that there are in tuberculous patients quite as many reddened and hyperemic as pale larynges. Swollen arytenoids are often pale and the margins of ulcers markedly anemic, but tuberculous infiltration is decidedly red and congested, especially on the cords, ventricular bands, and epiglottis. But Barwell notes that simple chronic pharyngitis and laryngitis are extremely common and that not every pulmonary case with hoarseness and throat discomfort has actual local tubercle. The constant coughing of untrained patients and the constant irritation of sputa with pus organisms as well as the specific bacillus inflame the larynx. In the absence of other objective signs a uniform redness of both cords should not be regarded as tuberculous in nature, though there may be a strong suspicion if one side is markedly reddened over the other. The author notes that the subjects of active phthisis have much dryness and discomfort in the throat at night and this he attributes to the pyrexia and the consequent rapid respiration which makes nasal breathing insufficient. A drink of hot milk or some demulcent troche will often relieve this discomfort. Pain in the larynx in the absence of any apparent cause should always lead to a careful examination of the chest.

Another condition frequently found in tuberculosis cases is a laryngeal pachydermia, but the firm, white, almost cornified appearance in a typical case is very different from the soft, semitranslucent granulations of laryngeal tubercle. This pachydermatous thickening may be removed from the posterior commissure and no tuberculous manifestations whatever be found on microscopical examination. Functional aphonia also is very common among consumptives. Every intractable case of functional aphonia calls for chest examination. Occasionally, says Barwell, true paralysis of one of the vocal bands may occur. It is generally on the left side and due to the pressure on the recurrent nerve, being of the abductor type; but right-sided paralysis due to pleuritic thickening on that side near the apex is by no means unknown. Perhaps, says the author, this is the most frequent cause of right-sided paralysis, and therefore calls always for chest examination.

USE AND ABUSE OF ANESTHETICS IN GREAT BRITAIN.

Most persons competent to judge are of the opinion, according to medical and lay papers, that there is need for reform in Great Britain in the mode of administration of anesthetics. A committee of the English Home Office has held several sittings devoted to the subject and some remarkable facts and figures have been forthcoming. Further, the Home Office is considering the question of issuing an interim report dealing with these facts. A bill has been prepared to be presented to the British House of Commons, consisting of two substantive clauses. According to the first clause, it will be a penal offence for any person not medically qualified to administer a drug for the purpose of producing a state of unconsciousness during any medical or surgical operation or during childbirth. For the first offence a maximum penalty of $50 is imposed, and for the second a maximum penalty of $100. Two exemptions are allowed. Such an anesthetic may be administered under the immediate direction and supervision of a legally qualified medical practitioner, or when the person administering it has reasonable grounds for actually believing that delay caused by calling in a medical man would endanger life. The second clause provides that the law is not to apply to those already registered under the Dentists' Acts.

The opposition to a continuation of the existing state of affairs in brief, is as follows: General anesthetics are, for the most part, powerful poisons, they are being used upon a vast and constantly increasing scale throughout the country, and an increasing and considerable number of fatalities are taking place annually in connection with their administration. The main arguments in favor of a revision of the present system are that the numerous deaths which have occurred during recent years as the results of the administration of anesthetics could be prevented only by a careful study of the circumstances of such fatalities, and safety could be secured only by restricting the administration to men who had received a general medical education. In order to bring about this object, the curriculum of the medical student must include a thorough training in the administration of anesthetics. Other points in support of a change in the existing conduct

of affairs are that in England under present conditions only the rich and the hospital poor enjoy the services of medical men for anesthetics. The middle classes ought to have the same privileges. Furthermore, the passage of such a bill would deal a crushing blow to the quack. He would be able neither to give an anesthetic himself, nor to have it administered for him by a medical man. The status of the registered dentist would be improved, and the particularly dangerous procedure of the man who both operates and administers the anesthetic would be avoided. It goes without saying, that there is widespread opposition to the proposed bill, and naturally the dentists of nearly all grades are most prominent in this movement. Most medical men aver, and it would seem with justice, that a very large proportion of the fatalities which follow the administration of anesthetics is the outcome of the use of these drugs by dentists who are presumably more or less unskilful and lacking in medical knowledge as to the condition of the patient. The dentists themselves contend that the number of fatal cases from dental operations is extremely low, more especially when compared with the accidents in non-dental surgical cases, and that there appears to be no call for legislation in that direction. The situation, then, as regards the matter in Great Britain, is that the majority of physicians are in favor of rendering the administration of anesthetics less easy, that is, to place such administration in the hands of thoroughly trained and otherwise competent individuals. The dentists assert that anesthetics are now administered in a satisfactory manner, and that to alter the present modes of giving the drugs as suggested would be doing them as a body an injustice and material harm, and they hint that the agitation is aroused for the benefit of the doctors.

Regarding the question from an impartial standpoint, it certainly seems that the medical profession in England has a very strong case against the way in which anesthetics are generally administered. It might be said without much exaggeration that the methods now in vogue are unscientific in a high degree, and even slipshod. At least in matters of life and death extraordinary care should be used, and although the enactment of severe restrictive laws respecting the administration of anesthetics might press hard on a portion of the population, a revision of this nature would be for the public good. At any rate, one point is perfectly plain, so plain, indeed, as to be palpably obvious, that every medical student should receive as a necessary part of his medical education, a sufficiently thorough training in the administration of anesthetics. In this country also, as a whole, the administration of anesthetics is susceptible of great improvement. Here, as in England, we have a lengthy annual list of fatalities from the employment of anesthetics by untrained individuals, and, in fact, the arguments adduced in Great Britain in support of placing this service in the hands of avowedly competent persons apply with almost as much force to parts of America. It may be laid down as an axiom that every medical school should teach its students how to administer anesthetics properly. It is true that the medical course is already full, but the question of anesthetics is so important, and the neglect of it may be so deadly in its consequences that it can no longer be evaded.

THE ORIGIN OF THE RECENT EPIDEMIC OF FOOT-AND-MOUTH DISEASE.

That the recent epidemic of foot-and-mouth disease in New York, Pennsylvania, Maryland, and Michigan started from calves used in the preparation of vaccine which had been contaminated with the virus of foot-and-mouth disease, and that the contaminated strain of vaccine came originally from a foreign country, are the conclusions reached as the result of an investigation by the Bureau of Animal Industry in conjunction with the Public Health and Marine Hospital Service. The investigation was conducted by Dr. John R. Mohler of the former bureau, and by Dr. M. J. Rosenau of the latter. The disease first appeared among the cattle in Pennsylvania on November 10, 1908, and a few days later was reported from the other States named. A strict quarantine was immediately enforced, and as the result of active measures the last of the infected territory was freed from quarantine on April 24.

Early investigation resulted in tracing the disease to calves that had been used for vaccine by one firm, and it was suspected that the vaccine used had been contaminated. Further investigation showed that another company had imported certain vaccine virus which was contaminated with the virus of foot-and-mouth disease; that some of this vaccine was obtained by the first firm in May, 1908; that calves used by the latter in propagating vaccine were sent on October 16 to the stockyards and thence to a farm near Detroit; that four days later three carloads of cattle reached the stockyards and were put into the pens occupied previously by the vaccine calves, and that some of these cattle were shipped to New York and to Pennsylvania, where the disease soon after appeared. Three series of experiments showed that the vaccine virus obtained from both of these firms was capable of producing foot-and-mouth disease, while other strains of vaccine were negative. The fact that the infection was present in the vaccine virus of the first company for so long without being transmitted to outside cattle, the investigators explain, was due to this firm's practice of killing its calves after taking the virus, a practice not followed by the second company. As soon as the contamination of the vaccine virus became evident, the licenses of the two firms were suspended, all the suspected vaccine virus was withdrawn from the market and destroyed, and other measures were taken, in all of which the Government had the hearty cooperation of both firms.

The report dwells upon the fact that foot-and-mouth disease is primarily a disease of cattle, and only secondarily of man. Children are sometimes infected through milk, as are also persons coming in contact with diseased animals, though the affection in man is usually very slight. No instance of the transmission of the disease to man through vaccine virus is on record, and it is doubtful whether it could be produced by cutaneous inoculation.

Cardiac Massage in Apparent Death.

It is now some four or five years since the direct application to the heart of manual massage in persons apparently dead was first described. Since then this method of resuscitation has been tried in forty-five recorded cases, and something like a definite tabulation of results becomes possible. M. von Cackovic, in an article in the *Archiv für klinische Chirurgie*, Vol. LXXXVIII, No. 4, 1909, devotes nearly seventy pages to an analysis of details and results. His attention was first drawn to this subject by a case of sudden death in a boy aged nine upon whom he was operating for harelip. At autopsy an enlarged thymus was discovered, hence little could be expected of the direct massage so persistently carried out in this case. Of the forty-five cases in the literature seventeen patients were resuscitated, nine with complete recovery. The remaining eight died after a short time. It is worthy of note that forty cases demanding this extreme measure are said to have been due to the anesthetic administered, which, if true, is of itself sufficient admonition to those who are inclined to look upon the giving of anesthetics as a matter of small moment, inasmuch as it seems so uniformly safe. Causes other than anesthetics were embolism in the pulmonary artery, strangling from attempted suicide by hanging, and asphyxia in the new-born from some obstruction in the larynx or trachea. If the heart stops, and ordinary measures do not suffice to renew the beat within one minute, especially if the patient is lapsing into "white" syncope, the author says the direct method is indicated. Massage through precordial incision usually fails, the best incision being in the mid line above the umbilicus and just large enough to admit the hand. The heart is grasped and pushed toward the anterior thoracic wall, and the ventricles are squeezed rhythmically at about the normal rate of heart beat. Sometimes fully fifteen minutes elapse before any response is obtained. During all this time assistants should be busy with artificial respiration, saline and adrenalin infusions, tongue traction, intubation or tracheotomy, and elevation of pelvis and legs. Inasmuch as life has been saved in about 20 per cent. of all cases in which direct massage of the heart has been applied, it would be well for the surgeon to be perfectly familiar with the technique in order that his patient may have the very last opportunity for recovery from suspension of respiration or circulation. Of course, the latter condition offers most encouragement, since paralysis of the respiratory center may fairly be said to be always permanent. Heart massage must, it is claimed, be begun within five minutes from the cessation of the pulse. One must never lose sight of the fact that one cannot be sure, absolutely sure, that any person is dead because the vital functions can no longer be detected by our necessarily crude methods of examination. Surprises sometimes occur in which a patient seems to "come back to life," as the newspapers phrase it, after suspension of vital function has existed for some moments. Since the dividing line between life and death is of such extreme narrowness as to defy all human attempts at determination and definition, one may well be glad to make use of such a measure as direct cardiac massage in those cases especially where we have no reason to suspect disintegration of indispensable organs through disease.

The Diet in Typhoid Fever.

In addition to the ever present possibility of acute hemorrhage or of perforation during the course of a typhoid fever, the patient is in constant danger because of the weakening effect which the prolonged fever has upon his organism. While the continuous high temperature results in great increase of his protein metabolism with consequent increase in his tissue waste, the intestinal lesions are such as to demand great care in the selection of a proper diet to make up for the waste. Milk was once considered the ideal food for typhoid patients, but Seibert has long contended against its use in typhoid fever, and more recently others have opposed it through a realization of the fact that it is impossible to provide from two to three thousand calories in a milk diet without producing serious intestinal disturbance. It is this phase of the question which is very practically considered by S. Strouse in the *American Journal of the Medical Sciences* for May, 1909. The author presents a series of figures showing the comparative results in a great number of typhoid fever patients fed on milk and others supplied with a more liberal diet. Some figures gathered by Kinnicutt show in the percentage of hemorrhages, of perforations, and finally of deaths, results that speak distinctly though slightly in favor of the more liberal diet. Later figures gathered by Strouse himself are still more convincing in this respect. He concludes that the course of typhoid fever is a long-drawn battle between the patient and the disease and the result depends a great deal upon the preservation of the strength of the former. He must be supplied in one way or another with about the same amount of energy as a healthy resting man, and this amount cannot be well furnished by a pure milk diet.

News of the Week.

Major Carroll's Widow.—Efforts are being made to complete the sum of $7,800 needed to pay off a mortgage on the house owned by the widow of Dr. James Carroll, to whom Congress has granted only a small pension. The American Association of Pathologists and Bacteriologists, of which Dr. Carroll was a member at the time of his death, has directed the treasurer to call the attention of its members to this fund, and to request that contributions be sent to Major M. W. Ireland, Surgeon-General's Office, Washington, D. C. The Medical Society of the County of New York has voted $150 from the general funds of the Society to be given to the Carroll fund, and further contributions will be received by the President of the Society, Dr. H. Seymour Houghton.

Civil Service Examination.—The State Civil Service Commission will hold an examination on June 19, 1909, for the purpose of filling the position of Director of the Pathological Institute of the State Commission in Lunacy, at a salary of $6,500 per annum. Applications must be filed before June 14, and further information and application blanks may be secured by addressing (preferably on a postal card) the State Civil Service Commission, Albany, N. Y.

Medical Colleges Give Degrees.—Commencement exercises of the St. Louis College of Physicians and Surgeons were held on May 7, when eighty-seven students, of whom four were women,

received the degree of M.D. The diplomas were presented by Prof. Waldo Briggs, Dean of the college.

A class of twenty-one men was graduated from the Cooper Medical College of San Francisco on May 6, J. F. Walsh, of Eureka, Cal., taking the highest honors. The degrees were conferred by Dr. Henry Gibbons.

The Medical Department of the University of Oregon bestowed degrees on fifteen graduates on May 3. The annual address was delivered by Prof. Samuel E. Eliot, and the diplomas were presented by the President of the university.

Nurses Graduate.—The commencement exercises of the Training School for Nurses of St. Vincent's Hospital were held on May 19, when twenty-one nurses received diplomas. The address to the graduates was made by Dr. Francis J. Quinlan, and diplomas were presented by Mgr. Lavelle, of St. Patrick's Cathedral.

Another Nurses' Home.—The new home for nurses connected with the Metropolitan Hospital on Blackwell's Island, New York, was formally opened on May 17. The building is four stories high, and will accommodate 125 nurses. It cost about $315,000.

The Brooklyn Hospital.—The first night clinic and dispensary exclusively for women in Brooklyn has recently been opened at the Brooklyn Hospital. The hours are from 7 to 9 on Thursday evenings.

Ambulance Bill Signed.—Governor Hughes on May 20 signed the bill passed at the recent session of the Legislature, establishing a Board of Ambulance Service, to be composed of the Commissioner of Police, the Commissioner of Charities, and the President of the Board of Trustees of Bellevue and Allied Hospitals. The board is to have control over all ambulance service in New York except that maintained by the Department of Health.

Railway Accidents.—The report of the Public Service Commission shows a slight reduction in the number of accidents on the traction lines in New York City. Twenty-eight persons were killed as against 30 in April, 1908, and there were 177 serious accidents, against 191 in April, 1908. The total number of accidents was 4,170 last month and 4,710 in 1908 during the same month.

The report of the Pennsylvania Railroad for 1908 shows that during the year 141,659,453 passengers were carried over its various lines, and that not one passenger was killed as the result of an accident to a train. The total number of passengers receiving injuries of any sort requiring medical attention as the result of a train accident was only 102, 452 less than in 1907.

Vital Statistics.—In the State of California during the month of March, 1909, there were 2,707 deaths, of which 475, or 17 per cent., were due to some form of tuberculosis. Deaths from diseases of the circulatory system were next in the list. Those from epidemic diseases numbered 126, of which typhoid fever claimed the largest part. The State Board of Health calls attention to the fact that all the laws relating to tuberculosis and its control were defeated in the Legislature, with the exception of one appropriating $2,000 "for the dissemination of knowledge concerning the disease." This amounts to about one mill for each inhabitant of the State.

Charitable Bequests.—The will of the late Mrs. Jane G. Phelps, of Tarrytown, N. Y., provides for bequests of $5,000 to the Tarrytown Hospital and to the Lincoln Hospital, New York, and of $10,000 to the Presbyterian Hospital of New York.

Red Cross Stamp.—The award of prizes for designs for the Red Cross Christmas stamp to be used in raising funds for the tuberculosis work, has been made. The first prize, $500, goes to a New Yorker, Mr. Carl Wyngate. Nearly a thousand designs were submitted.

Bubonic Plague Active.—A severe epidemic of bubonic plague is reported from China, official estimates placing the number of cases in Amoy at about forty a week. After an absence of six months the plague has reappeared at Caracas. One case is officially under examination. The rats of Caracas show infection. No case has been found at La Guayra, or elsewhere in the Republic. The Government authorities have announced that they will make no secret of the existing conditions, and that they purpose to adopt strong measures of sanitation in fulfillment of the Washington convention. A surgeon of the U. S. Marine Hospital Service is expected to reach La Guayra shortly, where he will be attached to the U. S. Consulate.

State to Educate Blind Girl.—A special appropriation of $2,000 has been made by the Legislature of Pennsylvania, and approved by the Governor, to be used for educating a nine-year-old girl of Harrisburg, who is deaf, dumb, and blind. This is the first time that the State has undertaken the individual instruction of a person.

Osteopath Bill Defeated.—Senate Bill, No. 214, of the Illinois Legislature, known as the osteopath bill, came up May 19 for final vote in the House. A roll-call was demanded. Total number of votes cast was 117. Of these there were 45 for the bill and 72 against it. It is believed that this bill will never again be brought before the Legislature.

Dr. Otto T. Freer of Chicago has been elected a corresponding member of the Danish Oto-Laryngological Society, in recognition of his work in rhinology and laryngology, and in appreciation of his operative demonstrations in Copenhagen last summer.

Tuberculin in Certain Diseases of the Skin.—Dr. A. Schuyler Clark writes that, in the discussion of this subject at the Academy of Medicine, reported in the issue of May 8, he was quoted as saying that "the administration of tuberculin was dangerous and unjustifiable," but what he did say was that "its administration, under the old method with the production of reactions, was dangerous and unjustifiable."

Illinois State Medical Society.—At the fifty-ninth annual meeting of this society, held at Quincy, May 18, 19 and 20, the following officers were elected: *President*, Dr. J. L. Wiggins, East St. Louis; *First Vice-President*, Dr. Clifford U. Collins, Peoria; *Second Vice-President*, Dr. James E. Stubbs, Chicago; *Treasurer*, Dr. E. J. Brown, Decatur; *Secretary*, Dr. E. W. Weis, Ottawa. Danville was selected as the place for holding the next annual meeting.

Sixteenth International Congress of Medicine.—This congress will meet in Budapest, Hungary, from August 29 to September 4, 1909. The membership fee is twenty-five crowns (about five dollars), which will entitle a member to attend any of the twenty-one sections into which the congress

will be divided. These sections will be as follows: (1) Anatomy, (2) Physiology, (3) Pathology, (4) Microbiology (including bacteriology), (5) Therapeutics, (6) Internal Medicine, (7) Surgery, (8) Obstetrics and Gynecology, (9) Ophthalmology, (10) Pediatrics, (11) Neurology, (12) Psychology, (13) Dermatology and Venereal Diseases, (14) Urology, (15) Laryngology, etc., (16) Otology, (17) Stomatology, (18) Hygienics and the Study of Immunity, (19) Forensic Medicine, (20) Military and Naval Sanitation, (21) Tropical Medicine and Marine Surgery. Dr. John H. Musser of Philadelphia is the President of the National Committee of the United States; Prof. Alexander MacPhedran of Toronto is the President of the Canadian Committee, and Dr. F. W. Pavy of London of the English Committee.

The International American Congress of Medicine and Hygiene will meet in Buenos Aires in May, 1910, in commemoration of the first centenary of the May Revolution of 1810. The congress will be divided into the following sections: Bacteriology, Pathology, Physiology, etc.; Medicine, Surgery, Public Hygiene, Pharmacology and Chemistry, Sanitation, Veterinary Medicine, Dentistry. Papers for the congress or titles and abstracts of papers will be received until January 1, 1910, and may be written in Spanish, French, Portuguese, or English. Further particulars may be secured from the secretary of the congress, Faculty of Medical Sciences, Buenos Aires, Argentina.

Kansas State Medical Society.—At the annual meeting of this society held in Emporia during the first week of May, the following officers were elected for the ensuing year: *President,* Dr. O. J. Furst of Peabody; *Vice-Presidents,* Dr. T. F. Foncannon of Emporia, Dr. Walthall of Parsons, Dr. J. P. Kaster of Topeka; *Secretary,* Dr. C. S. Huffman of Columbus; *Treasurer,* Dr. L. H. Munn of Topeka. Dr. C. C. Goddard of Leavenworth, Dr. L. L. Uhls of Osawatomie, and Dr. J. E. Sawtell of Kansas City were elected delegates to the meeting of the American Medical Association, to be held in Atlantic City in June. Topeka was chosen as the next meeting place.

The Nebraska State Medical Association closed its annual session in Omaha on May 6 with the election of the following officers for the ensuing year: *President,* Dr. P. H. Salter, Norfolk; *Vice-presidents,* Dr. W. J. Berkhofer, Gothenburg, and Dr. S. S. Wilson; *Secretary,* Dr. A. D. Wilkinson, Lincoln; *Treasurer,* Dr. A. S. von Mansfelde, Ashland; *Corresponding Secretary,* Dr. H. W. Orr, Lincoln; *Delegate to the American Association,* Dr. L. M. Shaw, Osceola; *Alternate,* Dr. T. P. Livingston, Plattsmouth.

The New Hampshire State Medical Society held its 118th annual meeting in Concord on May 13 and 14. The following officers were elected for the ensuing year: *President,* Dr. Frank S. Blaisdell of Goffstown; *Vice-President,* Dr. A. S. Wallace of Nashua; *Business Councilors,* Dr. H. H. Faulkner of Keene, Dr. E. M. Fitts of Claremont, and Dr. Fred von Tobel of Lebanon; *Member of the Board of Trustees,* Dr. S. M. Dinsmore of Keene.

American Therapeutic Society.—The tenth annual meeting of this society was held in New Haven on May 6, 7, and 8, under the auspices of Yale University. Officers for the ensuing year were elected as follows: *President,* Dr. James C. Wilson, Philadelphia; *Vice-Presidents,* Dr. Alexander D. Blackader, Montreal, Dr. Howard Van Rensselaer, Albany, Dr. Robert T. Morris, New York; *Secretary,* Dr. Noble P. Barnes, Washington, D. C.; *Treasurer,* Dr. A. Ernest Gallant, New York; *Members of the Council,* Dr. Thomas E. Satterthwaite, New York; Dr. J. Blake White, New York; Dr. Frederic H. Gerrish, Portland, Me., and Dr. Clarence J. Blake, Boston; *Members of the Standing Committee on Therapeutic Research,* Dr. Spencer L. Dawes, Albany, and Dr. Harvey W. Wiley, Washington. The next annual meeting of the society will be held at Washington, D. C., in May, 1910.

The Worcester District (Mass.) Medical Society held its annual meeting on May 12 and elected the following officers for the ensuing year: *President,* Dr. L. F. Woodward, Worcester; *Vice-President,* Dr. A. C. Getchell, Worcester; *Secretary,* Dr. G. E. Emery, Worcester; *Treasurer,* Dr. G. O. Ward, Worcester; *Orator,* Dr. L. T. Newhall, Brookfield; *Censors,* Dr. R. W. Greene, Worcester; Dr. F. H. Baker, Worcester; Dr. R. P. Watkins, Worcester, Dr. A. G. Hurd, Millbury; Dr. J. J. Goodwin, Clinton.

The Franklin District (Mass.) Medical Society held its annual meeting at Greenfield on May 11, when the following officers were elected: *President,* Dr. C. L. Upton, Shelburne Falls; *Vice-President,* Dr. L. A. Newton; *Secretary and Treasurer,* Dr. Harry N. Howe.

The American Society for the Study of Alcohol and Other Narcotics will hold its thirty-ninth annual meeting in Atlantic City, N. J., June 7, 8, and 9, 1909. Sessions will be held from 9 to 11 A.M. A temperance lunch will be served at 1 P.M. on Wednesday at Young's Hotel.

Obituary Notes.—Dr. Isaac F. Galloupe of Lynn, Mass., a surgeon of the Civil War and a survivor of Libby Prison, died at his home on May 17, aged 86 years. Dr. Galloupe was graduated from Harvard Medical College in 1849, and in 1861 entered the service as surgeon of the Seventeenth Massachusetts Volunteers. Later he was made a brigade surgeon and was highly commended for his conduct of the hospital at Newbern, N. C. At the close of the war he resumed practice in Lynn, retiring about fifteen years ago. Dr. Galloupe was one of the group of medical men who witnessed the first use of ether as an anesthetic by Dr. T. G. Morton at Harvard in 1846. He was a member of the Massachusetts Medical Society, the Essex South District Medical Society, and the Lynn Medical Society.

Dr. John M. Boyd of Knoxville, Tenn., died at his home on May 16, aged 75 years. Dr. Boyd was graduated from the medical department of the University of Pennsylvania in 1855, and had practised continuously for over fifty years.

Dr. J. E. Payton of Redlands, Cal., died at Monrovia on May 10, after a long illness. He was a graduate of the medical department of Willamette University, Salem, Oregon, receiving his degree in 1877.

Dr. Gerardus H. Wynkoop of New York died at his home on May 16, after an operation for appendicitis. Dr. Wynkoop was born in Wilmington, Del., in 1843. He was graduated from Yale University in 1864, and from the College of Physicians and Surgeons, New York, in 1866. He was for some years on the staffs of St. Luke's and the Roosevelt hospitals, and was a member of the State and county medical societies.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RHEUMATIC FEVER (ENDOCARDITIS), SYNONYMS, PROPOSED HEART FEVER—CARDIAC TONICS—OVERLAPPING OF HOSPITALS AND POOR LAW—AMBULANCE BILL—COLLEGE OF PHYSICIANS ADMITS WOMEN—OBITUARY.

LONDON, May 7, 1909.

THE Lumleian Lectures at the Royal College of Physicians this year have been delivered by Dr. Norman Moore, senior censor, who, with his well-known taste for early literary information, said that the learned person after whom the lectureship is named inherited his estate from a grandfather who fought at Flodden Field, was educated at Cambridge, entering at Queen's College in May, 1540, and retained a taste for learning throughout a long life, in which, as Lord Lumley, he took an active part in the dangerous politics of the time. His wife, a daughter of the twelfth Earl of Arundel, was as well read as her husband, and among their learned friends was Dr. Richard Caldwell, an Oxonian, some time President of the College, who, with Lord Lumley, founded this lectureship in 1581. The course entrusted to Dr. Moore he devoted to the subject of "Rheumatic Fever," a name which takes us back to a pathology long anterior to the revival of learning, while acute rheumatism, the commonest synonym indicates a pathological confusion not yet dispelled from medical thought. Dr. Moore gave references to early writers, who more or less distinctly mentioned the disease or the conditions allied to it. He proceeded to state the grounds of diagnosis as endocarditis, multiple transient arthritis and a-temperature chart showing an initial rise followed after a fall by occasional rises with normal intervals. These three factors he declared essential to the diagnosis. The term subacute rheumatism should never be used, as it suggests absence of the importance of every case, however slight. Whether the pains are slight or severe made no difference. The essential and invariable feature of the disease was not a complication—that feature was the endocarditis, and "heart fever" would be an appropriate name. Dr. Moore would like to extricate absolutely the serious disease now termed rheumatic fever or acute rheumatism from the confusion involved in the word "rheumatism." But he found medical terms, inconstant in meaning, indeed, but surviving from century to century. Dr. Charles Badham's name "bronchitis," given a century ago, owed, he said, its firm place to the dislike of patients to think they have lung disease, from which they know people die. Were it not for the fear which men and women have of diseases associated with the lungs or heart the term "heart fever," he held, might "with advantage be adopted for that morbid condition in which endocarditis, transient arthritis, and raised temperature are always present."

The great service sometimes rendered by cardiac tonics is not to be denied; nor, on the other hand, is the risk which attends their administration. Yet very different estimates of either the value or the risk seem to prevail, for while with some physicians digitalis is such a favorite as to be constantly prescribed and becomes in small doses almost a routine prescription, others distrust it so much that they only order it when the indications are absolutely clear and the case urgent. No doubt insufficient power of the left ventricle may occur from mere weakness, as in convalescence, anemia, malnutrition, etc., and this whether any valvular lesion be present or not. The tendency to dilatation in these and some other conditions seems very well met by small doses of digitalis or its congeners. So also when compensation becomes insufficient in mitral regurgitation we turn to cardiac tonics and find them useful, but not too early. The risk of syncope whenever full doses are required must never be forgotten and the patient must keep in bed. Cases of sudden death on getting up have been numerous enough to make us insist on the recumbent position. Some persons, too, seem to exhibit a degree of idiosyncrasy to digitalis, shown in a minor degree by stomach derangement provoked with more than usual facility. When patients are not under constant observation, if only small doses are being given it is desirable, on account of the cumulative property of digitalis, to interrupt the treatment for a time—a hint for out-patient physicians.

Digitalin, although in use for some time, does not seem with the majority of practitioners to have displaced to any extent the cruder preparations. Perhaps this is due to its great power, the 1-100th of gram being an efficient dose; perhaps also to the fear of variation in its quality, for it is the amorphous glucoside which has been generally used here, though the crystalline product has been tried by some. Of course, the pure crystals are much more potent, so that the dose is only 1-130th of a grain. Crystallized digitalin has been admitted to the French codex and it is more used in France than here, especially since the Orfila prize, 1871, was awarded to M. Nativelle for his work in first obtaining crystals. It has been tried hypodermically, but as far as I gather from various observers it does not inspire more confidence by this method. In fact, most of them, as already said, are satisfied with the pharmaceutical preparations of the plant.

Strophanthus has so frequently been proposed as a substitute for digitalis that it may interest you in connection with the foregoing to refer to Fleischmann's recent report on the use of the active principle, strophanthin, by intravenous injection. This method of introducing so powerful a remedy does not seem likely to commend itself to English practitioners. I have not at present met one who has tried it, although Fleischmann reports excellent results, especially in failure of compensation. If a single injection proved ineffective in such cases, much less digitalis should afterward be employed—a quarter or half the dose. In renal cases the treatment was effective.

In a recent paper at the Royal Society of Medicine Dr. Gordon Sharp read a paper on heart tonics, in which he described some experiments, "pharmacological and clinical." He had bought specimens of tinct. digitalis which were inert when tested on a frog's heart. The leaves of the plant might be mixed by collectors, but more important was the proper drying, as, if allowed to steam, the contained ferment would break up the glucosides. He found the action of digitalis differed from that of strophanthus and squill. He strongly emphasized the importance of these drugs being standardized. He thought digitalis acted more quickly than was generally supposed, especially when given in full doses. It seemed to him the only real cardiac tonic The tincture was the handiest preparation, and when that was not tolerated the drug could be given in pill form. Strophanthus preparations had often been found inert, but in the last three years the value of standardization had been recognized and reliable products were available. This drug acted with certainty on the frog's heart and in full dose stopped it simultaneously in all its anatomical parts. In main its diuretic action seemed to be a direct one on the secretory tubules in contradistinction to the indirect diuretic effect of digitalis and to some extent of squill, through the circulation. He admitted, however, that it might by stimulating the kidneys produce a certain amount of diuresis. In dose of 20 or 30 minims the tincture had in many cases of cardiac dropsy produced a state of general analgesia and so given comfort to the patient, though without any effect on the dropsy. Squill preparations were not so often inert as strophanthus or digitalis. They acted energetically on the frog's heart, so energetically, in fact, as to appear to wear it out by excessive action. In medical practice their chief value was as adjuncts to digitalis, for though they acted well up to a certain point they were apt then to fail suddenly In the course of his paper Dr. Sharp said almost the only way of estimating the effects of heart tonics was an indirect one, viz., whether it would remove cardiac dropsy after rest in bed had failed. To improve the pulse, lessen the area of precordial dullness, and relieve palpitation would not be sufficient evidence that a drug was a true heart tonic.

Yesterday a bluebook was circulated containing details of an investigation as to overlapping of voluntary hospitals and Poor Law medical relief The result so far as three large London hospitals are concerned shows that 11 per cent. of out-patients are receiving Poor Law relief The proportion of hospital patients who may be said to be of the class for parish relief was 38 per cent. It is suggested that hospitals should adopt a precise registration in all departments and that the relations between the two agencies for relief should be authoritatively defined.

Sir William Collins has again introduced a bill to give the County Council power to establish an ambulance service for London. The former bill was lost on the question whether the County Council would be the best authority With the present state of the parliamentary work the bill has a poor prospect.

The Royal College of Physicians has decided to admit women to the examinations for the license, the membership, and diploma in public health on the same terms as men, provided always that women shall not be eligible for election as Fellows or entitled to take any part in the government, management, or proceedings of the college.

The death is announced of Gerald Francis Yeo, F.R.S., Emeritus Professor of Physiology at King's College, London. Born in 1845 he was educated at Trinity College, Dublin, graduating M.B. 1867, M.D. 1871, adding the diploma in State medicine. He subsequently studied physiology in Paris, Berlin, and Vienna and in 1874 was appointed to the professorship of the subject in King's College. He acted for about fifteen years as honorable secretary to our Physiological Society. He wrote a manual of physiology which had a good run, an essay on diseases of the kidney which won the Gold Medal of the Dublin Pathological Society. He also contributed to the *Jarb. d. Gesell. d. Aerzte* of Vienna, the *Proceedings of the Royal Society*, the *Journal of Physiology*, etc.

Dr. James Limont, formerly physician to the Royal Infirmary at Newcastle-on-Tyne, where he practised for many years, died on the 1st of the month. He had been in feeble health for two years or more. He graduated at Edinburgh, M.A., M.B., and after good work in subordinate positions at the Infirmary became physician and took M.R.C.P. In North England he was a highly esteemed, scientific consultant.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

CLOSING SESSION OF THE PHILIPPINE ISLANDS MEDICAL ASSOCIATION—PHILIPPINE MEDICAL SCHOOL—COMMISSION FOR THE STUDY OF TROPICAL DISEASES—PLAGUE RATS IN SHANGHAI—FINDINGS OF THE OPIUM CONGRESS—PERSONAL.

MANILA, P. I., March 25, 1909.

At the last session of the fifth annual meeting of the Philippine Islands Medical Association, held February 20, a number of resolutions were considered. Among others, the recommendations made by the Philippine delegates to the International Congress on Tuberculosis at Washington were unanimously approved and the Government asked to put them into effect. The following officers were elected for the ensuing year: Dr. Benito Valdes, *President;* Dr. R. E. L. Newberne, *Vice-President;* Dr. Ariston Bautista y Lin, *Councilor* for five years.

Preliminary arrangements were also discussed for the first meeting of the Far Eastern Medical Association, which is to be held in Manila next February, and a permanent committee appointed to prepare a programme. The Philippine Government has promised to make an appropriation to aid in meeting the expenses, so that, on account of the convention being practically under Government auspices, it is expected that many foreign delegates will be present from every Oriental country.

The Philippine Medical School has just closed its second annual session, and at the commencement exercises, which were held on February 27 at the Zorilla Theater, five Filipinos received their diplomas. This is the first class that has been graduated from the new medical school, and even though only the last two years of the course were taken in this institution, it is probably safe to say that these men are better prepared than any that have heretofore been graduated in the Philippine Islands.

After numerous efforts made during the past year for the establishing of a commission for the study of certain tropical diseases, and after overcoming many obstacles and discouragements, such a commission has finally been put into the field under the general auspices of the Bureau of Health, the Bureau of Science, and the Philippine Medical School, the plan being to make a complete sanitary study of a native town of the Philippines. The main idea, of course, is to ascertain just what the incidence of the various diseases is among Filipinos who live amidst primitive conditions. For this purpose the town of Taytay, in the Province of Rizal, has been chosen. It has a population of about 6,000 persons, and is a town that in the past has suffered severely from outbreaks of dangerous, communicable diseases. In order to give an idea of the thoroughness with which this work is to be carried out, it may not be out of place to mention that a geologist will report upon the contour and formation of the country, a chemist is analyzing the water, and a biologist is examining it for animal and vegetable forms. Clinical microscopists are making blood examinations; zoologists are looking for intestinal parasites. Several clinical men are making physical examinations; medical men are treating all persons that require it. As practically all natives have intestinal parasites, it will be seen that to relieve 6,000 persons of worms is a task of no small magnitude in itself. An entomologist is studying the mosquitos and other insects. So far the work has not met with any opposition, and the prospects seem to be fair to carry it on to a successful conclusion.

Since the month of December plague infected rats have been found in Shanghai, and since that date the infection has spread among those rodents throughout the entire city. So far, however, no authentic cases of human plague have been encountered. The presence of this disease among rats in an Oriental city is being watched with considerable interest by sanitarians in order to observe whether it will eventually spread to human beings. It is presumed that the infection reached Shanghai by the so-called back door, viz., that the disease spread from Canton along the line of the new Canton-Hankow road, being carried by the laborers who are engaged in its construction, and after the disease once reached Hankow it was only a short time before it spread down the Yangtse River to Shanghai. A number of steamers are in daily communication between these two ports, and it would be almost impossible to regulate these river steamers so as to guard against the introduction of rats. After having been menaced for over ten years by vessels from nearby plague infected ports, which constantly make Shanghai a port of call, it seems hard that the good work of the port sanitary authorities should ultimately be defeated.

Following are the resolutions of the International Opium Congress, which has just concluded its sessions at Shanghai: It recognizes China's unswerving sincerity and real but unequal progress (in anti-opium campaign). It recommends measures for the gradual suppression of the opium traffic by other countries. It urges the governments (interested in the opium trade) to reexamine their systems regulating the use of opium other than for medical purposes. It urges the duty upon all nations to prevent the shipment of opium to countries forbidding the importation thereof. It dwells on the grave dangers of morphine. It recommends the scientific investigation of anti-opium remedies. It urges the governments having settlements or concessions in China to take steps toward the closing of divans. It recommends that effective measures for the prevention of the sale in such settlements and concessions of anti-opium remedies containing opium. It recommends each government to apply its pharmacy laws to its subjects in China.

Dr. S. Spencer Hough, who has been on duty as quarantine officer for the U. S. P. H. and M. H. S. at Hongkong during the past eight years, has returned to the United States on account of illness.

Passed Assistant Surgeon Thomas B. McClintic, who has been on duty at the port of Manila as quarantine officer of the U. S. P. H. and M. H. S., has been relieved from duty, and after spending several months' leave of absence in Europe, will return to the United States.

Colonel Louis M. Maus, Chief Surgeon, Division of the Philippines, has been relieved from duty in this division, and sailed March 23 for the United States via Europe.

Congenital Human Tuberculosis.—Maurice Pehu and Joseph Chalier, after a most careful study of the tuberculous cases denominated congenital that have been published, find only thirty-five that they consider undoubtedly congenital. Hence tuberculosis that is hereditary is exceedingly rare, and it is necessary to protect the infant against tuberculous surroundings. In judging of these cases every possible method of investigation must be used. The condition of mother and father must be known, the genitals and placenta examined carefully, and the organs of the infant and the umbilical cord examined. The differential diagnosis involves syphilis, early acquired tuberculosis, pulmonary milliary abscess, and lobular bronchopneumonia. Maternal tuberculosis is easily ascertained. That of the placenta is frequent. Contagion in utero occurs only after the placental circulation has been established, and involves the liver and the viscera, rarely the lungs of the child. A child more than a month old has probably acquired the tuberculosis.—*Archives de Médecine des Enfants.*

Progress of Medical Science.

Boston Medical and Surgical Journal, May 13, 1909.

Breast Abscesses.—R. L. De Normandie reports seven cases treated by Bier's suction method, and describes the special apparatus for its application to the mammary region. Six of the cases did well and one was a failure. In Case 1 the entire right breast was in very bad condition and had received no treatment. It was healed without induration in 38 days. In Case 2 the author says he did not carry out the treatment often enough or long enough, and failure resulted. Case 3 was a perfect result, with a minimum destruction of tissue, very small scar, and no induration thirty days from the time the breast was first seen. Case 4 did equally well, though the induration did not disappear quite as quickly. Case 5 was a small abscess before delivery, and healed well and the baby was able to nurse on the breast with but slight difficulty. Case 6 the author regards as his best result, for in this case even though there was no attempt to nurse for many days from the breast the milk finally returned and was given to the baby. In Case 7 both breasts were affected. One was treated by the usual open surgical method and the other by the Bier. The former was much the more serious virulent infection, but when opened it did well and healed without delay, but there was much destruction of tissue and there was still induration at the end of two months. The latter was smaller and less virulent, but there was no destruction of tissue, and the breast was left perfectly normal. In a possible future pregnancy it would undoubtedly be available for nursing, while the other would probably not.

Coffee as a Beverage: Its Use and Abuse.—R. Amory commends the use of coffee prepared by cold water instead of the usual infusion with boiling water. It may be prepared by passing the cold water through finely ground coffee in a porcelain or china percolator. This extracts only one-ninth of the caffein and one-fifth of the tannin contained in the bean, and it preserves the aroma of all the volatile oils in the bean. Consequently the wakefulness, excitability, and digestive disturbances are much less with the cold water coffee. The author has found from personal experience that coffee thus prepared may be carried for two or three weeks without any loss of color, aroma, or strength if it is kept in a cool place, carefully corked. This infusion is made strong and just as it is used hot water or milk are added. This sets free the volatile oils and fragrant coffee results. Full details are given for all the necessary manipulations.

New York Medical Journal, May 15, 1909.

Deafness Following Febrile Diseases and Its Prevention.—J. A. Pratt says that the majority of ear diseases are caused by adenoids and enlarged tonsils. These conditions are in the greater proportion caused by mechanical obstructions of the Eustachian tubes. The microorganisms found in the secretions are present in the normal middle ear as they are in the nasopharynx and sinuses. While varying in different parts of the country, from 25 to 30 per cent. of the children have adenoids or enlarged tonsils. All hypertrophied lymphatic tissues of the nasopharynx should be early and completely removed, so that mechanical obstruction of the Eustachian tube will not occur during congestion of the nasopharynx, thus interfering with the drainage and ventilation of the middle ear. A collective investigation among his colleagues shows that all agree that a very large proportion of the cases of incurable deafness or intractable suppuration in the ears have been caused by the various febrile diseases, and that a very large per centage of these had or had had adenoids.

The Individual as a Surgical Factor.—A. M. Crispin discusses the effects on surgical operations of such conditions as renal insufficiency, asthma, autointoxication, hepatic insufficiency, glycosuria, cardiac insufficiency, anemia, malaria, syphilis, and the mental condition. The paper is an earnest plea for a more extended recognition of the heterogeneity of the individual and a fuller appreciation of the constitutional conditions underlying or associated with surgical diseases, which emphasizes the advisability of an extended preparatory treatment before undertaking surgical operations. It is a dangerous error, says the author, to undervalue the constitutional disturbances which underlie many surgical diseases, and it is a useless nicety to establish a distinction between a diathesis and the lesion which it produces; it is a well known fact that wounds are very dangerous in persons who are suffering certain general diseases, such as diabetes, malaria, syphilis, general intoxications, either from internal or external sources, as those from the intestines, alcoholism, saturnism, etc., conditions all which may eventually cause alterations of the liver, heart, or kidneys. Alcoholism has only to be mentioned to evoke that dreaded postoperative sequel, delirium tremens, and the general alterations of the organism, for it is a truism that chronic alcoholism profoundly modifies the recuperative process. These morbid conditions have a decided influence on all surgical operations, even before the lesions they produce become appreciable.

Ophthalmia Neonatorum.—F. Krauss thus outlines curative treatment: (1) Thorough cleansing is best obtained by the use of a proper soft rubber syringe and the free use of a boric acid or weak potassium permanganate solution. This solution should be used not less than every hour, day and night. (2) Silver nitrate should be applied by the physician himself once or twice daily, according to the amount of the discharge. As the discharge lessens it can be done every second day, but early cessation of the silver solution will bring a recrudescence in many cases. To apply the silver solution properly the lids are everted, which is easily accomplished by traction along the lid margins with the finger tips. A ten grain to the ounce solution of silver nitrate is applied to the everted lids by means of a cotton swab, being careful to apply the same thoroughly in the conjunctival fornix. Have a second swab wet with normal salt solution conveniently ready and apply the same at once to the everted lids. (3) The question of hot or cold compresses is rather confusing. Formerly ice compresses were used freely, with the result that if applied too zealously the cornea would be deprived of its vitality and develop opacity. Intermittent ice compresses are of great service in the early stages, but judgment should be used by the physician. Hot compresses in the later stages applied for a short time daily seem to assist in clearing corneal opacities. The applications of compresses are of value also because they keep the lids from adhering to some extent by their moisture, thus allowing of the exit of the pus. (4) Constant bathing of the eyes with a 20 to 25 per cent. solution of organic silver solutions seems to be of some value, and should be used in every case. One drop instilled after every cleansing of the eye is most satisfactory. In this way the eye is constantly bathed in a solution that is mildly antiseptic, and has sufficient color to allow us to watch its diffusion. (5) Should the cornea become hazy, atropine (gr. ii to ℥i) should be dropped into the affected eye two to three times daily and every bright light excluded from the room.

The Clefts of the Axis Cylinder, the Cable of the Nervous System.—Basing his observations on facts observed by Foster, Sir James Grant says that the clefts of the axis cylinder are the factors in the production of an imperfect nervous impulse, amply demonstrated by defective transmission, of the electric current and such current reestablished brings to light the idea that the internal solution of conductivity, the highest order, in the transmission of nerve power, in the axis cylinder, depends as to electrical phenomena, on the organic salts, which it contains, and the change propagated by electricity, is the result of a dislocation of preexisting discrete particles, thus restoring the continuity, and conductivity, of the medulla of the axis cylinder. Nerve action to be of service must be normal in its distribution, so clefts in the axis cylinder are productive of constitutional troubles, occupying a wide range in the general system. The marked change for the better in the following cases in digestive power points to some latent irregularity, such as defined, far reaching in its influence, and corrected by a clearing up process of electrolysis, in the nervous system, concerned in the elaboration of chyme, from food products, and subsequent formation of blood. The histogenetic action of the abdominal ganglionic nerve centers is a complex problem, and so the part nerve tissue plays, in the most remarkable transformation from food to blood, the very pabulum of life. The clinical histories of four cases are given in detail and then the author gives the following directions for electrical treatment: (1st) Moisten the skin of the abdomen with warm water and a sponge before applying the electrical current to the space midway between the hip crest and the last rib, about three inches to the right of the navel; this application to continue about ten minutes. Afterward pass the current mildly over the entire abdomen for five minutes and dry the surface carefully after each application. (2d) Moisten each leg from the knee to the ankle and apply the

current freely for five minutes to each leg and dry carefully. The object in view in the application of the current to the extremities is to arouse increased nervous activity in the terminals of the sciatic and saphenous nerves and their varied communications, in the pelvic and abdominal regions, accessories, to the remarkable histogenetic spaces, where is produced the very papulum of life. These applications will be repeated each day, at bed time, for two weeks, and repeated once or twice afterwards each week for three or four weeks should any evidence of the weakness continue. No application of the treatment should be made less than two hours after a meal. Before the application of the electrical current drop fifteen or twenty drops of liquid antiseptic soap over the navel and use vigorous massage for ten minutes over the entire abdomen, with open hand placed in warm water, and then dry carefully. This massage is to take place before each application to the abdomen of the current.

Journal of the American Medical Association, May 15, 1909.

Congenital False Diaphragmatic Hernia.—H. S. Martland reports the clinical history and autopsy findings in a man, aged 70, who died as a result of a congenital deficiency in the central tendon of the diaphragm, the opening connected directly with the pericardial cavity, the heart at autopsy being surrounded by the entire transverse colon and the great omentum. The patient had never been confined to his bed by sickness before, and on his admission to the hospital he presented the clinical picture of an acute right heart dilatation, being markedly cyanotic and dyspneic, with a rapid, irregular, and feeble pulse. Aside from this there was little in the physical examination of much interest. In spite of treatment with cardiac stimulants, his condition did not improve, and he died seventeen hours after admission. The autopsy showed the conditions above described, together with evidences of irritation and inflammation, in places, in the small intestine, with contiguous reddened and thickened peritoneum. There was no hernial sac, and the hernial opening presented rounded borders, and the peritoneum of the under surface of the diaphragm was continuous with the parietal pericardium. Death was attributed to cardiac embarrassment, due either to slipping of too large a portion of intestine, or gaseous dilatation through the defect in the diaphragm. The author discusses diaphragmatic hernia generally, in explaining the embryologic mechanism of such a defect. He reports the case on account of its rarity, not finding any similar one in the literature. The age of the patient is also a point of interest. The evidence of irritation in the small intestine seemed to indicate that it also had been injured in former times, by forming part of the hernia.

Inoculation Accident in Manila in 1906.—W. M. Haffkine reviews this accident by which a number of persons were inoculated with plague bacilli during some anticholera vaccinations which were being made at that time, and a number of them died. He gives a history of the cholera vaccination in India, as originated and carried out by himself, the safety of which has been demonstrated. It is essential to note that in the accident at Manila the cholera vaccine did not become spontaneously contaminated by plague. Such a happening may be considered impossible. In that instance a plague culture, presumably pure, was mixed by some person with a watery suspension of cholera culture, also pure. The accident became possible by the nonobservance of two rules prescribed in the anticholera inoculation, namely, the contents of the culture should not have been mixed; and each tube immediately before being used should have been, apart from any other examination, submitted to an examination by the microscope. Under such circumstances a plague culture would never pass for one of cholera. The accident was of the same nature as would have followed a pharmacist mixing a poisonous substance while preparing a prescription. While using a strain for preventive inoculation in man of the cholera germ, prepared and maintained in the way in which this is done in India, instead of operating with that substance itself, they have in Manila adopted the plan of leaving it to digest in water and using the resulting soluble extract, which they are under the impression is free from the possibility of such misadventure as they have had with the vaccine. The same department of the Manila Institute which prepares the extraction of the cholera vaccine prepares soluble products of other microbes, such as the toxins of diphtheria and tetanus and probably solutions of snake venoms for the preparation of antivenene, etc. If these toxins and solutions are so kept as to permit of their being inadvertently mixed with one another, if before using them under such circumstances the inscriptions on the receptacles are not ascertained, and the physical difference of the contents is overlooked, the extraction from the cholera vaccine would still be liable to produce the same unfortunate results as before. It is not suggested for a moment, Haffkine says, that the above is the normal prevailing condition in the Manila laboratory, which has deservedly taken a place among the first-class institutions of its kind in the world. It is only noticed now, he says, to make clear that their accident has not been conditioned by the peculiarities of the anticholera vaccination method, as they believe it has.

Submucous Perineorraphy.—W. W. Babcock criticises the modern methods of perineorraphy and describes the technique which he has adopted since 1902. The principles on which it is based are the following: "First, no tissue is removed or extensive denudation made. Second, buried, absorbable, layer sutures are used exclusively, none of which penetrates the skin or mucous membrane. Third, the operation is done from the outside of the vagina, rendering the introduction of sutures easier and the exposure of tissues better than with those operations done from within the vagina. Fourth, each structure is sutured with precision under the guidance of the eye; there is no blind groping with the needle for tissues not seen and perhaps not felt. Fifth, each of the layers of the perineal floor—vaginal wall, submucosa, muscular supports, facial planes, and skin—are united seriatim, in layers after the plan of the better types of herniotomy. Sixth, the vagina is not separated from the rectum and therefore there is no danger of wounding the bowel." He claims for this method the advantages of restoring and increasing the length of the vagina instead of shortening its posterior wall; better supporting the anterior one; restoring the normal H-shaped section instead of destroying the lower lateral sulci; requiring no removal of sutures or use of foreign bodies like shot, and the avoiding of all seton action of fluid through sutures. The technique is described in detail, but does not lend itself to abstracting without reproducing the illustrations. All the sutures being buried and the layers bound together compactly, there are practically no dead spaces.

Treatment of Scoliosis.—A. Steindler remarks that while a number of good and practical corsets have been made which give approximately satisfactory results, it is somewhat difficult to meet the two most important requirements, the one of giving a reliable and uniform support to a deformed spine the position of which has been improved by mechanical or gymnastic treatment, and the other of exerting a correcting influence on certain parts of the body by means of the corset itself. In cases in which there is considerable shifting of the body to one side, for instance in which the lumbar part of the spine is primarily involved in the curvature, not enough hold may be gained for correction and the maintenance of the corrected portion. He has devised an apparatus which he describes here and illustrates. "The sideward shifting of the body will always result in a lifting of the pelvic belt of the corset from the iliac crest of the opposite side, unless its position there is otherwise secured. In order to obtain this advantage, and, on the other hand, to exert some correction on the costal prominence, I attached to the pelvic belt on the healthy side a thigh-piece connected with a hinge and embracing the leg by means of a padded ring right above the knee. On the side of the scoliosis a pad corresponding to the costal prominence articulates by means of a hinged steel piece with the pelvic belt, a similar pad being attached on the corresponding anterior costal prominence of the opposite side. On both pads a considerable amount of elastic pressure is secured by a couple of springs. It is easily to be seen that, if the attachment to the leg is given, bent decidedly outward, and then fastened closely above the knee, an opposite movement of the pad will result in bringing the sideward shifted body over the median line to the other side. Two uprights in the back on both sides of the spinous processes give the body rest and allow the shoulders to be pulled back by shoulder straps." The patients had been given mechanical treatment, gymnastic and otherwise, which was continued after the application of the apparatus. Steindler had to a great extent given up mere extension as a method of correcting curvature, because the extension of the spine thus obtained led to the formation of flail intervertebral joints and increased flabbiness of the spine. Similar results occur with the use of plaster casts and the discomfort which these cause is sometimes found to prove an insurmountable obstacle in a certain class of nervous and delicate patients. The principle of using the hip joint and the motion of the leg for correction of deformities of the body might prove useful in conditions other than lateral curvature.

The Lancet, May 8, 1909.

Bilharzia Hæmatobia and Circumcision.—J. F. Allen, who has practised for years in Natal, Africa, is convinced that in his territory the bilharzia is not taken into the stomach, but enters the body through the urethra while the patient is bathing. It may perhaps enter through the rectum and anus, and it may enter the lungs by the sniffing of infected water while the patient is bathing, although he has never seen such a case. There can be no doubt that the parasite does at times enter the stomach in drinking water, but it is destroyed by the gastric juice and does not penetrate the tissues of that organ. In the countries where it is prevalent its invasion is confined for the most part to those who acquired it when children, and it is almost altogether found among males. Those affected are almost always those who bathe in streams. If it were possible to divide the population into bathers and non-bathers it would be found that the latter escaped while the former were infected. The sex difference would be due apparently to the fact that boys are far less liable to use towels than are girls and bathe far more often in open streams. The nonuse of towels leads to the clinging of the parasite to those parts of the body, which facilitate invasion. The author enters at length into the question of the behavior of the parasite in the body, and advises circumcision as the best method of prevention of infection.

Sudden Death from Unsuspected Cardiac Lesion.—H. Galt's first case was that of a baker of 66 years admitted to hospital with anorexia and emaciation for eighteen months, epigastric pain and vomiting for ten months, and very recent swelling of the abdomen. There was a marked alcoholic history, and the urine contained albumin and casts. Autopsy showed the pericardium full of clot, brown atrophy of the myocardium, moderate hypertrophy of the left ventricle, mitral and tricuspid valves normal, dilated coronary arteries with free lumen, and, just above the right coronary, a tear one and a quarter inches long, no fatty or calcareous deposits, nephritis, and a soft carcinoma of the stomach. The blood from the right coronary had dissected the adventitia, and finally burst through it near the origin of the left coronary. The second patient was a storeman of 65 years, with alcoholic history, epigastric pain, and occasional attacks of vomiting (the vomitus containing a little blood). These symptoms had lasted two years. The man died in collapse a few hours after the onset of an attack of epigastric pain. Autopsy showed normal heart valves, aortic atheroma, thrombus in right auricular appendage, healthy myocardium externally, recent ecchymosis over the middle part of the left coronary artery surrounded by softened tissue, and a thrombus in this vessel which also showed advanced calcareous change. A rent was found over the interventricular septum. There was extensive necrosis of the myocardium, in the center of which was a large gaping orifice which led directly into the right ventricle, the opening being much larger on the left ventricular aspect. The pericardium was healthy, and there were no adhesions. There was a shallow ulcer in the stomach involving only the mucosa. Other organs were healthy.

A Simple Operation for the Complete Removal of the Tonsils.—G. F. Waugh describes a procedure he has followed in 900 cases. Immediately external to the internal surface of the anterior pillar, just where it blends with the surface of the tonsil, an incision is made with fine-toothed forceps parallel to and extending the whole length of the free margin of the pillar. The capsule of the tonsil is thus exposed, but it must not be penetrated. The tonsil is firmly grasped with ring forceps and the pillar drawn out with the fine-toothed forceps. The tonsil is then dislocated from it bed and a pair of smooth, blunt-ended scissors slipped behind it. The tonsillar vessels are thereby torn across and are able to retract within the muscular wall of the pharynx, and there is practically no bleeding. Average time required for removal of tonsils and adenoids is three minutes. Chloroform anesthesia is employed deep for a brief period, so as to abolish cough, which tends to increase the bleeding, and the blood may be easily drawn into the air passages. There have been in the author's large number of cases no sepsis or hemorrhages. He very aptly remarks that it is not the size of the tonsil which determines the necessity of operation, but its septicity, which may be very high in comparatively small organs. The danger of swallowing septic material from the mouth has not been sufficiently emphasized, and the author makes the practical point that no attempt should be made to remove tonsils until all carious teeth have been extracted or properly filled.

The Alcohol Injection Treatment of Neuralgia and Spasm.—W. Harris gives histories of several patients on whom he has operated by this method. He regards it as a certain relief for trigeminal neuralgia, and although recurrence of the pain is likely after an interval varying from four or five to eighteen months, it is perfectly simple to repeat the injection when necessary. The operation is preferable to the more formidable one of extirpating the Gasserian ganglion and should certainly be tried first. The method is practically one of resection of the nerve. The technical details are given in full. In addition to trigeminal neuralgia the method is of great service in controlling facial spasm and also other forms of neuralgia, such as postinfluenza supraorbital neuralgia, the facial pain of inoperable carcinoma of tongue or jaw, and in chronic sciatica. Tabetic neuralgia affecting the lower limbs and other causes of severe persistent neuralgia below the middorsal region may possibly be relieved by this method by injecting the spinal nerves at their point of emergence at the intervertebral foramina. These foramina the author has found it comparatively easy to reach for the lower dorsal, lumbar, and upper sacral roots.

British Medical Journal, May 8, 1909.

Spirochæta Pallida.—A. G. Coles discusses methods of examination and detection, especially by means of the dark ground illumination. The material may be taken from the primary sore, condylomata, and mucous patches, the indurated glands and the various eruptions, especially the papular and vesicular forms, more rarely the roseola. The various staining preparations are given, together with much information of a purely technical character. The author's conclusions are thus expressed. The easiest, quickest, and by far the most certain method of detecting the organism is in a serum cover glass by means of dark ground illumination. The taking of the material is the most important stage in the entire proceeding. It is not essential to examine fresh films (which have been surrounded with vaseline) at once, as the organism may be recognized some days later. The serum of irritation may be taken conveniently in capillary tubes or blood capsules provided the ends are sealed and cover glass preparations made from or at pleasure. A negative finding is, as regards the diagnosis of syphilis, of little value. The spirocheta fades somewhat in anilin stained preparations. A mounting medium in which the staining would persist is a thing greatly to be desired.

The Etiology of Beri-Beri.—H. H. Weir suggests that there develops on rice an epiphyte which develops a nerve toxin. The active principle of a certain fungoid on rice has been called arsin. The Chinese cook rice with the dust on it and suffer from beriberi, while the Koreans are very careful about washing their rice, rinsing it in several waters before they cook it. They do not have beriberi. The author therefore attaches much value to washing in removing this fungoid material, which, in his judgment, is the cause of the malady in question.

Treatment of Rheumatoid Arthritis by Cataphoresis.—W. F. Somerville surrounds the affected joint with a large pad of lint ten layers thick, and soaked in the particular solution to be used, and around this pad a metal gauze electrode is tightly bound to the limb and connected with the negative pole. By this means salicylic acid is introduced from a solution of solicylate of soda, iodin from potassium iodide and chlorine from sodium chlorate. The positive electrode laid on a large pad of lint soaked in an ordinary salt solution may be placed on another part of the body. The author testifies from personal experience to the value of this treatment in reducing swelling, alleviating pain, and lessening rigidity of the tendons in cases of rheumatoid arthritis.

Acute Addison's Disease.—The patient of A. F. Shoyer was seen on account of increasing weakness and anorexia of three weeks' duration. There was a history of chronic bladder and kidney trouble for five years. The urine was alkaline, and contained considerable mucopus, but apart from these facts the woman, aged 33 years, did not complain. On the second day of treatment she began to vomit and she grew weaker, being relieved temporarily by 5-grain doses of suprarenal extract, but she gradually sank, and died on the sixteenth day. Autopsy showed the kidneys in a condition of advanced tuberculosis. They were enlarged and riddled with pus cavities. Their capsules were studded with tubercles. The walls of the bladder were thickened and covered with mucous ulcers. The suprarenals were covered and permeated by miliary tubercles. Other organs were normal.

On the Use of Certain New Chemical Tests in the Diagnosis of General Paralysis and Tabes.—G. W. Ross

and E. Jones refer to recent studies on the behavior of the cerebrospinal fluid in the general paralysis of the insane. A preceding discovery of value was that lymphocytosis in the fluid was one of the most constant accompaniments of both general paralysis and tabes. A second discovery was that the fluid contains considerable quantities of protein in paresis and to a less extent in tabes. The third discovery was that of Wassermann that the fluid in paresis contained substances which, combined with the syphilitic virus, had the power of inhibiting hemolysis. Wassermann's interpretation of his own discovery has met with serious criticism, but its value as a certain sign of general paralysis is generally admitted. It is too complex for general clinical use. A later discovery is the increase in globulin in the fluid in general paralysis. Two methods of estimating this increase are referred to by the writers. The first is that described some months ago by Noguchi of New York and its features are set forth. The second is here published for the first time. Two c.c. of a saturated solution of ammonium sulphate are placed in a test tube and 1 c.c. of the cerebrospinal fluid is gently run on to the surface in the way done in the Heller cold acid test for albuminuria. The formation of a ring at the junction of the two fluids constitutes a positive reaction. The ring is thin, clear-cut, grayish white, and as thick as a thin piece of paper. It should form within three minutes, and in half an hour it may be observed that the surface of the ring shows a delicate mesh appearance resembling a fine cobweb. Indirect illumination must be used or it may escape detection. This is best accomplished by a black-lined box in which the test tube can be inserted and viewed at right angles to an electric bulb which is fixed in the box a few inches away. In applying the test it is essential to see, first, that the ammonium sulphate is pure so that the solution is neutral and not acid, and, second, that the solution is quite saturated, which is best insured by the use of heat in its manufacture.

Berliner klinische Wochenschrift, May 3, 1909.

Experimental Pulmonary Tuberculosis with Formation of Cavities.—Römer accepts the statement of Behring that pulmonary tuberculosis of adults occurs in the great majority of cases after a previous infection of the organism in infancy with tubercle bacilli. According to Behring, the so-called predisposition to tuberculosis is nothing but the existence of such a previous infection, which has produced certain changes in the tissues of the lungs, making them especially susceptible to the action of the bacilli. To clear up this point, Römer has studied experimentally the reaction of animals already suffering from tuberculosis to new infections with the bacilli. His earlier studies have shown that such animals show increased resistance to the new infection. The fact, then, that not all men become equally tuberculous on being exposed to almost universal presence of the bacilli, may be explained by the supposition of an earlier infection which has resulted in a partial immunity of some individuals. The opposite fact, that of the great frequency of pulmonary tuberculosis in human beings, Römer explains not by supposing an increased predisposition of the pulmonary tissues, but rather an increased resistance of other organs, leaving the lungs infected through the air to bear the brunt of the attack. Experimentally he has succeeded in producing typical pulmonary tuberculosis with formation of cavities in tuberculous guinea pigs by reinfecting them with large numbers of bacilli. The appearance of a pulmonary tuberculosis then is, according to Römer, a phenomenon of partial immunity; in the absence of such immunity acquired by light tuberculous infection in infancy, adults would more often show the picture seen in general tuberculosis of children and of laboratory animals not previously immunized.

Etiology of Yellow Fever.—Seidelin has had the opportunity of studying the blood of several patients suffering from yellow fever. He found numerous structures within the red cells which were apparently protozoan in character and which he considers as the excitants of the disease. They seemed to consist of a protoplasm taking the blue color in such a stain as that of Wright or Giemsa, and a centrosome that took the red stain. Most of the structures were ring-like in type. Seidelin excludes malarial parasites, malarial symptoms not being present in the patients he examined, quinine having no effect upon the disease, and pigment granules so often found in riper malarial organisms being absent from all types of the protozoa observed by him. The article is accompanied by pictures of the parasites.

French and Italian Journals.

Treatment of Hemoptysis by Galvanization of the Thorax.—P. Galante reminds us that at the positive galvanic pole an acid is formed, and at the negative a base. At the positive pole is formed a firm clot which organizes and becomes fibrous. This fact may be utilized in the treatment of pulmonary hemorrhage. The author gives two illustrative cases treated by himself. The effect on the hemorrhage is immediate and permanent. The technique is very simple. It requires only an ordinary portable apparatus of thirty cells, with a galvanometer. A large electrode of zinc covered with absorbant cotton and wet in sterilized water is applied over the anterior thoracic region, connected with the positive pole of the battery. The negative pole is placed on the back. The author used 15 to 50 milliampéres of current, for ten to twenty minutes. He concludes that positive galvanization of the thorax is a good remedy for cough, the respiration becoming freer and calmer, and the patient feels better. The irritating cough of tuberculosis is benefited. The blood in the sputum diminishes with the cough, and the sputum becomes loose and thinner. The treatment should be continued for some time.—*Annali de Elettricità Medica Terapia Fisica*, March-April, 1909.

The Use of Soap in Surgical Therapeutics.—L. Delrez describes the use of soap plasters and soap injections in the treatment of surgical tuberculosis. It is applied in form of a thick plaster underneath the immobilizing apparatus. No bad symptoms have ever been observed from this treatment. On the contrary the general condition improves rapidly. In case of tuberculosis of the soft parts or of bone fistulæ the same treatment may be used, after careful curettage of the fistula and hemostasis. The author has injected soap tinctures into softened inflammatory cavities without any bad effects. It causes pain and acts as a cauterant for a few moments, when all pain disappears. After from eight days to two weeks a new injection is made. Its action is not due to a marked bactericidal action, which it does not possess. At the same time it causes healthy repair of tissues. It does not prevent the union of a wound by first intention, but, on the contrary, facilitates it. After opening a tuberculous focus, curetting it, and removing the pyogenic membrane, it may be filled with soap solution, and we may suture the edges of the wound. Its action is to cauterize the entire surface that is tubercular, and destroy necrosis, and giant cells, but does not produce an acute inflammation. It acts directly on the tubercular tissue, destroys the pyogenic membrane, and increases the vital activity of the tissues.—*Archives Provinciales de Chirurgie*, February, 1909.

Electrization of the Stomach Studied with Radioscopy.—F. P. Sgobbo has made a study of the value of applications of electricity to the stomach, watching the picture as it appeared by radioscopic examinations made while the electric current was in action. He used faradism, galvanism, and static electricity, and applied them within the stomach, and outside on the abdomen. The experiments were made upon dogs. Of the three forms of electricity used, the faradic current was most effective in producing contractions of the stomach walls. Internal application gives no greater and even less effect than that of external applications, and they have the best effect when applied transversely or anteroposteriorly. The monopolar method is also effective. Contractions of the abdominal muscles or diaphragm produce no stomach contractions. Static electricity gave no good results. The galvanic current is somewhat less effective than faradism. Applications made directly over the stomach are less effective than transverse ones. The galvanic current should be interrupted or the poles changed, in order to get contractions of the stomach.—*Giornale di Elettricità Medica*, January-February, 1909.

Angina Pectoris and Its Treatment.—Marchiafava notes that angina pectoris is a more frequent malady than is generally supposed. In the light of his personal experience he treats of its etiology, symptomatology, course, pathogenesis, and treatment. The important part that the sclerosis of the coronary arteries plays in its causation is especially dwelt upon, above all the sclerosis of the descending branch of the left coronary artery. Aortic insufficiency frequently accompanies it. It is quite often of syphilitic origin. Rheumatism is another frequent cause of it, and a third is the use of tobacco to excess. As to pathogenesis, the most frequent element is arterial degeneration combined with relative ischemia of the myocardial area. In the treatment Marchiafava says that small doses of iodides are often of considerable value; he discusses at some length the advantages and disadvantages of nitrite of amyl and nitroglycerin. He has obtained excellent results from theobroma, of which he has made use for the past eight years.—*La Riforma Medica*, March 8, 1909.

Book Reviews.

Surgery of the Upper Abdomen. In two Volumes. By John Deaver, M.D., LL.D., Surgeon-in-Chief to the German Hospital, Philadelphia, and Astley Paston Cooper Ashhurst, M.D., Surgeon to the Out-Patient Department of the Episcopal Hospital, Philadelphia. Volume I, Surgery of the Stomach and Duodenum. With 76 illustrations. Philadelphia: P. Blakiston's Son & Co., 1909.

It is a matter of interest that the attention which was centered during the last decade on the surgery of the contents of the lower portion of the abdominal cavity, has gradually become transferred to the organs in the upper portion of the same cavity. The center of the stage has long been occupied by the appendix but this position is being steadily usurped by the liver and the pancreas. Many valuable original contributions to the knowledge of the subject have appeared in the journals and in special monographs and these publications have reached such numbers that the need for a review of this material in text-book form, is evident. The task has been undertaken and well done by Drs. Deaver and Ashhurst, than whom there are few men in America better fitted for this work. Their own contributions constitute an equally important element, as they themselves have had an extended experience in the operative treatment of the surgical diseases of the stomach and adjacent organs. It is intended to issue the work under consideration in two parts, the first of which is now at hand, and deals with the surgery of the stomach and duodenum. The second volume will take up that of the liver and bile passages, the pancreas and spleen.

The book is more than a review, the authors' personal opinions and practices are explicitly presented as well as their assent or dissent with those of the writers whom they mention. A feature of interest after the preliminary chapter on the anatomy of the stomach and duodenum, is another on the physiology of digestion in its practical application to the surgery of these organs. Gastric ulcer is the first lesion to be discussed and this is done in a very thorough manner. The writers do not look with favor upon persistence of medical treatment even in the simple hemorrhagic type where there is no imminent danger of perforation, and believe that gastro-jejunostomy is usually indicated and fulfills all the indications without subjecting the patient to undue risk. Excision of the ulcer is not advised except for undoubted malignancy. In perforation, abdominal section is urged at the earliest possible moment, not waiting for the subsidence of shock if present, for it has often been observed that this shock is apparently due to the presence of air in the cavity and when the latter is opened it almost immediately disappears. Drainage is advised invariably. The treatment of the section on malignant disease of the stomach is very complete and satisfactory. The authors agree with the opinion which is lately gaining ground that chronic gastric dyspepsia is the chief predisposing cause of cancer of the stomach. The remaining sections of the book are devoted to the discussion of the benign lesions of the stomach and duodenum, to miscellaneous affections, such as tuberculosis, syphilis, phlegmonous gastritis, etc., and to the technique of operations. The latter is a very important feature of the work. The methods in vogue at the German Hospital of Philadelphia are particularly described and we are glad to note among other things, that the patients are not allowed to get up out of bed until after the tenth day, in contrast to the idea of "early rising" so emphatically urged recently in other quarters. The well-tried operative procedures indicated for the various lesions are carefully described, together with personal comments based on the writers' clinical experiences. The text throughout is clear and concise and a feature worthy of comment is the use of only essential illustrations, which are diagrammatic and clear cut and serve to elucidate rather than burden the reading matter. They are, moreover, free from all artistic (?) embellishments such as we have become accustomed to see in recent medical publications. The appearance of the second volume of this work will be awaited with interest.

Medical Gynecology. By Samuel Wyllis Bandler, M.D., Fellow of the American Association of Obstetricians and Gynecologists; Adjunct Professor of Diseases of Women, New York Post Graduate Medical School and Hospital; Associate Attending Gynecologist to the Beth Israel Hospital, New York City. With original illustrations. Philadelphia and London: W. B. Saunders Company, 1908.

There has been no lack of books on gynecology during the last few years; most of them, however, deal with the subject, either chiefly or entirely, from the standpoint of the operating surgeon. But there are many conditions which can be treated by less radical measures, and the general practitioner (to say nothing of his patients) will gain much from this volume. Naturally it deals principally with the troubles that the family physician sees first, and which he will be glad to treat, and if possible save from the hands of the operating specialist. Thus such conditions as amenorrhea, dysmenorrhea, menopause, uterine hemorrhages, pruritus, gonorrhea, sterility, inflammations and constipation are discussed in detail, and are thoroughly well handled; and in spite of the title of the book, the author fairly and fully faces the fact that often operative measures are necessary, and in such cases he urges that the same be undertaken. The chapter on constipation is by Dr. Mannheimer, and is a very thorough and satisfactory exposition of the subject. There is much valuable material in the volume, particularly on diagnosis and treatment; unfortunately some of it suffers from poor arrangement, a few of the prescriptions are in need of critical revision, and the author uses the terms onanie and onanism when he means masturbation. But these are small points in a book which meets a distinct demand, which as a whole is exceedingly well done, and which is deserving of a hearty welcome from the general practitioner.

Introduction a l'Étude clinique et a la Pratique des Accouchements. Anatomie—Présentations et Positions—Mécanisme — Toucher — Manœuvres — Extraction du Siége—Version—Forceps. Principes fondamentaux d'Obstétrique, vérifiés, rectifiés ou établis a l'aide de l'expérimentation sur le mannequin naturel, et de l'observation sur la parturiente. Par le Professeur L. H. Farabeuf, et le Docteur Henri Varnier. Preface du Professeur A. Pinard. Dessins démonstratifs de L.-H. F., donnant avec les répétitions nécessaires 375 figures dont plusieurs nouvelles. Nouvelle edition revue et augmentée. Paris: Georges Steinheil, Editeur.

For many years this work has been out of print, hence the appearance of this new edition will be welcomed by those who have appreciated the earlier editions, as well as by many who will now form its acquaintance for the first time. It is not a complete textbook on obstetrics; only certain parts of the subject are dealt with, and these are sufficiently indicated on the title page. But what is does give is of the highest order of merit, and represents much original work on the part of the distinguished authors. They tell us that they experimented on dead bodies preserved in glycerin to keep them supple; and when possible on the dead bodies of eclamptic patients who were in labor. These they call their "natural mannekins." It will readily be seen that this book owes much of its well earned popularity to its origin in work in the classroom, in the laboratory, and at the bedside. The illustrations are quite the best we have seen, and many of them will be familiar to every reader, for the reason that they have been borrowed again and again by subsequent writers, "generally with acknowledgment of their origin, which is good, but not always, which is bad." There is no other work on lines similar to this one, and it would be difficult to say how it could be improved.

Manual of Operative Surgery. By John Fairbairn Binnie, A.M. C.M. (Aberdeen), Professor of Surgery, Kansas State University; Kansas City Fellow of the American Surgical Association; Membre de la Société Internationale de Chirurgie. Vol. I. Operations on the Head, Neck, Nerves, Trunk, Genito-Urinary System. Fourth edition, revised and enlarged, with 713 illustrations, a number of which are printed in colors. Philadelphia: P. Blackiston's Son & Co., 1909.

Although the chapters on orthopedic surgery and on the veins, contained in former editions, have been omitted from this, and although it still can be, as its author says, slipped into a coat pocket, the book is nevertheless larger by some two hundred pages than the first edition. The chief changes are in the chapters on the kidneys and on the nerves, the latter of which has been entirely rewritten and much enlarged. The various methods of nerve suture and of nerve anastomosis (sic) are described and illustrated in a most lucid manner, as are also the operations for Erb's palsy. Operations for stretching the peripheral nerves close the chapter. The chapter on renal surgery, while eminently practical, does not sacrifice clearness to brevity, and that on goiter has been much amplified and contains a résumé of recent writings on the subject. Many new illustrations have been added to this edition. It is an excellent book, and the fact that it has been through four editions since 1905 speaks well for its usefulness. It tells the reader not only what to do but how to do it

Society Reports.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twenty-fourth Annual Meeting, Held in Washington, D. C., May 11 and 12, 1909.

DR. VICTOR C. VAUGHAN OF ANN ARBOR, MICH., IN THE CHAIR.

Tuesday, May 11—First Day.

President's Address.—DR. VICTOR C. VAUGHAN of Ann Arbor, Mich., took for the subject of his address "The Physical Basis of Life." He said that it had frequently been stated that the cell was the unit of life. The cell might be regarded as a morphological form of life. When matter was endowed with life, it did not cease to be matter; in studying the organized cell of living things it should always be borne in mind that it might be peculiar in composition but was subjected to the fundamental laws regarding matter. It was the molecule, and not the cell, that was the unit of life; so long as the molecule was the seat of excretion and secretion, it lived. The one phenomenon about living matter, not a part of nonliving matter, was metabolism. Molecules were not stable. The physical function of living matter seemed to be the absorption of energy to be expended in kinetic or an active form. Life was a function; it was a molecular function. Molecules fed, regenerated, supplied themselves with energy and new material. After speaking of two kinds of metabolism which occurred, one throwing out small amounts of carbon and hydrogen, the other the nitrogenous metabolism in which urea was eliminated and replaced by fresh material, he called attention to the fact that all forms of life, even those in which there was no trace of any nervous tissue, behaved in a purposeful manner; they had apparently learned by experience to choose between what was good and what was bad for them. Dr. Vaughan said that they had heard much of late concerning the influence of the mind upon the body, and many who spoke upon this subject seemed to assume that there was some entity, called mind, which controlled the body, to which it was superior, and apart from which it might exist. This dualistic doctrine was as old as the philosophy of Plato. It always had been and remained to-day a dogma without scientific support, and as an hypothesis it had led to the discovery of no scientific fact. Every attempt to apply it to the treatment of disease had led to the development of conscious or unconscious charlatanism, and had resulted in more or less marked atavism. The term functional disease was now being used by those who knew but little concerning the functions of the body in either normal or abnormal states. It seemed to be inferred or assumed by those using this expression that a mysterious power had been given to some to set the mechanism of a disordered body aright, although those supposed to be possessed of this gift had no knowledge, or but imperfect and superficial acquaintance, with the functions of the various organs and their interrelations. In truth, they had no evidence of the existence of a functional disease as thus understood. In health the several organs of the body functioned harmoniously, and they knew of no disease in which they did not act inharmoniously. He said they might not always be able to find where the basic fault lay. But should they for this reason stop looking for it, shut their eyes, give over the search, and ask some individuals, quite ignorant of the body and its functions, to undertake the task of inducing harmonious activities? Of mind apart from the body they knew nothing. Of the brain as one of the correlated organs they knew nothing, and by continued and patient research they hoped to learn much more. They did know that the cell molecules of the brain were the most complex and the most susceptible to external influences of any of the structures that constituted that community of organs which made up the individual. Medical observation and study had shown that healthy cerebral function was to be found only when the activity of the brain was properly influenced by normal function of all the correlated organs. They knew equally well of the influence of the brain on the other organs of the body. They were fully aware of the fact that impulses might be started in the brain through any of the five senses that might favorably or unfavorably influence the activities of the correlated organs. And for centuries the medical profession had employed this physiological principle in the treatment of disease.

Three Unique Cases of Amaurotic Idiocy, with an Anatomical Study of One.—Drs. HARLOW BROOKS and HENRY WANDLESS of New York presented this communication. They gave a brief outline of the disease. It was generally fatal, the patients dying before the second year of life. The clinical aspects of the disease were briefly passed over. In the juvenile type of the disease, as described by Sachs, the onset began in about the sixteenth year and progressed much slower. With regard to the pathological anatomy, there was a tremendous regeneration of ganglionic cells; this one type of cell, the swollen ganglion cell, was seen in no other disease. Cell regeneration here was a very complex process. Among the theories regarding this disease was that it was toxic in origin; if that was so, how about so many cases occurring in one family, and why should there appear different types of the disease in the same family? Three unique cases were reported; they occurred in a family of seven children. The parents were living and well. The children were brought up in an absolutely irreproachable way. Until the disease appeared the children were as bright as others of their age. A brief report of these three cases followed, with a protocol and anatomical study of one case. The changes in the brain and spinal cord were precisely like those described by Sachs.

Dr. B. SACHS of New York said that the cases described by Dr. Brooks were a form of disease very closely allied to amaurotic family idiocy, and were on a line with the cases Volk had designated as the juvenile form of amaurotic family idiocy. Changes in the macula lutea were not present in the cases described by Dr. Brooks, and the cases were more rapidly progressive; yet the two forms were so closely allied that it was very hard to separate them. It was very interesting to compare the anatomical findings in the two groups of cases. Dr. Sachs now had a typical case of amaurotic family idiocy, of which he showed photographs and drawings. Especial interest was attached to this disease, not merely because it represented a clinical entity, but that it would possibly lead to further studies, especially in heredity. The changes in the ganglion cells and other pathological findings in the disease showed that there was a change in the entire gray matter of the central nervous system; there was not a normal ganglionic cell left in any part of the central nervous system. The changes in the cells were most marked, and represented a swollen cell body, an unusual swelling of the dendrites. The primary change was evidently one in the plasma of the cell body. There were two theories regarding this disease. One was that it was a congenital affair; the defect in the nervous system was such that the children were equipped only for certain and limited function: in other words, at the start in life they could perform their functions properly only for a number of months, and then these nerve elements would give out, or undergo degeneration. The other theory was that the disease was toxic in origin, but Dr. Sachs could not conceive of this form of disease being due to toxic causes and not to anything else.

Visceral Angioneuroses.—Dr. Solomon Solis Cohen of Philadelphia read this paper, which recalled attention to his previous communications on the subject of vasomotor ataxia. The condition was by no means rare, and was marked in certain families, especially in those exhibiting hereditary tendency to disorders of metabolism, gout, diabetes, etc. It existed in some persons without causing any inconvenience. When, however, disease of any kind or from any cause arose in such persons, their constitutional peculiarities modified the symptomatology. An incautious observer, or one who did not recognize the significance of the vasomotor phenomena, might easily be led astray. This was especially the case in maladies attended with hemorrhage, whether slight or profuse, with cardiac disturbance, with headache, with painful crises, or with serous discharges. The dependence of certain asthmatic paroxysms upon what might be termed bronchial urticaria was emphasized in the author's previous communications, and was well known before that. Less familiar were the angioneurotic edemas of the base of the tongue and of the larynx, which caused suffocative paroxysms and might threaten death. Still rarer in the literature and in practice was the recognition of angioneurotic conditions of the gastrointestinal tract, the liver, and the kidney. Certain uteroovarian symptoms might, by analogy, be ascribed to similar processes, and there was no reason for excluding any viscus or tissue supplied with vessels. Considerable doubt and difficulty arose when cerebral symptoms were manifested. Dr. Cohen had seen two cases in which operations for appendicitis had been performed by reason of painful abdominal crises of angioneurotic origin, and normal appendices had been found. The operation was nevertheless justifiable in both instances by reason of the doubt always attending the diagnosis of visceral angioneuroses. The evidence from morbid anatomy supporting the disagnosis of viscreal angioneurosis was, from the nature of the process, practically unattainable, except negatively in the rare instances of surgery and the still rarer instances which could be followed throughout life and after death. Organic disease or deformity might coexist with angioneurotic disorder, as exemplified by one of the author's cases, in which malposition of the kidney was responsible for some of the symptoms, and these, together with general nutrition, were relieved by successful operation. Furthermore, it was Dr. Cohen's conviction, from the cases observed over prolonged periods, that actual disease of the vessels (angiosclerosis) might eventually be set up, pseudoangina, for example, becoming veritable angina. A number of cases were seen in which Graves' syndrome developed under observation from a basis of slight vasomotor ataxia, and one in which an incomplete Raynaud's syndrome similarly developed. A notable case was one which began with uremic symptoms, including suppression, and in which the patient exhibited no evidence of nephritis, but had passed through and recovered from the full Graves' syndrome.

Dr. William Osler of Oxford University, England, said that the subject under discussion led to much theoretical consideration, and he had never seen much beyond what his eyes had seen. The association of angioneurotic edema with certain skin disease was of the greatest practical moment, as was it with lesions of the abdominal organs, particularly the stomach and intestines; here angioneurotic edema might occur with symptoms of nausea, vomiting, pain, etc., and changes might be found in the walls of the stomach or intestines, or both, which were the counterpart of those occurring in the skin. These were an interesting group of cases and might or might not be associated with skin lesions; in children such changes might appear years and years before the skin lesions occurred. It should be borne in mind that hemophilia might be associated with very severe attacks of angioneurotic edema. Another group of cases was associated with arteriosclerosis and spasm of the blood vessels. It was certain that these cases of "angina abdominalis" had symptoms like those of angina pectoris and were due to spasm of the visceral blood-vessels. There certainly seemed to be a great perplexity on this subject of angioneurotic edema, but there was too much theory about it.

Clinical Experiments with Homologous Vaccines.—Dr. W. Gilman Thompson of New York recorded some of his failures as well as successes with these experiments. There were four out of eight cases which recovered, and three of them were subjects of endocarditis. The dosage was between fifty and two hundred million, given at intervals of two, three, or four days. The effect upon the temperature and other phenomena was very striking, and he showed charts of one particularly interesting case of recovery from a streptococcus endocarditis, and also one of pyemia. In each case the streptococci appeared to have been driven from the blood by means of the vaccination. The cases of malignant endocarditis of streptococcus origin and of pyemia were treated by the Wright method. In conclusion, Dr. Thompson referred to the importance of proper technique and the possibility of cure in some cases and of amelioration in others.

Dr. Blumer of New Haven, Conn., called attention to the fact that perhaps streptococcus infections were not so serious as they were imagined to be, and on more than one occasion he had been able to obtain streptococci from the circulating blood in individuals who were very ill, and before the days of vaccine therapy, and they got well spontaneously. In the last two years he saw a man who presented the typical signs of a malignant endocarditis get well, although he had remaining a valvular lesion. While vaccines in these cases might have something to do with the recovery of the patients, he believed they should be more conservative in their interpretation until the cases were numerically larger than they were at present, and had been more thoroughly investigated.

A Study of Achylia Gastrica.—Dr. Charles G. Stockton of Buffalo gave an analysis of 132 cases he had studied—62 males and 70 females, with ages running from 21 to 72 years, there being but five cases under 30 and but one over 70. There were 44 occupations of different natures, showing that apparently this had no bearing upon this disease. The previous histories were not as completely recorded as he wished they had been, but 25 per cent. of this number had complained of long-continued stomach trouble, 14 per cent. of some mental strain and worry, and 10 per cent. had had typhoid fever; 10 per cent. had had pneumonia; 30 per cent. had marked eye strain. In 23 cases there had been pernicious anemia, and in 8 arteriosclerosis. Anemia was a very frequent complaint. Diarrhea usually followed a condition of constipation. Occasionally the stomach would empty itself before the test meal could be utilized; there seemed to be some unusual motor activity. Albuminuria was present in 23 cases, something that was quite remarkable. Vomiting occurred in 20 cases, nausea in 10, and pain in 19. There was gastrointestinal distress in 30 cases. There was a very profound mental attitude in those patients who knew they were sufferers from this condition. The general symptoms were rather vague; there was headache, fatigue, disturbed sleep, loss of weight, and they complained about their intestines and liver. There was general weakness and depression in 33 cases, loss of weight in 24, arteriosclerosis in 24. Dr. Stockton closed his remarks with a discussion of the gastric chemistry.

Dr. Theodore C. Janeway of New York said that an examination of the stomach histologically after death was attended by difficulties which could never be remedied in the future, because of the post mortem degeneration which

occurred before the autopsies were obtained; therefore they could not hope to obtain any accurate information regarding the mucous membrane of this organ. Pernicious anemia was associated especially with those persistent types of diarrhea, and a number of persons, especially those coming from Cuba and South America, on careful examination, would be found to have achylia gastrica, and these were the cases that would readily respond to the administration of hydrochloric acid and pepsin after meals. The condition seemed in these patients to be due to a lack of stimulation of secretion formation. The cases associated with pernicious anemia and diarrhea seemed to give a little hint at therapeusis.

Chronic Cholecystitis as a Cause of Myocardial Incompetence, with Reports of Illustrative Cases.—Dr. Robert H. Babcock of Chicago gave a brief discussion of the frequency and symptomatology of gall-bladder disease, as this latter bore upon cases of the kind under consideration. Thirteen cases were considered, and they were divided into four groups: (1) Those displaying pronounced myocardial inadequacy, with dilatation and murmurs; (2) cases with pain, either of an anginal character or mistaken for angina, together with dilatation and incompetence; (3) cases showing persistent intermittence of the pulse or irregularity without marked symptoms of inadequacy and relieved by operation; (4) cases of valvular disease, in which compensation was destroyed and recovery prevented by attacks of hepatic colic or allied symptoms. Ten of the thirteen cases were operated upon, three resulting fatally. In four of the cases, as the result of operation, a very marked and gratifying improvement in the cardiac condition was noted. There seemed to be some predisposing factor in some diseases of the myocardium. He insisted upon the necessity of an early diagnosis of gall-bladder disease and the wisdom of operating to prevent loss of myocardial inadequacy. Operations in such cases were less serious, even in cases of myocardial inadequacy, than temporizing and leaving the patients unoperated upon. His concluding remarks were upon the possible mechanism of the effects on the heart and the literature of the subject, so far as this had been ascertained.

Dr. Edward G. Janeway of New York said that, no doubt, all present had seen cases of heart weakness in which there was some inflammation of the gall-bladder, or gallstones, or hepatic colic, but their cases had not been brought together in such a way that the question could be asked, how far the irritation of the gall-bladder, etc., and the weakness that was induced brought about myocardial incompetency. He believed that too often they were afraid to advise operation because of the heart condition, and it was surprising how the heart would stand operations if they were done without a general anesthetic: operations should be quickly done, and under local anesthesia in such cases, and it was remarkable how the heart would stand them.

Locomotor Ataxia and Paralysis Agitans in the Same Patient.—Dr. Augustus A. Eshner of Philadelphia said that locomotor ataxia and paralysis agitans had little or nothing in common—etiologically, anatomicopathologically, or symptomatologically. Their associated occurrence in a given patient must, therefore, be looked upon as a mere coincidence. While by no means rare, neither disease was common, and their association was correspondingly infrequent. Only a small number of cases had been placed on record in which both diseases had been present in the same patient. In Dr. Eshner's case, which occurred in an elderly man, the symptoms of paralysis agitans were observed while the patient was under treatment for locomotor ataxia, although members of his family had noted some shaking of the hands for many years.

Further Observations on the Third Heart Sound.—Dr. William S. Thayer of Baltimore reported the results of examinations on 231 normal individuals; 65 per cent. showed the characteristic third heart sound, a sound he had described at the last meeting of the association. In the first three decades of life this sound was heard as a rule, and it was caused by a slight tension of the mitral valve associated with the first inrush of the blood from the auricle. It was not *per se* an abnormal condition.

Dr. James L. Wilson of Philadelphia said he had heard the sound described, but that it was normal had never occurred to him.

Normal Auscultatory Differences Between the Sides of the Chest: (a) At the Bases Behind; (b) in the Lateral Recumbent Position.—Dr. Richard C. Cabot of Boston examined 250 chests that, so far as he could find out, were normal, and in 64 per cent. there were differences between the two bases: at the left base behind the breathing in 64 per cent. of the cases was harsher, rougher, and slightly louder than at the other base. All of them knew that for a long time it was believed to be unwise to examine patients when in the lateral recumbent position, because it was supposed to modify the sounds. Because of a difference of opinion on this point he asked his colleagues what the difference was, but they were unable to tell him. In fifty chests examined they seemed to be practically identical in regard to this point. Lying upon the side seemed to diminish the excussion of that side of the chest.

Orthodiagraphy in the Study of the Heart and of the Great Vessels.—Drs. Thomas A. Claytor and Walter H. Merrill of Washington described this method for demonstrating the exact size and position of the heart and great vessels, and charts were presented showing the size and location of the hearts of forty-two males and fifty-four females, showing the effects of bodily positions upon the location of the heart, showing a comparison of the percussion boundaries of the heart and those obtained by the orthodiagraph, and showing the heart in diseased conditions.

Dr. L. A. Conner of New York said that percussion of the right side of the heart was very satisfactory in its results and would correspond with the orthodiagraphic findings, provided the percussion was made heavily, with the finger pressed deeply and during deep inspiration.

Dr. Francis H. Williams of Boston said they should not deceive themselves into believing that any special method of percussion was going to give an accurate outline of the heart in all cases, although it might do so in a certain proportion of the cases.

Sensitization in Tuberculosis.—Dr. V. C. Vaughan, Jr., of Detroit discussed the nature of sensitization, the phenomena of general sensitization, local sensitization and its significance, and the possible value of the split products of the tubercle bacillus in the treatment of pulmonary tuberculosis.. The ophthalmic reaction which resulted from the instillation of tuberculin into the eye, if it was a positive reaction at the first instance, was a valuable and confirmatory evidence regarding the existence of tuberculosis; failure of the reaction, however, was of no value in diagnosis. By means of chemical agents, Vaughan had been able to split tubercle bacilli into poisonous and nonpoisonous portions; that was, he had been able to remove the poisonous group from the protein of the tubercle bacillus, and attempts had been made to ascertain what would be the result if the patients suffering from tuberculosis were treated with the nontoxic tubercle protein. Whether this protein was the same as would be obtained from tuberculin with the poisonous group removed was a question he was unable to answer, for they were not sure of the real nature of tuberculin. If the nontoxic portion of the tubercle bacillus had any thera-

peutic value, the action would be against the bacillus itself. What Dr. Vaughan offered was in the nature of a preliminary report.

Some Studies with the Cutaneous Tuberculin Test.—Dr. Lawrason Brown of Saranac Lake, N. Y., made this preliminary report and offered the following conclusions: (1) Much work must be done with the cutaneous test. (2) The test should not be pronounced negative until at least four, or, better, seven, days have elapsed. (3) The old tuberculin should be used, and a 25 per cent. solution was probably as effective as stronger solutions, but if the test was negative with a 25 per cent. solution, the full strength should be used for the second inoculation. (4) Failure to react to the cutaneous test did not absolutely exclude reaction to the subcutaneous test, nor did reaction to the cutaneous indicate that reaction to the subcutaneous test would always occur. (5) The degree of severity of the reactions to the cutaneous and subcutaneous tests did not go hand in hand. (6) It was difficult at present to judge of the prognosis from the cutaneous test. (7) Some sera, especially those from patients treated with higher doses of tuberculin, or from animals with higher agglutinative powers, when mixed with weak dilutions of tuberculin, tended to retard the cutaneous test.

Observations on the Cutaneous Tuberculin Reaction.—Drs. George Dock and Randolf Lyons of New Orleans reported a series of cases which indicated that the reaction was not present in as large a proportion of adults as might be imagined from the large number of adults with latent foci; the reaction could be obtained in many plainly tuberculous cases in a striking manner, but not so well or not at all in some others; the importance of gaining a wider knowledge of the reaction by carefully conducted tests with standard tuberculin before the results could be used with success in general practice was emphasized.

Types of Tubercle Bacilli Found in Human Tuberculosis.—Dr. William H. Park of New York said that he decided to take up and study consecutively a large number of cases of tuberculosis, testing with the usual culture material on rabbits and a few cats. There were 17 cases, two hospitals in New York City furnishing 8 apiece; in 12 cases human type was found, and in 5 cases the bovine type. In 8 cases from the Babies' Hospital only one showed the bovine type. In 10 cases of tuberculous meningitis in infants all were due to the human type; autopsy was performed on 5, and in all a general tuberculosis, well developed, was found. In these cases with the meninges markedly involved the human type of infection was probable. Dr. Park wished to report two histories, one of bovine and the other of human general tuberculosis, showing how much alike they were, but time would not permit. In two cases of bovine infection of the peritoneum, one mild case recovered after operation; the other, a severe case, died after operation. In 29 cases the lymphoid glands were examined; in 9 there was found the bovine type of infection. The bovine type of infection, as a rule, occurred earlier in life than the human. In his series there were only 5 cases of infection of joints and bones, and all were of the human type. In pulmonary tuberculosis there were 220 cases, and all were of the human type. In conclusion, he said that in children there occurred a considerable number of cases of bovine tuberculosis, whereas adults were seldom infected with the bovine type.

The Effect of the Ingestion of Dead Tubercle Bacilli.—Drs. M. J. Rosenau and John F. Anderson of Washington made this preliminary report of their work. The feeding of dead bacilli to guinea pigs did not alter their susceptibility to tuberculosis. It seemed to have no evident effect upon the subsequent course of the disease. It was not safe to conclude from this, however, that the ingestion of dead bacilli under all circumstances was harmless, though this was perhaps indicated. None of the 100 guinea pigs fed with dead bacilli lost weight during the sixty days this process continued. It was also evident that if a guinea pig was given a sufficient amount it might be infected by ingestion, for all animals, with one exception, became infected. In one instance the lesions of ingestion tuberculosis were all above the diaphragm. They hoped to be able to present more knowledge on this subject when their experiments were completed.

Dr. William H. Welch of Baltimore believed that Dr. Park's contribution was of great importance, especially in regard to the large number of cases of pulmonary tuberculosis in which no bovine bacilli were found; this confirmed Koch's well known contention. He asked Dr. Park if all these cases occurred in adults.

Dr. Park replied that there were but four cases between the ages of ten and sixteen.

Dr. Welch said that cases of pulmonary phthisis in the young were uncommon, but that they did occur.

Dr. Solomon Solis Cohen of Philadelphia thought a very important point was the fact that they might be enabled to determine what the minimum dose of tuberculin was. Formerly he had been afraid to use this test, but recently he had been using it in cases of pulmonary tuberculosis with good results, but not always with recoveries.

Dr. A. Jacobi of New York described the method he used, following the teachings of von Pirquet. He used only a very small part of a drop; one drop furnished material to suffice for twenty or twenty-five vaccinations. After scarifying, he inoculated, and placed on a shield. The patients were never allowed to go without the shield; even when they reacted, the shield was left on four or five days before thrown away.

(To be continued.)

THE PRACTITIONERS' SOCIETY OF NEW YORK.

231st Regular Meeting, held Friday, February 5, 1909.

Dr. E. G. Janeway in the Chair.

Pulsating Tumor of the Forehead.—Dr. Walter B. James again demonstrated the patient shown by him at a previous meeting of the Practitioners' Society. The case was that of a young man who presented a curious pulsating swelling upon the forehead, the swelling being supplied by several vessels, one of them probably continuous with vessels within the cranial cavity. The young man's life had been made miserable by the symptoms produced by the swelling, consisting of headache, vertigo, roaring in the ears, etc. Dr. James said that he has turned the patient over to Dr. Robert Abbe for operation since the last meeting of the society. Dr. Abbe ligated the two temporal vessels that were supplying the tumor, and then tied the pulsating mass by means of several ligatures. The result of this was that the humming sound heard over the mass disappeared; the tumor itself diminished in size very markedly, and, finally, the symptoms complained of by the patient were relieved completely. Indeed, the latter said that he has felt better since the operation than ever before since the beginning of the growth upon his forehead.

Radium in the Treatment of Tumors.—Dr. Robert Abbe showed a patient suffering from a mixed tumor of the parotid gland. He began treating the patient one month ago by making incisions into the tumor and slipping a tube of radium into the wound thus made. The tumor has decreased to one-fifth of its former size as a consequence of this procedure, and the speaker hoped that the cure may be accomplished with persevering in the use of the radium, as had apparently been done in the man recently shown,

who remains well after two years. The second case was that of a girl suffering from a sarcoma of the jaw of two years' standing. The tumor was very large, filling out the mouth and completely occupying the place normally taken up by the tongue. The tumor was of the spidle-celled variety, and this fact made it especially interesting in connection with the treatment of tumors by means of radium. Dr. Abbe has found that giant-celled tumors are favorably affected by being exposed to the action of radium, while sarcomata composed of cells of other varieties are much more difficult to treat in this fashion. He promised to show the patient at a future meeting of the society, after radium treatment has been carried out for some time. Even at the present moment, after a very brief duration of treatment, favorable changes could be noted. The tumor tissue had grown much firmer since treatment was begun, though previously it consisted of a very soft mass such as rapidly growing tumors usually showed. Now it seemed to have begun to ossify. The next case was that of a young girl who presented on auscultation at the root of the neck a curious humming sound, to interpret which was quite difficult. It suggested the possibility of an aneurism, yet a very similar bruit could be heard in cases of goiter, with very much dilated vessels supplying the thyroid gland. Another case was likewise shown in whom the same sound could be heard on auscultation, and the reason for the production of the sound in this instance was the probable existence of an arteriovenous communication in the vessels of the neck. Still another patient, suffering from an exophthalmic goiter, presented a like feature, such humming sound being, of course, quite frequently observed in cases of this disease. Finally, Dr. Abbe showed still another patient who was suffering from a large pulsating goiter. This patient was seen three years previously by Dr. Walter B. James, who sent him to Baltimore for operation. The operation was begun, but not carried out, because the growth, after being exposed, appeared to have a character quite different from a simple pulsating goiter. It seemed, namely, that the growth had all the microscopic appearances of a malignant tumor. A small piece was removed for microscopical examination. The specimen obtained was examined by a pathologist, who pronounced it to be an adenocarcinoma arising in an old goiter. This operation was performed in December, 1905. Since then the tumor has gradually increased in size, and now presented a typical pulsating mass. Over this tumor a humming sound such as was present in previous patients could also be heard. The speaker had been treating this growth with radium, using for the purpose open gold cages, into which the radium tube could be introduced. A cylindrical punch was devised by him, by means of which a piece of tissue could be punched out just large enough to admit the radium tube with its case. This method of using radium, the insertion method, was original with Dr. Abbe, and bade fair to become an important addition to the technique of its use, for with it the action of the salt could be tried on deep portions of tumors. Dr. Abbe expected to show the patient again at some future meeting. Three cylinders of this dense goiter had been carefully studied by Dr. F. C. Wood at St. Luke's Hospital, and, though taken from central parts of the growth, showed only hypertrophic thyroid tissue, which corroborated the clinical evidence that its long existence spoke against the probability of a malignant character.

Dr. James thought that the sound heard over the vessels of the neck in the girl patient presented by Dr. Abbe was a *bruit de diable*, which is quite a common physical sign in young girls suffering from anemia. It had a systolic exacerbation, however, which made it more similar to the aneurysmal bruit than is usually the case. The sound could be stopped by compressing the jugular vein low in the neck. Further proof of the nature of the sound was given by the increase in its intensity with inspiration, a phenomenon easily explained by the effects of deep inspiration upon the venous circulation in the veins of the thorax and neck.

Dr. E. G. Janeway agreed with Dr. James in calling the sound a *bruit de diable* produced in the veins.

Remarks on and Cases Illustrative of the Etiology of Pain.—Dr. E. G. Janeway read this paper. (See page 917.)

Dr. G. L. Peabody said that the paper read by Dr. Janeway called to his mind many instances of sudden death following attacks of pain of apparently innocent character. Frequently, too, though pain had existed before any serious features of the case developed, the history of it was not communicated to the physician. He vividly remembered the case of a well known physician who dropped dead while walking on a New York street. The autopsy showed only a moderate lesion in the coronary arteries, and as the family of the dead man could not recall any complaints of pain the diagnosis of angina pectoris, which of course suggested itself, could not be made. Only later Dr. Peabody happened to talk to a servant of the dead man and was told that the latter had often suffered from attacks of pain which were accompanied by profuse perspiration, dyspnea, etc. The servant was, however, enjoined not to mention anything of these attacks to the other members of the household. Dr. Peabody said that the coronary lesions in this case were very slight, yet proved fatal; he had seen before and since many hearts showing much more extensive lesions of the coronary arteries, yet no history of angina pectoris could be obtained in many of these cases. Not only, therefore, can the clinical picture lead to undervaluation of the severity of a case, but even the findings at the autopsy do not allow a certain diagnosis to be made of the character of the symptoms during the life of the patient. Dr. Janeway's paper was welcome, as it called attention to the necessity of care in basing absolute conclusions on such a deceptive symptom as pain.

Dr. Bryant said that the warning contained in Dr. Janeway's paper in regard to the danger of making light of the complaint of pain when no physical signs are present is very timely. Yet one must not forget the other side of the question and take care not to put too much faith in the statements of the patients and their subjective complaints. He was once called in a case as a consultant, another surgeon having advised amputation of the thigh because of severe pain in the knee of long duration, which no remedies could control. The physical changes in the knee were, however, so slight, and even uncertain, that Dr. Bryant refused absolutely to concur in the advice of the other surgeon, and the amputation was not done. The patient continued to have the same symptoms for some time, but finally was completely relieved by simple measures. Dr. Bryant had no doubt that most of the symptoms in this case were due to a coexistent hysteria, and not to any serious joint disease. Of course, just the opposite turn of affairs happens in other instances; he remembered one patient who complained of sudden obstinate pain in the instep. He was treated for rheumatism, little attention being paid to the changes in the physical signs about the involved area. The development of gangrene, involving much of the foot, soon showed, however, that the case was not that of rheumatism, and an early amputation of the toe could have saved the patient's foot.

Dr. Starr said that one variety of pain was not mentioned in Dr. Janeway's paper, and he would like to call attention to it because of the frequency with which surgical operations are performed for its relief. He had in mind the pain felt in the tip of the spine, the socalled coccydynia, which is frequently met with in nervous women. Dr. Starr was sure that hysteria had much more to do with this pain than any lesions of the coccyx. Surgical interference was certainly not called for in the great majority

of cases; indeed, if any operation was performed the usual consequence was that the symptoms returned as soon as the early psychic effects of the operation were gone. Dr Starr would warn practitioners against advising operation in these cases except in very rare instances, when anatomical changes could be surely demonstrated. Most of the patients of this type belong to the class of neurotic women whose nervous system must be strengthened by proper treatment.

Ulcer of the Stomach Cured by Simple Medication and Diet.—Dr. Beverley Robinson said that last summer he saw a lady affected with ulcer of the stomach. She had had very good expert advice, but was no better. Dr. Robinson counseled her as to diet, which was already careful and judicious, and gave her medicinally milk of bismuth (hydrate and subcarbonate of bismuth suspended in water) and lactic acid bacillus tablets. The result of treatment could be appreciated after listening to her husband's letter to Dr. Robinson on November 24, 1908, from which the following extract was read: "Unquestionably, the last bacilline tablets have been most efficacious; the disagreeable symptoms of her case, from which she has suffered for years without relief, have almost completely disappeared. She seldom has now acute attacks, and these are invariably relieved by the bismuth preparation," etc. "Under the advice of her physician, Dr. G., she is drinking daily much prepared milk with the tablets." On December 15, 1908, the husband wrote: "You will be gratified to know that she is enjoying good health." On December 31, 1908, the husband wrote: "Her health steadily improves, life is a joy to her, and we all pour benedictions on your head." Dr. Robinson then read the following extract from a letter received from Dr. L. H. Neuman of Albany, N. Y., on December 30, 1908, in regard to the foregoing case: "An examination of the stomach contents showed a marked hyperchlorhydria, with some blood and considerable epithelial desquamation. There was considerable localized tenderness and muscular spasm over the epigastrium. I looked upon the condition as one of chronic ulcer." A second case reported by Dr. Robinson was that of a single woman, thirty-three years of age, who did general housework. She had been treated with milk of bismuth. The result was shown in a letter of December 14, 1908, of which the following was an extract: "Since beginning to take the treatment I felt myself getting better each day. I have continued to take the treatment, as you told me, and have felt very well until the last few days, when I could not get the medicine. If I do not take it I feel somewhat bad. So far as I can remember, I took sick early in June, 1908. I was taken with a fainting spell, and afterward vomited up over a quart of blood at once, in very large chunks, so to speak, but that was all. I do not eat very much, as my appetite seems to be satisfied with the arrowroot, gelatine, etc. I must say I feel like a new person." Dr. Robinson said that these two cases appeared to him worthy of mention. He had seen and treated a great many cases of ulcer of the stomach, but failed to recall any two in which he had had such satisfactory results, apparently, as those which he reported this evening. He had come to the conclusion, in view of many cases of different kinds seen and treated by him, that milk of bismuth was the best bismuth preparation; further, that it was serviceable in more instances of gastrointestinal disturbances (dyspepsia, diarrhea, dysentery, etc.) than any other remedy with which he was familiar.

Specimen from a Case of Diabetes.—Dr. Kinnicutt presented a portion of the large intestine and sections of the pancreas from the same individual. He said that the clinical history was of a patient, male, forty-three years, afflicted with diabetes for a doubtful period; the urine eighteen months previously was known to have contained 5 per cent. of sugar. He was admitted to the speaker's wards in the Presbyterian Hospital, suffering from diabetes, a perforating ulcer of the right foot, chronic nephritis, uremia, and chronic endocarditis. Lumbar punctures for the relief of the uremic symptoms recovered 150 c.c. of sterile cerebrospinal fluid under 235 mm. pressure, with marked relief of the uremic symptoms for a number of days. The urine gradually became sugar free, and continued so for a month previous to death. The perforating ulcer completely healed. During the last nine days of life there were signs of an acute colitis—very numerous stools of blood and mucus. The specimens were of interest in the almost complete obliteration of the islands of Langerhans, the pancreatic tissue otherwise showing little change; in the extent and acuteness of the colitis, which of a less severe grade was often seen in the terminal stages of nephritis, and in the presence of the staphylococcus aureus in addition to the colon bacillus. The organisms had penetrated even into the musculature of the intestine. The lesion of the submucosa in many places somewhat resembled that seen in phlegmonous gastritis. Finally, the lesion of the thyroid was of interest, in view of recent investigations and theories upon the functional interrelation of glands with internal secretion. In the present instance a definite lesion of the thyroid, although not extensive, existed as well as an advanced organic disease of the pancreas—pancreatic diabetes. The following was the laboratory report by Dr. Cecil:

Thyroid Gland.—Normal in size and consistency. Cut surface is pinkish red and gelatinous. Microscopic sections show a number of alveoli enlarged and filled with colloid material. These are separated by a large number of smaller alveoli, very irregular in outline and lined with cuboidal epithelium. The mucosa in these smaller alveoli is often thrown up into folds and their lumina are generally free from colloid material. The picture is that of a thyroid hyperplasia.

Pancreas.—Small and atrophic, weighing only 70 grams; 21 cm. in length. Body is 1½ cm. in thickness and 2½ cm. in breadth. The organ is of firm consistency, with small but distinct lobules. The islands of Langerhans are invisible. Microscopically, there is a slight increase in the interacinar connective tissue in some places. The arterial walls are thickened and hyaline. The glandular acini appear normal. The islands of Langerhans are numerous. Only a few of them present a normal appearance. The great majority have been almost completely converted into a structureless hyaline material, which takes a bright pink eosin stain. As a rule, the insular cells have been entirely replaced by the hyaline deposit; those which remain are compressed and atrophic.

Colon.—The wall of the large intestine from cecum to anus is considerably thickened. On opening the gut the mucosa presents a remarkable appearance. The mucosa is absent in many places. That which remains is a deep violet red, and stands out in marked contrast with the pale yellow ulcerated patches. The ulcers are generally shallow, with slightly elevated, irregular borders and rough, necrotic looking bases. Dark, reddish black haemorrhages are often found along the edges of the ulcers, beneath the mucosa. The ulcers vary in size from that of a pin head to several cm. in diameter. They are largest and most numerous in the descending colon and sigmoid flexure, but occur in all parts of the large intestine. There is considerable oedema and hyperplasia of the submucous tissue, a condition which often causes the ulcers to protrude above the surrounding mucosa. Microscopically, sections from the colon show partial absence of the mucosa. At these points the submucosa and part of the muscularis are necrotic. The necrotic tissue and the parts surrounding it are densely infiltrated with polymorphonuclear and lymphoid cells. Bunches of staphylococci occur in large numbers in the inflamed tissue. The muscularis and serosa are thickened. Smears from the ulcers show cocci and Gram negative

bacilli. Blood agar plates were inoculated with macerated mucosa and grown aerobically and anaerobically. *Staphylococcus aureus* and *Bacillus coli* were the only pathogenic organisms recovered.

THE AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-fourth Annual Meeting, Celebrating the Centennial of McDowell's Operation, held in New York City, April 20, 21, and 22, 1909.

THE PRESIDENT, DR. J. RIDDLE GOFFE, IN THE CHAIR.

(*Concluded from page 910.*)

A Method of Obtaining More Accurate Knowledge of the Exact Areas of Pain Complained of by Patients Afflicted with Visceral Disease.—Dr. PHILANDER A. HARRIS of Paterson, N. J., said that when a patient complained of pain she was at once asked by the nurse to indicate the exact area of pain, and also to point to the center or point of most severe pain. The nurse then marked the outer boundaries, as well as the center or centers of pain complained of, employing therefor a definite code. All markings were maintained on the body until they were transferred by the doctor to the history book or sheets. The nurse in entering upon her notes descriptions of pains thus avoided the necessity of reference to anatomical regions. He gave a description of the marking code. He presented a copy of the standing instructions to nurses for the prosecution of this work, and showed photographs from life of patients thus marked.

Further Reasons for Examining and Removing the Appendix Before Closing the Abdomen.—Dr. A. LAPTHORN SMITH of Montreal said that (1) abdominal section had now a very low death rate. The few deaths which occurred were due to something going wrong, the cause for which had not always been discovered, even after the abdomen had been reopened. He believed that this unknown cause was in many instances a chronic appendicitis, which either suddenly became acute or which caused obstruction of the disabled intestine by adhesions. (2) The death rate from puerperal sepsis was now very small, and the few deaths which took place could not always be attributed to infection by the doctor, nurse, or even by the patient herself. The author gave instances to prove that the abdomen should be opened and appendix examined in every serious case, as he believed that many supposed deaths from puerperal sepsis were really due to perforated or gangrenous appendix. (3) The removal of this dangerous and useless organ, when it could be done without adding materially to the danger of the laparotomy, would insure the patient against a serious risk at a subsequent confinement.

Ovarian Tumors Complicating Pregnancy, Labor, and the Puerperium.—Dr. HERBERT R. SPENCER of London, England, reported 41 cases of these tumors. The youngest patient was 20, the oldest 43, the average 30. As to the result of ovariotomy to the mothers, all the patients recovered, except one, who died of intestinal obstruction caused by adhesion of a coil of intestine to the pedicle. The treatment of ovarian tumors complicating pregnancy, labor, and the puerperium had been by some writers considered too much from a surgical standpoint. The obstetric aspect was not less important and in some cases was the dominant factor. Among the 15 cases which he had personally treated during pregnancy there were 3 cases of contracted pelvis which necessitated induction of premature labor in 2, and would have done so in the third had the patient not aborted. During the first half of pregnancy, ovarian tumors should be removed wherever their situation and whatever their size. As to the exceptions, the following tumors should not usually be removed: (1) Lutein cysts complicating hydatidiform mole. (2) Bilateral tumors causing no symptoms, if the patient was childless, or, if operated on, part of an ovary should be left behind. (3) Primary adherent malignant cysts. (4) Secondary malignant cysts. During the second half of pregnancy all large ovarian tumors and ruptured, inflamed, and strangulated tumors should be immediately removed. During labor the best treatment was abdominal ovariotomy, immediate in the case of large tumors, at the end of the first stage or after delivery in the case of small tumors. In the puerperium, ovarian tumors should be removed as soon as practicable, when possible within twenty-four hours of delivery. If there was doubt as to the aseptic condition of the uterus, a delay of a week or two might be advisable, unless indications of strangulation or infection of the tumor arose, when the tumor should be immediately removed.

Ovarian Tumor with Twisted Pedicle Complicating Pregnancy.—Dr. EDWARD P. DAVIS of Philadelphia reported a case of ovarian tumor with twisted pedicle in a Polish woman, married, pregnant for the third time. His study of the subject led him to the belief that but one course of treament was justifiable in cases of ovarian tumor with twisted pedicle complicating pregnancy, namely, removal as soon as the diagnosis of the condition could be made; or as soon as indications of this condition were present. The complication of twisted pedicle was so serious as to demand immediate operation. If an exact diagnosis before operation was impossible, the condition which simulated twisted pedicle in themselves demanded operation. In the absence of an exact diagnosis, the obstetrician should operate in the interest of the patient.

Ephraim McDowell, the Father of Ovariotomy.—Dr. J. RIDDLE GOFFE of New York selected this as the title of his Presidential Address. He gave a complete and valuable historical sketch of McDowell and his operation, and closed his address in the following words: "A hundred years—a century—have rolled by since that day, and yet the luster of McDowell's achievement has grown steadily brighter to the present time. It was a fertile seed which, planted in appropriate soil, has risen to a mighty tree. It has manifold branches and has borne abundant fruit. McDowell did not live to see his operation adopted as a recognized surgical procedure, but he did have the satisfaction of knowing that Dr. Johnson, the editor of the *Medico-Chirurgical Review*, who declared in 1825 that he did not believe the operation had ever been done successfully and probably never would, the following year published in the same journal a recantation, in which he said: 'A back settlement of America—Kentucky—has beaten the Mother Country, nay, Europe itself, with all the boasted surgeons thereof, in the fearful and formidable operation of gastrotomy, with extraction of diseased ovaries. In the second volume of this series we adverted to the cases of McDowell of Kentucky, published by Lizars of Edinburgh, and expressed ourselves as skeptical respecting their authenticity. Dr. Coates, however, has now given us much more cause to wonder at the success of Dr. McDowell, for it appears out of five cases operated on in Kentucky by McDowell, four recovered after the operation, and only one died. There were circumstances in the narrative of the first three cases that caused misgivings in our minds, for which uncharitableness we ask pardon of God and Dr. McDowell of Danville.'" A broad and searching examination of all the claims put forward by aspirants or their friends to the honor of antedating McDowell has proved them, one and all, entirely groundless. The wide dissemination of the facts upon which this decision rests, and the ripening influence of time have brought the members of the professional world into accord upon this subject, so that I think I am safe in saying that in this centennial year, McDowell is universally recognized throughout the world as the originator of the operation and entitled to be pro-

claimed the Father of Ovariotomy. McDowell was born November 11, 1771, and died January 25, 1830, in the 59th year of his age.

"Peace be to his ashes and glory be to his name."

The next order was a symposium on Anesthesia.

The Nurse as an Anesthetist.—Dr. J. Montgomery Baldy of Philadelphia said that a perfect solution of the problem of giving anesthetics would be a medical man of a high grade of intelligence, with a well-grounded medical and surgical education, as especial education in anesthetics, supplemented by a natural inclination in this direction as against any other. Are the attractions of anesthesia sufficient to overcome the disadvantages of the scientific narrowness and lack of opportunity for distinction and income to hold a sufficient number of men of this type, or even of great worth, in this field? The answer seemed apparent. Possibly the future might increase the number, but at present they were so scarce as to be readily counted. The great city of Philadelphia did not, to his knowledge, contain one. Personally, his own inclination, governed largely by the means at hand, and by past experience, lay in the direction of women as anesthetists—in other words, trained nurses. The education of the trained nurse lay largely along medical and surgical lines, and she had, therefore, unless we excepted the woman physician, a sounder basis than had other women on which to begin. Of this latter class, the women physicians, he could readily see that some would and will be available for the service, but in most instances many of the most serious objections obtained in their case as did in the case of men physicians. To the nurse, anesthesia would prove a stepping-stone to something better than she had originally chosen, a higher and more dignified position, and would appeal in its own way to her ambition and pride just as did the superintendency of a training school.

Administration of Anesthetics.—Dr. Herman J. Boldt of New York read this paper (see p. 931).

Anesthetics in Hospitals and Private Practice.—Dr. James T. Gwathmey of New York said the administration of anesthetics as a specialty was recognized in only a few of the larger cities of America to-day. So intense had been the interest in surgery that anesthetics had been used only as a means to an end, and this fully explained the attitude of the profession on this subject in America at the present time. The advancement in anesthetics in England had been rapid. In the light of recent discoveries no surgeon was justified in adopting some one anesthetic and method of administration exclusively. There were four general anesthetics in common use, and there were three methods of administration. These anesthetics and methods were mentioned. The mixture of nitrous oxide gas and oxygen was the only non-poisonous anesthetic available to-day. Unfortunately, it was considered by men of large experience adapted to only about 30 per cent. of the surgical cases that came to us, namely, weak, anemic men and middle-aged women. These patients should have the benefit of this anesthetic whenever possible. Nitrous oxide gas and oxygen, supplemented by ether, could be used in at least 60 per cent. of all cases. Nitrous oxide gas and oxygen could and should be used as a preliminary to ether in at least 80 per cent. of the surgical cases. Oxygen administered with warm chloroform, by either the closed or open method, doubled its value as regarded life, and given in this way it was as safe as ether and air. Ethylchloride was used principally as a preliminary anesthetic or for very short operations, and while not so safe, generally speaking, as nitrous oxide gas, was sometimes safer in certain selected cases. The problem to-day was not the matter of life and death upon the table, but what methods and combinations would give the best results and leave the patient just as we found him. To do this, the anesthetist should be responsible with the surgeon for the preliminary medication, to quiet the nerves of the patient, in addition to the usual routine procedure. He should also be informed and consulted if the patient was nauseated after the operation. In the vast majority of cases we now had no nausea or vomiting, but we should not be satisfied until we could assure all patients that they would come out of the anesthetic in an absolutely quiet and natural state.

The Proper and Improper Methods of Administration of General Anesthetics.—Dr. S. C. Gordon of Portland, Maine, read a paper on this subject, in which he said that the first and most important point to be observed in the administration of an anesthetic was a proper preparation of the patient, both physical and mental. The dread of the anesthetic was oftentimes much greater than that of the operation, and much might be done to prevent this. Second, there was usually too much haste in its administration, and too large a quantity was used. Inhalers were very faulty in construction. The simplest was always the best. The drop method of administration was the true one. The cover of the mask should be porous and allow the transmission of air through it during respiration. Third, careful attention should be paid on the part of the anesthetist, who should have an acquaintance with ordinary, normal condition of pulse and respiration—a medical man or trained nurse preferred.

Renal Excretion During the Administration of Chloroform and Ether in Gynecological Surgical Operations.—Dr. J. Wesley Bovée of Washington, D. C., read a paper with this title, in which he summarized as follows: (1) From the study of sixteen cases it would appear that the rate of excretion of urine was markedly lessened under anesthesia produced by ether or by chloroform. (2) That such diminution was greater from chloroform than from ether. (3) That while chloroform produced a diminution in urea output, this continued to maintain a nearly normal proportion to urinary excretion, while ether produced a greater proportionate lessening of urea than of the urine. (4) That these two anesthetics, when carefully and skilfully administered, had little effect on the production of casts and albumin in the urine, inducing it in some, stopping it in others, and in others either not producing it or not materially modifying such production. (5) The Trendelenburg position greatly retarded the rapidity of urinary output.

The Advisability of Making the Practical Administration of Anesthetics a Required Part of the Medical Course.—Dr. Reuben Peterson of Ann Arbor, Mich., read a paper on this subject, saying that the necessity of such instruction was shown by the experience of the past There was inconsistency in requiring proficiency in the so-called scientific branches of medicine, while the student was allowed to graduate without having given an anesthetic. It was feasible to establish such a course as a part of the already overcrowded curriculum. This could be done by the proper utilization of much time now wasted in unsystematic teaching. The whole question of the proper administration of general anesthetics in hospitals and in general practice was dependent upon the scientific teaching of the subject to undergraduates.

The Trained or the Untrained Anesthetist.—Dr. Hunter Robb of Cleveland, Ohio, tentatively proposed the following suggestions: (1) That a skilled anesthetist, holding an appointment in the medical school as one of the faculty, and in the hospital as one of the staff, be appointed at a proper salary to teach and demonstrate the administration of anesthetics, and to administer them personally to the private patients and to those in the general wards who were in a debilitated condition. (2) That in connection with a carefully prepared course of lectures on anesthetics and their physiological action, each student should be required to administer anesthetics to dogs or other animals a certain number of times. (3) That the lecturer

next take the students the rounds of the operating rooms and point out to them the details in connection with the service, and the points to observe in giving an anesthetic to the human being. (4) That each student should be detailed to give the anesthetic at a certain number of operations under the guidance and criticism of the instructor, or one of his more advanced students. In this way we could be assured that all of them would have at least a fair amount of general experience. (5) That the senior instead of the junior interne be detailed to administer the anesthetic, as he would have had the opportunity of following and also of assisting in the administration of the anesthetic in a considerable number of cases by the time he had reached the position of senior assistant.

Dr. Robert L. Dickinson of Brooklyn, N. Y., detailed his experience with visiting anesthetists in some Brooklyn hospitals.

Improved Methods of Obtaining Anesthesia in Hospital Practice.—Dr. J. Clarence Webster of Chicago said that the routine administration of ether, as practiced in America, was to be condemned because of unpleasant or dangerous sequelæ. His method consisted in administering nitrous oxide gas with oxygen (2 per cent.) until the patient was unconscious, then ether until complete anesthesia was obtained. The latter was then abandoned, and the operation was performed under the influence of the nitrous oxide gas and oxygen mixture. This might or might not be followed by pure oxygen for twenty minutes. This method meant greater safety and fewer unpleasant or serious after-results. Local anesthesia should also have a more important place in practice, and should supersede general anesthesia in certain cases.

Conservatism in Surgery of the Pelvic Organs.—Dr. Herman J. Boldt of New York said that the exsection of a part of an ovary, the seat of small cystic degeneration, or the puncturing of the small cysts, did not deserve the name of conservative surgery, because the small cystic degeneration was without significance. Plastic surgery on suppurating Fallopian tubes was considered as bad surgical judgment rather than as conservative surgery, because the patients upon whom such a procedure was undertaken were not cured by it. The removal of a pedunculated subperitoneal myoma should not be considered conservative. It was only a commonsense procedure. Good judgment must be used in interstitial multiple myomata, and in multiple subperitoneal myomata, if the latter had attained to more than four or five centimeters in diameter. To retain the uterus in such cases was conservative surgery. It was also conservative surgery to retain the whole or a part of the uterus in cases of an abscess in the uterus. A case of the latter class was related, in which about one-third of the uterus had been removed and the woman subsequently conceived and was delivered at term. In cases of ovarian tumors at attempt should always be made to regain functionating ovarian stroma from the base of the tumor. In all cases of doubtful character of the tumor a frozen section of it should be made, if possible, by the pathologist of the hospital, and his report on the character of the tumor be obtained before the abdomen was closed. The operation had been done 45 times in cases of bilateral tumors during the past twenty years, and, with one exception, there had been no occasion to regret the procedure. The menstrual function had been retained in all patients; some had conceived and were delivered at term.

Remote Results of Ovariotomy.—Professor Hofmeier of Würzburg, Germany, read this paper, in which he said that in Group I (retention cysts, fibroids, dermoids, pseudomucin-cystoma, carcinoma), with the exception of carcinoma, ovariotomy in all sorts of tumors of this group gave excellent results. The danger of secondary affection of the other ovary did not exist. The danger of a later spontaneous (idiopathic) affection was very slight. Therefore, the removal of the one diseased ovary would be sufficient. With reference to the slight possibility of secondary implantations of the pseudomucin-cystomata, special precaution during the operation was required. If there was a suspicion of carcinomatous degeneration of the removed tumor, the removal of the other ovary, which seemed to be healthy, was not absolutely necessary in younger women. In case of illness, as shown by microscopical examination, relapse would surely follow in spite of the removal. In case it was healthy, a cure was possible by leaving it. In every single case, younger women or their nearest relations should be consulted and notice of their wishes should be taken. Operation should be attempted in all cases where removal of the ovary or ovaries seemed to be possible. The resection of a beginning growth of the second ovary was allowed only in cases of retention cysts, fibroids, or dermoids. Of pseudomucin-cystomata it was only allowed if the patient was ready to risk a second operation later; it was absolutely forbidden in case of carcinoma. In Group II (comprising cystoma serosum papillare, pseudomyxoma, sarcoma, teratoma) complete cure was possible, especially for papillomata and pseudomyxomata, even when bilaterally developed; also for unilateral sarcoma and teratoma. If on thorough microscopic examination the second ovary seemed to be healthy, it might be left, as the removal of both ovaries was very detrimental to the general health of younger women, and as the danger of a spontaneous attack of the second ovary was not very great. The state of the ovary, however, must necessarily be controlled for several years. If both ovaries were diseased, they must be completely removed with the uterus. Resection of such a tumor from the ovary was not allowable.

Surgical Treatment of Dysmenorrhea and Sterility in Women.—Professor Samuel Pozzi of Paris, France, read a paper on this subject, describing in great detail an operation for the relief of dysmenorrhea and the cure of sterility, in which thus far he had not experience a single failure. After this operation cervical metritis due to stenosis rapidly disappeared, as did also leucorrhea. As regarded sterility, in more than 25 per cent. of his cases pregnancy followed the operation, the women going to term without any accident, and their labors were normal. Rigidity of the cervix was not to be feared, for there was no cicatricial tissue, as there was after some amputations of the cervix.

Postoperative Peritoneal Adhesions.—Dr. George Gellhorn of St. Louis, Mo., read a paper on this subject, detailing experimental studies of post-operative peritoneal adhesions. In summing up his experimental studies on the subject and trying to utilize them for practical purposes, he suggested that the multitude of causes of post-operative adhesions would also necessitate a multitude of preventive measures, and that, therefore, the following precautions should be considered, either wholly or in part: (1) All prophylactic measures mentioned in connection with primary adhesions. (2) Bier's hyperemia in the form of dry heat. (3) Hypodermic injection of fibrolysin or thiosinamin. (4) Drainage with the liquor of aluminum acetata after certain vaginal operations. (5) Prompt provocation of peristalsis by hypodermic injection of physostigmin, together with improvement of the passive mobility of the intestines by means of mucilage. (6) Interposition of lanolin, provided further experiments will prove its harmlessness to the human organism and efficacy as to the prevention of adhesions.

Significance of Peritoneal Adhesions Following Operations.—Dr. Henry T. Byford of Chicago said that operations which led to the production of adhesions were either imperfectly or improperly performed. Extensive adhesions following poorly performed operations sometimes caused more suffering than was felt before. He illustrated this by cases from his records, which showed

that serious conditions were some times due to post-operative adhesions of limited extent, and might be relieved by their separation. Also that the mere separation of adhesions about diseased organs might lend to a cure of the symptoms, and that when the original causes of the adhesions were removed, the secondary adhesions that followed a properly performed operation were less extensive and less permanent. When post-operative adhesions were intestinal in character, muscular exercise and intestinal activity tended to relieve them without the aid of operation. Omental adhesion caused less immediate trouble, but the omentum had not the power of separating itself as had the small intestines. They acted by interfering with the functions of the organs to which the omentum was attached, and by dragging upon the stomach and colon, causing or perpetuating gastroptosis and dilatation of the stomach. The prevention of these post-operative adhesions was not to be attained by any one procedure or remedial agent, but by a properly executed technique.

Intestinal and Omental Adhesions.—Dr. John G. Clark of Philadelphia discussed the anatomical and pathological factors concerned in the promotion of adhesions, and described some hitherto overlooked points in the technique which led to this sequel. He likewise spoke of the frequency of post-operative adhesions and discussed their treatment.

Dr. Henry C. Coe of New York compared the present with the former after-results of laparotomy. Of seventy to seventy-five patients who recovered from the operation in preaseptic days, many were practically invalids for life, due to imperfect technique. Complications that are now rare were then common. Examples were given. The reasons were unskilful manipulation, infection, the use of large silk ligatures, glass drains, bad after-treatment, etc. The etiology and pathology of omental and intestinal adhesions were discussed by him. He said that opposed raw surfaces were more likely to adhere. Gauze packing and early movement of the bowels did not prevent it. There might be a localized traumatic peritonitis, as in simple cases of interval appendicitis, etc. Medical treatment was of no avail in marked cases. It was necessary to reopen the abdomen, separate the adhesions, and cover the raw surfaces in such a manner that the adhesions would not reform. Although humiliating to abdominal surgeons to admit it, up to this time they had had no certain means of preventing the formation of adhesions in complicated cases. The introduction of foreign bodies, films, powders, etc., was foreign to the spirit of modern surgery. Early purgation was not always a prophylactic measure, and was often harmful. We could not obtain healthy peritoneal flaps when there were extensive raw surfaces. The future method of prevention of adhesions still remains to be devised.

Dr. J. Clarence Webster of Chicago spoke of adhesions following abdominal sections. He alluded to the faults in technique which were likely to injure the peritoneum and then lead to adhesions. In dividing the tissues with a knife or scissors, the operator should take care to bury the raw surfaces. The same procedure was demanded where adherent structures were separated, and although it was impossible to carry this out perfectly in all cases, various maneuvers may be employed, in many instances calculated to improve the condition of the parts. These were described in detail.

Ileus.—Dr. William H. Wathen of Louisville said that for post-operative ileus we should substitute post operative paralytic intestinal obstruction, partial or complete, temporary or permanent. The partial or complete post-operative obstruction in the gastrointestinal tract might be either primarily paralytic or mechanical, which, if not operated on promptly, was followed by a loss of motility, and then the symptoms were often so nearly identical that a differential diagnosis could not be made. The paralytic form might be caused: (1) By violent inhibitory impulses transmitted to the muscle walls of the intestines from the central nervous system by the splanchnic nerves through the sympathetics; (2) by the destruction or impairment of the neurogenic energy and the myogenic force in the walls of the intestines upon which motility and peristalsis depended, resulting from the poisonous action of bacterial enzymes from the intestines or the peritoneal cavity upon the nerves or muscles in the bowel walls, or from traumatism; (3) by the combined action of the central inhibitory splanchnic impulses, with impairment or destruction of the neurogenic energy and myogenic force in the intestines caused by bacterial poisons or traumatism. Reference was made to the researches upon the gastrointestinal tract bearing upon its anatomy, physiology, motility, and bacteriology. Where intestinal mechanical obstruction could be timely recognized, an immediate operation should be advised and sometimes resection of the injured bowel. Rapid work in these operations was very essential, and as little traumatism as possible to the intestines or the mesentery. In some instances enterotomy should be advised, and in others enterostomy. No foods or liquid should be given by the stomach, but stomach lavage should be frequently repeated where the bowel contents have regurgitated into the stomach and not easily vomited. The patient should be placed in the semi-sitting or sitting posture and the tissues of the body supplied with water by the rectum after the fashion advised by Murphy. In some instances relatively large enemata, to which might be added a little alum or some carminative might be used, but not repeated too often, and the bowel never over-distended. This might empty the colon, thereby removing colonic obstruction to the flow of the contents of the small bowel. Paralytic intestinal obstruction was now relatively infrequent when compared with the results of work in the past. This was due to a better preparation of patients, to a better technique, more rapid operation, more gentle handling of the intestines, and a better asepsis. Drainage should not be used where it could be avoided, but when necessary one should use the rubber split or fenestrated tube, and never use gauze except to control the dangerous oozing of blood or to isolate an infected area. Preventive treatment was more important than the post-operative.

Dr. Howard A. Kelly of Baltimore discussed the mental disturbances following abdominal sections, the nature of them, their frequency, the kinds of operations that they followed, the prognosis, and the treatment.

Dr. John Osborne Polak of Brooklyn, New York, said that acute dilatation of the stomach as a post-operative complication occurred eight times in one thousand abdominal sections. There were two deaths in patients with low hemoglobin percentages and low red-cell counts. All patients were operated on under general anesthesia. Six had had septic processes before operation. One had previous gastroptosis. Vomiting began from twenty-four to fifty hours after operation. There was diffuse abdominal pain and thirst, with continuous and persistent regurgitant vomiting, without peritoneal irritation, which enabled one to make the diagnosis. The treatment consisted of lavage, starvation, the right lateroprone position, with Murphy irrigation and nutrient enemata.

Ureteral Fistulæ as Sequelæ of Pelvic Operations.—Dr. John A. Sampson of Albany, N. Y., discussed certain important anatomical features of the ureters from the standpoint of ureteral fistulæ. In the first place, he spoke of their relation to the other pelvic structures, especially to the parietal peritoneum and to the uterus. He referred to the pelvic conditions in the operative treatment of which there was danger of injuring the ureter, as, for instance, extreme lateral displacement of the cervix; masses adherent to the parietal peritoneum covering the ureter; in-

traligamentary tumors; inflammatory exudates in the base of the broad ligament; tumors lateral to the ureter; cancer of the uterine cervix. He also discussed the various injuries to the ureter which might result in fistulæ, such as clamping, ligation, incision, failure of repair, and interference with blood supply.

The Pathology of Ovarian Tumors.—Dr. THOMAS S. CULLEN of Baltimore discussed under this head retention cysts, cystic ovaries, multilocular ovarian cysts, papillocystomata, carcinomata, dermoid tumors, and teratomata developing in the ovary.

The Influence of Corsets and High-Heeled Shoes on the Symptoms of Pelvic and Static Disorders.—Drs. EDWARD REYNOLDS and ROBERT W. LOVETT of Boston said that this was a preliminary report from the clinical and gynecological point of view only of some of the results of experimental observations which had extended over about three and a half years upon the general subject of the influence of attitude and proportion upon abdominal and skeletal disorders. There was a large portion of the clinical field in which the cases were either suffering from both static (orthopedic) and pelvic lesions due to a common cause, or present symptoms which might be due to either and demanded a differential diagnosis. Balance in the erect posture was a subject very difficult of investigation. The keynote to its comprehension was to be found by studying the relation of the center of gravity to the several portions of the skeleton. Certain types of figure tended to be free from ptoses and static ailments. Certain other types were inherently liable to them. The stable types of figure are but little affected by the varying types of corsets and shoes. The unstable types were greatly affected for good or evil by these articles of dress. In corsets there were types which were always productive of evil, and types which were sometimes thoroughly desirable and productive of good. From a gynecological point of view Drs. Reynolds and Lovett contended, further, it was very necessary to take into consideration the effect of shoes in connection with that of corsets. The authors exhibited a number of photographs and also presented several full-sized graphic studies made from living models under different conditions, intended to illustrate the different points brought out in their paper.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. Edward P. Davis, of Philadelphia; *First Vice-President,* Dr. Seth C. Gordon, of Portland, Me.; *Second Vice-President,* Dr. Edward Reynolds, of Boston; *Secretary,* Dr. LeRoy Brown, of New York; *Treasurer,* Dr. H. Wesley Bovée, of Washington, D. C. Washington, D. C., was selected as the place of next meeting, which will be held at the same time with the other societies constituting the Congress of American Physicians and Surgeons, 1910.

The Banquet.—The notable and culminating feature of this meeting, which was one of the most successful in the history of the society, was the dinner in commemoration of the first ovariotomy by Dr. Ephraim McDowell, given at the Waldorf-Astoria by the New York and Brooklyn Fellows on Thursday evening, April 22. Dr. J. Riddle Goffe acted as toastmaster. The toasts and speakers were: "Ephraim McDowell, the First Ovariotomist," by Dr. Lewis S. McMurtry of Louisville, Ky.; "Mrs. Crawford, a Type of American Womanhood," by Dr. Edward P. Davis of Philadelphia; "McDowell's Successors in America," by Dr. Howard A. Kelly of Baltimore; "McDowell's Successors in the British Empire," by Dr. Herbert R. Spencer of London, England; "McDowell's Successors in France," by Professor Samuel Pozzi of Paris, France; "McDowell's Successors in Germany," by Professor Hofmeier of Würzburg, Germany. Dr. E. C. Dudley of Chicago exhibited lantern slides, showing the home of McDowell, Mrs. Crawford before and after operation, etc.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending May 22, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	678	195
Diphtheria	355	20
Measles	1,365	12
Scarlet Fever	335	19
Smallpox	..	..
Varicella	226	..
Typhoid Fever	48	7
Whooping Cough	105	12
Cerebrospinal Meningitis	12	8
Malarial Fever	..	..
Totals	3,124	273

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending May 21, 1909:

			CASES.	DEATHS.
SMALLPOX—UNITED STATES.				
California, Sacramento	May	1–8	5	..
Illinois, Alton	Apr.	1–30	2	..
Danville	May	2–9	15	..
Chicago	May	1–8	1	..
Galesburg	May	1–8	1	..
Peoria	Apr.	1–30	44	..
Springfield	Apr.	30–May 7	3	..
Indiana, Indianapolis	May	2–9	1	..
South Bend	May	1–8	1	..
Iowa, Council Bluffs	May	3–10	1	..
Kansas, Kansas City	May	1–8	3	..
Wichita	May	1–8	2	..
Kentucky, Lexington	May	1–8	1	..
Newport	May	1–8	2	..
Michigan, Saginaw	May	1–8	7	..
Minnesota, Duluth	Apr.	30–May 6	2	..
Missouri, Kansas City	Apr.	17–May 8	10	..
St. Joseph	Mar.	27–Apr. 3	1	..
St. Louis	May	1–8	1	..
Montana, Butte	Apr.	20–May 4	7	..
Great Falls	Apr.	24–May 1	1	..
New Jersey, Camden	May	1–8	2	..
Trenton	May	1–8	..	1
New York, Little Falls	Apr.	24–May 8	2	..
Ohio, Ashtabula	Apr.	17–May 8	2	..
Cincinnati	Apr.	30–May 6	9	..
Columbus	May	1–8	1	..
Tennessee, Nashville	May	1–8	1	..
Virginia, Richmond	Apr.	30–May 1	1	..
Washington, Spokane	Apr.	30–May 1	4	..
Wisconsin, La Crosse	May	1–8	1	..
SMALLPOX—INSULAR.				
Philippine Islands, Manila	Mar.	27–Apr. 3	3	1
SMALLPOX—FOREIGN.				
Canada, Halifax	Apr.	24–May 1	1	..
Yarmouth	May	1–8	1	..
Ceylon, Colombo	Feb.	13–March 27	37	8
China, Amoy	Mar.	27–Apr. 3	..	Present
Canton	Mar.	20–27	20	..
Egypt, Cairo	Mar.	25–Apr. 8	28	10
Gibraltar	Mar.	26–May 2	1	..
India, Bombay	Apr.	6	..	15
Calcutta	Mar.	26–Apr. 3	..	281
Rangoon	Mar.	26–Apr. 3	..	14
Italy, General	Apr.	18–25	9	..
Naples	Apr.	18–25	13	1
Java, Batavia	Mar.	20–Apr. 3	7	2
Manchuria, Dalny	Apr.	3–10	5	1
Mexico, Chihuahua	Apr.	18–May 2	4	..
Monterey	Apr.	25–May 2	..	16
Portugal, Lisbon	Apr.	18–May 8	..	..
Russia, Batoom	Mar.	1–31	2	..
Moscow	Apr.	10–17	28	13
Odessa	Apr.	3–17	23	2
Riga	Apr.	18–31	2	..
St. Petersburg	Mar.	27–Apr. 10	46	11
Warsaw	Feb.	13–20	..	2
Siam, Bangkok	Feb.	1–28	111	72
Spain, Barcelona	Apr.	19–26	..	5
Valencia	Apr.	17–24	10	..
Straits Settlements, Singapore	Mar.	20–27	..	1
YELLOW FEVER.				
Barbados	Apr.	25–May 1	4	..
Brazil, Para	Apr.	10–17	6	6
Ecuador, Guayquil	Mar.	20–Apr. 3	72	34
CHOLERA—INSULAR.				
Philippine Islands, Provinces	Mar.	25–Apr. 3	177	32
CHOLERA—FOREIGN.				
India, Bombay	Apr.	6–13	..	97
Calcutta	Mar.	26–Apr. 3	..	129
Rangoon	Mar.	26–Apr. 3	..	8
Russia, St. Petersburg	Apr.	22–28	12	1
PLAGUE.				
Arabia, Mascat	Apr.	14	1	1 Imp.
Australia, New Castle	Mar.	1–31	1	Imported
Sydney	Mar.	6–12	4	1
Chile, Antofagasta	Apr.	7	10	..
Inquique	Apr.	8	17	..
China, Amoy	Mar.	27–Apr. 3	..	Present
Chang Chew	Mar.	27–Apr. 3	..	Epidemic

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Original Articles.

ALCOHOL INJECTIONS IN NEURALGIAS, ESPECIALLY IN TIC DOULOUREUX.*

By O. KILIANI, M.D.,

NEW YORK.

In marked cases of trifacial neuralgia, the clinical picture is self-evident. Whoever has seen any of the frightful attacks of pain will never forget the impression. But, in cases where the pain is more or less constant, and not of a spasmodic type, the diagnosis rests entirely upon the anamnesis. There is nothing to be seen, there is nothing to be felt, and the only basis for diagnosis is the history given by the patient. Occasionally mistakes, therefore, are not excluded, as most neuralgia patients are of a more or less highly developed neurotic constitution. The differential diagnosis between neuralgia and hysteria is not always very easy.

No definite pathological changes have been found in the nerves or their sheaths affected by neuralgia; or, at least, no constant changes, which could be accepted as pathognomonic of this ailment—for one can hardly call it a disease. A number of equal ingenious theories have been advanced by different authors, in the attempt to explain how these pains occur, but, so far as I am able to discover in the literature on this subject, none has been universally accepted. I, myself, with my comparatively large experience in these cases, am not at all prepared to suggest any theoretical explanation, but hope to be able at some future time to either give you the ideas of Professor Schloesser or my own, if the experiments of either of us shall result in definite conclusions.

Under these circumstances it is easy to understand that the etiology of this trouble is equally unknown. Nearly every sickness and constitutional disease, from a cold to syphilis, have been accused as being possible factors in producing neuralgia. All sorts of local irritation, as periostitis of the teeth, diseases of the antrum, and so forth, have been regarded as contributing factors.

Whenever there is no specific treatment for a disease, the remedies are always galore. So here. None, or all of the remedies known for treating nervous conditions, help. A certain improvement is possible with any treatment. But the well-defined cases of neuralgia resist all medical treatment, except the application of morphine, and the time comes when even that, taken up to the amount of 50 grains per day, subcutaneously, will no longer stop the pain. We all know the different operations which have been practised during the last years, in cases where medical treatment failed: Thiersch's tearing out of the nerves, peripheral resection of the nerves, intracranial operations, Abbe's, Hartley-Krause's gasserectomy. And in regard to the latter, I would say that, in spite of the enthusiasm of Cushing, it is doubtless a very serious undertaking, with a high death rate.

Since a number of years, all sorts of remedies have been used for subcutaneous injections, at the seat of the pain, osmic acid perhaps having been employed the most. But to Schloesser we owe the method of injecting with certainty into the trunk of the three branches of the fifth nerve, or, if it is so agreed upon, into its roots. He published in 1903 his method of injecting 80 per cent. alcohol into the nerve for facial neuralgia.

To hit the nerve with certainty, Schloesser advises injecting into the foramina through which the different branches enter the face from the skull; that is, for the first branch the supraorbital foramen, for the second branch the infraorbital foramen, and for the third branch the mandibular foramen (inferior dental) or at the base of the skull, the foramen rotundum and the foramen ovale. Besides these, there are a number of other foramina or anatomical points, where the nerve can be reached, as, for instance, the posterior palatine foramen, if the roof of the mouth is specially affected, or one has to inject into the mental foramen, if the pain in that region is persistent. Or, you may follow up along the ramus, above the mandibular foramen, up to the division of the third branch into the lingual and the inferior alveolar nerve.

All these points, however, as, for instance, the sphenopalatine ganglion, may be reached by Schloesser's method, with absolute certainty, by any one who masters the technique which, I admit, in some cases, is not very easy.

There is one other method of injecting into the nerves, advised by Levy and Baudouin, of Paris, which is much simpler, much easier, but also very uncertain.

My report to-day, before this society, is based upon 190 cases of facial neuralgia, which I have injected since September, 1906. I think that this number of cases entitles me to give you some brief statistics, bearing on the immediate and more remote result of these alcohol injections in such cases, and, ultimately, my view with regard to the value of the method.

Among the 190 cases I have had five failures. The other 185 patients were all entirely free of pain, and of their anxiety over expecting such (which is sometimes nearly as bad as the pain, at least in its mental effect) for a certain stated time, the length of which I shall dwell upon presently.

The number of injections necessary to produce this effect varied according to the number of branches affected, the severity of the case, and the anatomical peculiarities of the skull in question, from 2 to 10; three on the average.

*Read before the American Therapeutic Society at its tenth annual meeting, New Haven, Conn., May 8, 1909.

The amount of 80 per cent. alcohol injected is from 1 c.c. to 4 c.c. The injection is done without narcosis. First, because hardly any of the patients who have gone through so much, object to the pain produced by the injections, which, apparently, is not more severe than any of their paroxysms. Secondly, the patients ought to be awake, because they are in a position to describe, during the injection, the course the alcohol seems to take. They at once feel the nerve branches affected by the injection. The result, in many instances, where the injection has been well executed, is instantaneous and miraculous for the patients. Pain that has persisted for years in its most violent form, leading the patients to the most indiscriminate use of morphine or to repeated attempts at suicide, disappears instantly within one minute. Other cases, again, require a number of injections, and the improvement is more slow, consuming about two weeks of time.

What is the risk of the treatment? Of surgical accidents which I have personally experienced, I have to mention, first, that in one case where I injected the second branch through the infraorbital foramen, I got an oculomotorius paresis, which lasted for three weeks, and which was, of course, exceedingly annoying to the patient. In another case—the patient was a colleague—the result from injection into the third branch was an instantaneous paresis of the facial nerve, with drooping of the mouth, flowing of saliva, inability to whistle, and so on, which lasted for about two weeks. Schloesser has informed me that he got in three cases, from injections into the second branch, a herpes gangrenosus one of which was of a serious nature, with linear gangrene of the skin leading down to the bone of the upper jaw—a serious surgical complication, which lasted for several months. I, personally, had never seen anything of this. The nearest I ever got to it was a slight scaling of the skin of the wing of the nose, the upper and lower lip, showing a slight disturbance of the superficial sensory and trophic nerves of the skin.

As to the oculomotorius paresis, mentioned above, I must assume that I pierced with the needle the periosteum of the orbit, so that the alcohol affected primarily the muscles of the eye, and, secondly, from the end-fibers of the nerves in the muscles of the oculomotorius nerve. How I reached, in the second case mentioned, the facial nerve, or one of its branches I am unable to explain.

The treatment of motor or mixed nerves is an entirely different matter. *Tic convulsif* can be treated by alcohol injections, but the solution has to be weaker, 60 to 70 per cent., and the dosage has to be given very carefully, as we want to produce only a slight paresis, and not a paralysis.

The injection of alcohol into the sciatic nerve was in the beginning a failure, as the motor fibers were paralyzed with the sensory fibers in this mixed nerve. But since the injection into the trunk has been given up, to be supplanted by injection into the end branches, as the sural nerve, the peroneal branch, the posterior cutaneous nerve, and so on, combined with injections of 1-10th of one cubic centimeter into the sacral foramina—the results have been good. My personal experience in this line is so limited that I am not in a position to give any statistics of value. But in properly selected cases, where every other treatment fails, injections executed with the proper care are doubtless recommendable.

Let us return to facial neuralgia. Are those patients cured? No. There seems to be no permanent cure for facial neuralgia, gasserectomy included. After peripheral resection the pain always seems to recur. Gasserectomy is pronounced the only absolute, certain, permanent cure by its inventors and their followers. I have treated by injections and freed from pain six cases of intracranial operations, with complete recurrence of pain, worse than before the operation. Of these six operations there were four gasserectomies performed by our best surgeons and two Abbe operations, performed by himself. Therefore, it seems to me there is no permanent cure for neuralgia.

Of the 190 cases treated by me by injection, 42 per cent. have had no recurrence to date. If I take only those cases into consideration where at least eighteen months' time has elapsed since the time of the injection, 21 per cent. have remained free from pain for that length of time. In the other cases, the time when the recurrence apppeared, varied from three months to two years. Of course, it cannot be denied that it is possible that some of these cases, treated three years ago and free from pain since then, may show a recurrence at some future time. But what of it! One or two further injections into the branch affected will, in most cases, again allay the pain. My general impression is that the recurrences become rarer, their intensity less, and I expect that a number of these cases, which have recurrences at all, will eventually remain free altogether. On the other hand, it is my belief that, in a very few cases, the recurrent attacks are fully as severe and less prone to yield to treatment.

How well satisfied the patients are with the treatment is illustrated by the fact that, with the exception of three patients, I have reports from all patients concerning their condition, and that those who do suffer from a recurrence, come back to me only too gladly for another injection.

In conclusion, I wish to say that, with my unusually large experience, I know of no safer, less dangerous, more reliable method of treating this horrible affliction, while the final results of the method in question may be said to compare favorably with all other operative procedures where a high surgical risk is involved.

44 West Seventy-seventh Street.

ETIOLOGY OF ARTHRITIS DEFORMANS.

A PRELIMINARY REPORT.

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The fact that the nomenclature of this disease is so varied, that the classification and demarcation are indistinct, and especially that the treatment also varies to such an extent and is so often unsatisfactory, proves best that the nature of the affection is not sufficiently cleared up. The different denominations, as rheumatic arthritis, rheumatic gout, chronic rheumatic arthritis, nodular rheumatism, etc., indicate that what is called the gouty or rheumatic diathesis has been made responsible for this disease; arthritis sicca, dry arthritis, arthrite sèche, etc., indicate that the process, as a rule, is a dry one.

We adhere to the term "arthritis deformans" or proliferating arthritis, as it does not involve etio-

logical or pathological theories and is sufficiently descriptive.

In the following paper I distinguish two principal forms of arthritic deformans: the monarticular and the polyarticular types. Another form, affecting only the phalangeal joints and giving rise to what is called Heberden's nodes, I consider a mild form of the polyarticular type. With the so-called Still's disease of the infant I have not had enough experience to give an opinion whether it should be looked upon as a special form.

In certain cases of syphilis which I had under observation from the beginning of the disease and which came again under my observation at a later date, I have several times noticed an arthritis of the elbow, which was confined for a long time to the humeroradial part of the joint. This arthritis began like a subacute rheumatic affection, but soon periosteal swelling on the head of the radius and the opposite articular margins of the humerus developed, whereby motion, not alone rotation, but extension and flexion, became considerably impaired. The pain was not intensive on motion, but the articular bone-margins were very tender to the touch and there existed a dull aching, sometimes excruciating, pain, worse at night. The Roentgen photograph showed the articular cartilage swollen, the periarticular periosteum swollen and frayed. In a later stage the space occupied by the cartilage was narrowed (atrophy of the cartilage) and there was bony proliferation on the articular margins of the bones. In short, this arthritis had the characteristic symptoms and findings of the monarticular arthritis deformans, and later on extended over the rest of the joint.

I have seen this circumscribed form of arthritis deformans only in luetics in the late secondary and the tertiary stages, and regard it as pathognomonic. Appropriate antiluetic treatment in the early stage of these cases results in restitutio ad integrum, and only slight periosteal thickening of the articular margins sometimes remains.

In the past year I had occasion in the Orthopedic Department of the New York German Hospital Dispensary to observe a large number of cases belonging to this group and I found that some patients with monarticular arthritis deformans of joints other than the radiohumeral, who had not improved much with the ordinary hydrotherapeutic, medicomechanical, and massage treatment, responded readily as soon as antiluetic treatment was added to the regular routine.

A thorough investigation of the history of those patients confirmed the opinion more and more which I had expressed for the first time at the October, 1908, meeting of the clinical society of the New York German Hospital Dispensary, that "not only the monarticular type of arthritis deformans, but a large percentage of the polyarticular form is attributable to lues."

To prove this conclusion scientifically, I have kept all cases of arthritis deformans which came into the above-named department since September, 1908, under special observation, and, as much as it is possible in dispensary work, put them on specific treatment. Different serodiagnostic tests for syphilis were made of these cases by Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research, who has had the kindness to make those tests himself.

In most of these cases three tests were made: (1) The original Wassermann, (2) Noguchi's modification of the original Wassermann, (3) Noguchi's Globulin test.*

There were four cases, all in men, of monarticular arthritis deformans under observation: (1) of the left elbow, (2) of the left hip, (3) of the left knee, and (4) of the right elbow, 42 to 56 years old. All four gave a clear history of primary infection. This had occurred 16½, 19, 10, and 25 years ago, respectively, and 16, 16, 7, and 6 years before the arthritis deformans developed. Two of them showed well pronounced evidence of tertiary syphilitic affections, one (No. 1) had had very insidious and recurring ulcers on both legs. The scars of characteristic copper color were arranged in gronps of three to four and partly coalesced; the other one (No. 3) had a typical saddle nose.

None of the histories showed any rheumatic tendency. Two patients held trauma directly responsible for the disease. In the other two the disease came on gradually, but acute exacerbations were caused by slight injuries or overexertion.

The general condition, nutrition, color, etc., of three patients (1, 2, and 4) were good and they did not show any symptoms of an active lues actually present, but the third patient with the typical saddle nose was pale, emaciated, and had a fetid odor coming from the nose, owing to specific ulcers.

The serodiagnostic tests were made in those two cases which showed no lesions of active lues and no evidence of former lesions.

Case I.—Forty-three years old, beginning arthritis deformans of left elbow of four months standing, primary lesion sixteen and one-half years ago. Regular Wassermann = positive; Wassermann-Noguchi = positive; Globulin (Noguchi) = positive; Index = not exactly recorded.

Case II.—P. K., forty-two years, arthritis deformans of left hip, three years' standing, primary infection nineteen years back. Wassermann = positive; Wassermann-Noguchi = positive; Globulin (Noguchi) = positive; Index = 0.1915. (Blood taken after two months' specific treatment.)

Nine out of the eleven cases of polyarticular arthritis deformans were in females from twenty-two to forty-eight years old; two were in male patients, twenty-six and twenty-seven years of age.

In two patients (Nos. 1 and 2) only different fingers and metacarpophalangeal joints were affected, in the third case both hands and knees, in the fourth both hands and feet, in the fifth both hands and wrists with pronounced destructive changes in the carpal bones. The sixth patient showed advanced changes in both elbows and hands, wrists, and metatarsophalangeal joints with pronounced destructive changes of the carpal bones. The seventh case showed the characteristic end-result of the disease on both hands, and of an advanced process in both elbows. In the eighth case both hands, legs, knees, and lower part of spine were affected; in the ninth both elbows, hands, knees, and

*Quantitative estimation of globulin-fraction of the serum, namely, by ½ saturated ammonium sulphate pp. The amount of globulin stated in the article refers to the weight of globulin, from 0.5 c.c. of the serum, in moist condition after centrifugalization to a constant density. Normal sera contain in 0.5 c.c. usually less than 0.150 gm. In luetic sera the quantity is greatly increased, and it is not rare to meet a specimen with globulin as high as 0.300. See (1) Noguchi, *Journal of Exper. Med.*, 1909, XI, p. 84. (2) Noguchi: The butyric reaction for syphilis in men and in the monkey, Proceedings of the Society for Exp. Biology and Medicine, New York City, Vol. VI, No. 2, p. 51.

feet. In the tenth patient both elbows, hands, and knees were involved, and in the eleventh all joints of both extremities with the exception of both wrists were affected, and his cervical and lower part of lumbar spine were stiff. In the last four cases the patients were bedridden.

In seven cases the disease took a subacute or chronic course from the very start with occasional acute exacerbations and periods of improvement. In four cases it started as an attack of acute polyarticular rheumatism, which gradually passed on into chronic arthritis deformans. In eight cases the anamnesis indicated a well pronounced, hereditary rheumatic tendency, in three cases such history was negative. All patients were very anemic and with the exception of three (1, 2, 8) very much emaciated. Four patients (2, 4, 5, 8) were treated for anemia and chlorosis during puberty and for several succeeding years.

The history of specific infection was very difficult to obtain, inasmuch as the larger number were female patients, three of whom were single. Besides it is well known that in female patients the primary chancre and secondary eruption often pass unnoticed. The secondary symptoms may be rightly interpreted by the physician, but the patient is kept in the dark and unaware as to the real nature of her disease. But if we hear from a female patient that she was well up to a certain period of her life, that her health gradually failed, that she felt tired, had no ambition, grew pale and thinner, lost considerable hair for some length of time without having a definite disease, or that she was treated for months and months for malaria or nervous fever without being really confined to bed, and that she has never entirely recovered since, then she may be suspected of lues; and more so if that breakdown dates a few months after her marriage. If we can find in such cases specific data in the anamnesis, or through the examination of the husband, then the diagnosis "lues" is well established. The examination of the patient herself may show more or less characteristic symptoms (swelling of epithrochlear glands, etc.).

A short history of the eleven cases, taken from the above standpoint, follows:

Case I.—Mrs. L. (of above No. 3), 43 years old, married 18 years. Her husband, as widower, half a year before his second marriage, had contracted chancre in Germany, was treated for such by his cousin, an able German army surgeon for six months, and on his return married the patient. No children for six years. She soon grew weak, tired, and pale, lost at different periods considerable hair, lost thirty-seven pounds in weight. Her arthritis deformans started five years ago. Patient at present is very anemic and emaciated; weighs ninety-nine pounds. Chloasma uterinium on face and neck. On upper margin of forehead, extending to scalp, irregular but ring-shaped papulosquamous eruptions of annular syphilide. She had this more or less for five years. After one month's specific treatment it disappeared without local applications. Moderate swelling of submaxillary and epitrochlear, large swelling of axillary glands. Serodiagnose positive: Original Wassermann = positive; Wassermann-Noguchi = positive; Globulin (Noguchi) = positive; Index — 0.1750.

Case II.—(Of above No. 4.) Mrs. K., 31 years old, married 6½ years. Her husband had primary chancre four years before marriage, was treated specifically by his family physician for six months, then entered the German navy. He suffered four times from sore throat during the first few months of his service, was hoarse for four months, and had again regular inunction treatment for all that time in the navy hospital. At present he shows largely swollen epitrochlear and submaxillary glands and the diffuse shedding form of the typical alopecia syphilitica. His wife broke down physically a few months after marriage and was treated for nervous fever, as she styles it, but has never fully recovered since. Her arthritis deformans began four years ago. At present patient is highly anemic, very tall, emaciated. Weight = 116 pounds. Epitrochlear and submaxillary glands enlarged, no other specific symptoms. Serodiagnosis positive: Original Wassermann — (not made); Wassermann-Noguchi = positive; Globulin (Noguchi) = positive; Index = 0.1907.

Case III (of above No. 8).—Mrs. H. C., 48 years old; the history is analogous to that of the first two. Three and a half years ago she was married for the second time. Her first husband, with whom she lived sixteen years, suffered from a sexual disease for one and one-half years about ten years ago, but its nature could not be determined. Her second husband gave a luetic anamnesis and had unquestionable tertiary symptoms. Three months after marriage she suffered a general breakdown, followed by an acute attack of rheumatism, resulting in her present state of arthritis deformans. Pronounced swelling of both epicondylar glands. Serodiagnosis, positive: Wassermann-Noguchi = positive.*

Case IV (of above 5).—Mrs. H., 30 years old, was married five years, has been divorced for five years. She gives a well connected anamnesis of a pimple that she had shortly after marriage, on the vulva, which became an ulceration; a scaly, spotty eruption appeared on the chest a few months afterwards, for which she took sulphur baths and internal treatment. Eight months after marriage her present ailment started with a subacute attack of rheumatism. She has had loss of hair at different periods. Patient is of good nutrition, but anemic, shows enlargement of epitrochlear, less of the submaxillary glands. Serodiagnosis, positive: Original Wassermann = positive; Wassermann-Noguchi = strong positive; Globulin (Noguchi) = positive; Index — 0.2110 (high).

Case V (of above No. 7).—M. D., 23 years old, single, highly anemic and emaciated (97 pounds). Exhaustive anamnesis and examination were unobtainable. The tongue was deeply fissured dorsally and laterally, and on the left side was a diffuse, whitish blue, pearl-colored thickening of the epithelium, a psoriasis linguæ or leukoplakia, which we are accustomed to regard as a late tertiary or parasyphilitic affection. Serodiagnosis, positive: Original Wassermann = positive; Wassermann-Noguchi = strong positive; Globulin (Noguchi) = positive; Index — 0.2530 (very high).

Case VI (of above No. 1).—Mrs. N., 40 years old, well nourished, but highly anemic; no specific anamnesis, no luetic symptoms in husband. Patient, besides swelling of submaxillary and epitrochlear glands, presents a yellow mucous patch on inner side of left cheek, opposite the first molar tooth, which closely resembles a syphilitic mucous patch. Patient says that she suffered from those little sores

*The two other tests could not be made, as the amount of blood was not sufficient.

in her mouth quite frequently and that three years ago she suffered from hair falling out, and is afflicted with the same thing now. Serodiagnosis: First specimen six weeks ago, Wassermann-Noguchi = doubtful.* Second specimen six weeks later, Original Wassermann = doubtful; Wassermann-Noguchi = weak, positive; Globulin (Noguchi) = positive; Index = 0.1750.

Case VII (of above No. 6).—M. K., 26 years, single, moderately well nourished, anemic, no specific symptoms outside of swelling of epitrochlear glands. Arthritis deformans started in her tenth year. Patient was nursed by wet nurse, while her three healthy sisters were nursed by the mother herself. Her mother states that this patient from her second year on suffered from a very tedious eczema of the toes and between them, which resulted in the loss of the nails of the big toes, and that the attending physician made a contamination of her blood by the wet nurse responsible for this trouble. Serodiagnosis, doubtful: Original Wassermann = doubtful; other tests not made.

Case VIII (of above No. 2).—M. Kr., 41 years old, single, pretty well nourished, anemic. Arthritis deformans started gradually ten years ago. Specific anamnesis not taken. Moderate swelling of right submaxillary and epithrochlear glands on both sides—no other symptoms. But serodiagnosis was positive: Original Wassermann = positive; Wassermann-Noguchi = positive; Globulin (Noguchi) = positive; Index — 0.1880.

Case IX (of above No. 11).—Mrs. N., married 13½ years. Arthritis deformans started with acute attack five years ago. A few months before her general health had broken down. In the second year of the disease had loss of hair. Patient, confined to bed, highly anaemic and emaciated, has moderate enlargement of the right, more of the left epitrochlear glands. History and examination of husband negative, but positive serodiagnosis. Reg. Wassermann = weak positive; Wassermann-Noguchi = positive; Globulin (Noguchi) = positive; Index — 0.1925.

Case X (of above No. XI).—Mr. G. J., 27 years old, married five years, arthritis deformans started three years eight months ago with acute attack. No specific history. Patient, confined to bed, highly anemic, extremely emaciated (85 pounds). Multiple enlargement of inguinal and femoral glands on both sides, no symptoms otherwise. Wife not examined. Serodiagnosis positive: Original Wassermann = weak positive; Wassermann-Noguchi = positive; Globulin (Noguchi) = strong positive; Index — 0.2018.

Case XI (of above No. 10).—Mr. M. D., 27 years old, single, nine years ago suffered for quite some time from stiffness in lower limbs, pain in back, swelling of knees and ankles. Recovered and was able to work for three years. Six years ago present disease started gradually. Specific infection denied. Patient becomes reticent, further examination impossible. Serodiagnosis as follows: Original Wassermann = doubtful; Wassermann-Noguchi = weak positive; Globulin (Noguchi) = positive; Index — 0.1837.

Abstracting the above cases the following points are conspicuous:

The patients with monarticular arthritis deformans were, with exception of the one with the active luetic process in his nose, well nourished and not anemic. An hereditary rheumatic disposition existed in none of the four patients. All four gave a pretty clear history of specific infection and later manifestations, verified in two cases by the presence of active tertiary lesions or undoubted remains of such. In the two other cases the serodiagnostic tests were positive.

By two patients a trauma was held directly responsible for the disease, in the two others the acute exacerbations were caused by slight injuries or overexertion.

In reviewing these facts and comparing them with my general experience, I believe "that the monarticular arthritis deformans, at least the non-senile type, is an arthritis directly caused, or resulting from, a trauma. But the underlying cause of it is the luetic infection of the afflicted. The luetic constitution is responsible that the contusion of the joint with the resulting synovitis does not, as usually in a normal person, get well, but leads to the characteristic changes of arthritis deformans."

In 8 of the 11 cases of polyarticular arthritis deformans we found a, mostly well pronounced, rheumatic diathesis. Four of them were suffering from anemia during puberty and in several years following.

In four patients we can with certainty make the diagnosis "lues" from the anamnesis and the status præsens. In two others there are undoubted luetic affections. The history of patient VII is at least suspicious. How much we are justified in drawing conclusions from the anamnesis and the status of the last four patients, I leave to the reader to decide.

The serodiagnosis was in one case (VII) doubtful; in one (XI) doubtful to moderately positive; in two cases, weak positive; in the seven other cases, positive to very strong positive.

I come to the conclusion that there are two principal factors responsible for the disease in question: (1) the rheumatic tendency and (2) the constitutional lues. Polyarticular arthritis deformans, at least in a very high percentage of all cases, is a chronic articular rheumatism in the luetic. Here, too, the constitutional lues is the principal cause, in that the rheumatic affection does not get well, but goes on to a deforming polyarthritis.

Whether or not, and to what degree, the preexistent anemia or chlorosis plays a part in the etiology, I leave undecided.

The specific treatment has not been tried long enough to justify the publication of the results at present. Potassium iodide is usually badly borne by the anemic and run-down patients. I think for all cases mercury injections, and afterward potassium iodide added, after the general condition of the patient has sufficiently improved, are correct; or I give potassium iodide when I discontinue mercurial treatment. Exact results will be published later.

I express the hope that in the meantime some other colleague with a larger material at his disposal will further investigate the above conclusions.

My sincere thanks are due to Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research for his kindness in personally conducting the serodiagnostic tests, whose value is increased so much by being performed by a man well fitted and experienced in this work. I also thank Dr. Stadtmuller, visiting physician to the German Hospital, N.

*The two other tests could not be made; the blood was not sufficient.

Y., by whose permission I could enlist three cases from his service into the above statistics, and last but not least to Dr. Charles Jaeger, the chief of the Orthopedic Department.

A LITTLE ABDOMINAL SURGERY BY THE FAMILY PHYSICIAN;

WITH REPORT OF MY FIRST FIFTY CASES AND END RESULTS.

By WM. H. DUKEMAN, M.D.,

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In my family practice during the period from November, 1903, to November, 1907, I was called upon to perform the following, my first fifty consecutive abdominal operations.

For convenience of analysis the cases are divided as follows: Hysterectomies, 6; Abdominal Sections, 16; Appendectomies, 26; Herniotomies, 2. The results were forty-eight recoveries and two deaths, cases Nos. 3 and 49, of which I will speak later. Of the forty-eight recoveries forty-seven are alive and well to-day. Case No. 32 died five months after operation of pulmonary hemorrhage.

In presenting this report I do not have anything new to offer, only a few facts to present. It is not the scientific and new things alone that keep up progress but the making a proper use of those things with which we have become familiar. In recognition of this, I followed and was governed by the acknowledged surgical principles of the day as laid down by our masters, giving precedence to simplicity of surgical technique in all cases, and I merely wish to show that a little surgery may be done in private practice by the family physician, with the average safety to his clients. The instruments in my kit are few and simple, combination and complicated instruments I do not possess.

Fig. 1.—Appendix distended with pus: Case II. on the left, Cast L. on the right.

Two of the operations were performed in the country at the residence of the patient. One was a Bassini herniotomy for strangulated right inguinal hernia on a boy, age 9 years, at a farm house, after midnight, with candles for light; the father and mother holding the candles. In another instance, case No. 45; I fitted up the bathroom for the operating room in a country cottage and operated for appendicitis on a very sick lady, age 40 years. Septic peritonitis had already so far developed that the entire abdomen was greatly distended and the patient was indeed in a very critical condition, pulse 140, temp. 104°, resp. 32. After opening the abdomen and my forefinger being introduced, a few small pockets were opened up and pus began to flow freely. In this case I made no extended search for the appendix on account of the serious condition of the patient. The abscess walls were not well defined and my better judgment demanded caution in not attempting to do too much. In these cases the appendix is usually gangrenous and undergoes dissolution and is eliminated with the discharges. Drainage by rubber tube was kept up for several days; afterwards by gauze for a few days, when the wound closed and the patient regained her health. From last report, now several months, she has had no return of symptoms.

All the other cases were operated on in the hospital, and in speaking of them I will do so by number of the case.

There were five more cases in the series of appendectomies wherein abscesses had been walled off. In three of these, cases Nos. 17, 21 and 22, the appendix had become gangrenous and foul pus flowed freely immediately on opening the peritoneum. In each case, however, I removed the appendix, and in one case, No. 21, two goodly sized pieces of angry-looking omentum were excised. I was called in late to see these cases. Had I been called during the first 24 hours I should have advised immediate operation.

In another instance, case No. 31, the appendix was found lying deep in the pelvis and behind the cecum imbedded in an inflammatory mass. On opening the pocket a little pus escaped and the appendix was found in three distinct separate pieces which were then removed, the parts were swabbed dry and the abdomen closed.

Case No. 6 was that of a school girl, age 15 years. Her parents would not consent to an operation until she was in a most critical condition with a general peritonitis. On the fourth day, not a very promising time, I operated. On opening the abdomen there was a copious flow of a serous inflammatory exudate. The appendix was not found by careful search, and as the patient was in a most critical condition, my anesthetist, Dr. Bullard, having already administered oxygen and fearing the patient would not survive any further search for the appendix, it was abandoned. I hurriedly closed the wound, except for cigarette drainage. The exudate flowed freely for three days. The patient ran an elevated temperature for nearly two weeks and then made a perfect recovery. It is now four years and she has been in perfect health ever since. Without the operation she surely would have died.

Twelve of the cases were chronic appendicitis and were interval operations. In most of these cases adhesions were extensive.

Case No. 4 was that of a large, fleshy lady, aged 47 years, who weighed 180 pounds. This was an interval operation after the third attack. Dr. Lasher assisted me in this case. After careful search and by breaking up many adhesions, the appendix was finally found adherent to the posterior wall of the cecum and to the peritoneum. It was in two separate pieces, each piece encased in a separate sac. The caliber of each portion was very

much enlarged and contained pus, the ulcerated ends having become sealed. Cigarette drain was used on account of extensive handling of the parts; there was no drainage, however, and on the fourth day I inserted two more stitches and the wound immediately closed. About three months later a hernia developed. As the patient wears a well-fitted bandage and the hernia does not cause her any inconvenience and she enjoys the best of health, she prefers not to undergo another operation.

In four of the chronic cases (two of which, Nos. 2 and 50, are here shown in Fig. 1) the appendix was greatly distended with pus and the size of one's middle finger.

They were very similar, each having had three attacks during the course of two years, and their health greatly reduced so that they were unable to attend to any business. The appendix was easily located in each case, being very large and filled with pus. In case No. 50 the patient had a chronic cough and had been treated by different physicians for several months for this. On recovery from the operation the cough ceased and the patient now

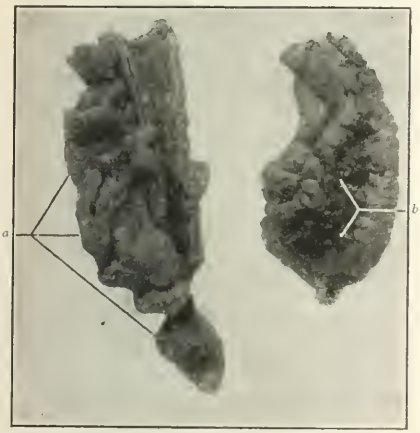

Fig. 2.—Case XLVIII, on the left—*a*, fat; the appendix is opened, showing the indurated walls; Case XLVI, on the right—*b*, seeds.

enjoys good health and is able again to earn a living for himself and aged mother.

In these four chronic cases the disease had existed from four months to two years from the date of the first attack, and in each instance the patient's life hung as on a delicate thread, in danger of a rupture at any moment. In such event, a most serious condition would have resulted. In each instance they were confirmed invalids and had, through false teachings and advice, been influenced not to undergo an operation. However, by the operation they finally did undergo their health has returned and four happy lives exist.

In three other cases, Nos. 17, 20, and 33, the patients were not cognizant of any disease of the appendix and had previously been treated for stomach trouble and constipation. On examination I located the disease in the appendix and after the removal of the appendix the stomach symptoms disappeared and health immediately returned. In case No. 17 the patient was in such a critical condition from vomiting everything she put into her stomach that she was reduced to almost a skeleton. I had her fed by rectum for ten days before venturing to operate. The appendix was bound down firmly by adhesions. On the third day after operation she began to eat and in two months had gained fifteen pounds. Mumford, in his book, "Surgical Aspects of Digestive Disorders," brings out the characteristic features of these conditions very clearly.

In case No. 46 (Fig. 2) the appendix contained seventeen logan-berry seeds and thirty-two tomato seeds. This appendix was more the shape and size of a normal gall-bladder. This was a chronic case of four months' duration. Case No. 48 (Fig. 2) was in a large, fleshy, muscular man, aged 33, who weighed 260 pounds. In this case I made the incision along the border of the right rectus muscle on account of the point of tenderness over this point. The depth through the abdominal wall, fat, and muscle was six inches. The appendix was found almost on a direct line of the incision about three inches deeper behind the cecum; the appendix and cecum were adherent to the posterior abdominal wall, and everything was literally imbedded in fat. To the touch the appendix felt like a whipcord, it was so indurated. It lay so deep and so hidden in the fat and so adherent to all the parts around that I was obliged to catch the tip of the appendix with forceps and have my assistant use traction while with catch forceps and finger tips deep in the abdomen I succeeded in slipping the ligature around it and ligated it as near the cecum as possible, probably one-half inch distant. It was then excised by guiding the scissors along, my fingers never letting go of the place of the ligature. I never got sight of the stump, but I was thoroughly satisfied I had my ligature doubly secure. This proved to be a fibroid appendix in a mass of fat as shown in the illustration.

In case No. 47 the appendix was likewise imbedded in fat, but it was soft and friable, and easy of removal.

Case No. 26 was in a school teacher. There was a broad adhesive band extending from the right pelvic wall over and completely around the cecum, encasing the entire length of the appendix, which lay deep along the posterior cecal wall to which it was adherent. Here I was somewhat puzzled, but by carefully dissecting the band for about four inches the appendix was uncovered where it was adherent to the cecal wall with a band of adhesion constricting it about one-half inch from its base. This patient had previously been treated for a chronic cough and asthma. She had never had any abdominal symptoms referable to the appendix. It was only by a thorough examination that I discovered tenderness in this region. Operation was advised; she at once consented. The result was the cough disappeared and she has had no return since, and is now in splendid health.

Case No. 35 was in a young man, aged 24 years, an epileptic since the age of two years when he had a severe attack of cholera infantum followed by a prolonged spell of enteritis. Preceding his epileptic attacks he always complained of a soreness over the appendix and then radiating toward the umbilicus, when he would immediately be thrown into an epileptic convulsion. As he had tried the usual remedies for his epilepsy, including circumcision, and was growing worse as he grew older, he very readily offered to see what might be accomplished from the removal of the appendix vermiformis. On opening the abdomen I found the appendix a

very long one, extending from the base of the cecum diagonally upwards with its tip adherent to the parietal peritoneum immediately under the umbilicus. After its removal I recalled to my mind that I had not noticed any omentum. As far as my finger reached I could not find the omentum, and I have wondered many times since whether this was the condition in other epileptics. However, he was benefited wonderfully for about four months, when his epileptic seizures returned almost as bad as before.

The remaining cases of appendicitis were acute and were operated on within the first forty-eight hours.

In no case did I find it necessary to rush the patient to the hospital for immediate operation, as I am sorry to say is so frequently done. But on the contrary I make it a point to relieve the patient of that dread and fear of operation and by encouragement get him in the proper frame of mind, thereby removing one great factor in the cause of shock. It is the alarmist, who rushes his patients to the operating table unnecessarily, whose records show the high death rate. In acute cases nothing is given by the stomach and only local treatment is followed.

Of the six hysterectomies, four were total hysterectomies. In case No. 32 the patient, aged 32, was recently married and in very feeble health. She was very anemic and weighed only ninety pounds; she had a carcinomatous uterus and was in the sixth month of pregnancy, fetus dead. There was also a tumor in the left pelvic cavity which on removal proved to be filled with about a half pint of creamy substance. A histological examination was made of a section of the uterus as well as of the tumor mass which proved to be carcinomatous. The uterus containing the fetus was removed without any great difficulty, drainage *per vaginam*. The patient made a complete recovery in five weeks, but five months later, while on the beach at Ocean Park, she was attacked with hemorrhage of the lungs and died about one hour later. This was a most interesting case and was reported in detail in the *New York Medical Journal* for May 2, 1908.

In cases Nos. 41 and 43, in women aged 50 and 59 respectively, the operations were for carcinoma uteri in the earlier stage, but there was no special history of importance.

Case No. 49 was in an insane woman, aged 50, the operation being for removal of a fibroid uterus and fibroid tumor of the fundus of the uterus on the right side. There were also two tubo-ovarian intraligamentous cysts. The left cyst was about the size of a child's head and contained 600 c.c. of a brown-colored fluid and a concretion the size of an English walnut. The right cyst was about the size of an orange and contained 100 c.c. of clear fluid. The entire mass was covered with intestines and adherent by numerous fibrous adhesive cords and bands over the entire surface and required many ligatures and much time was consumed in its removal. The entire mass was removed without clamps by double ligating the arteries and adhesions and dividing between ligatures, thus obviating the bruising of tissue and preventing any loss of blood. This operation unfortunately was on one of the hottest days of the season, the temperature being 95° Fahr. The patient was taken from the operating table in apparently good condition with pulse 110, full and strong. On my visit about four hours later I was dumbfounded on examining the patient to learn that on this hot day hot water bottles had been kept constantly applied because the patient ceased to perspire. I immediately ordered them to be removed and the temperature taken per rectum. The thermometer registered 108° F.; pulse 160, full and strong; resp. 30, skin dry and hot, pupils dilated, conjunctiva reflex not reacting to touch. The ice cap was immediately placed on the head and the patient sponged off with alcohol. The patient was catheterized and 120 c.c. of urine drawn. At 10 P.M. 150 c.c. urine per catheter. At 7 A.M. the following morning 180 c.c. urine per catheter. The temperature had now fallen to 103.4° in the rectum; pulse 120, full, regular, and strong; resp. 36. At 1 P.M. the pulse was 125, irregular but full and strong; temp. 103°, skin dry; resp. 40, very shallow and somewhat irregular; the patient was somewhat restless, there was involuntary bowel movement, and at 1.40 P.M. life became extinct, twenty-seven hours after operation. I reported this case in detail in *The Journal of the American Medical Association* for March 13, 1909, where I assigned the immediate cause of death as one of probable insolation. This was the forty-ninth case and the second death in the series.

FIG. 3.—Tubal pregnancy—Case XXXVI.—*a*, fetus; *b*, blood-clot.

The other two hysterectomies, cases Nos. 12 and 40, were for fibroid uteri, supravaginal abdominal amputation of the fundus. In case No. 40 the uterus was completely retroflexed and the fundus pointing outward lay between the vagina and rectum forming a rectocele which protruded from the vagina. The perineum had, many years previously, been severely lacerated during confinement almost to the sphincter ani. After the uterus was removed

and the wound closed, the perineum was also repaired. This patient still has a small cystocele.

In case No. 12, the fibroid uterus weighed ten pounds and was firmly impacted in the pelvis, but otherwise easy of removal, and the patient was again able to resume her work in a dental office at the end of the fifth week.

Of the remaining sixteen abdominal sections case No. 25 was for tuberculous peritonitis. Ten days after operation this patient developed a thrombosis of the left leg, but made a speedy recovery and left the hospital on the eighteenth day after operation.

Case No. 36 was for a left tubal pregnancy of the seventh week. Diagnosis and operation before rupture. The condition is shown in figure 3. The fetus lies in the first third of the tube, the remaining portion of the tube is filled with an organized blood clot. This case was reported in the MEDICAL RECORD, January 25, 1908.

FIG. 4.—Case XIX.—*a*, appendix; *b*, pus-tube above, ovarian abscess below.

In two cases, Nos. 19 and 45, I found the right Fallopian tube adherent and communicating with a diseased appendix vermiformis, as shown in Fig. 4.

In case No. 19 the lower end of the cecum had become drawn upwards and inwards under the colon, approximating the free border of the liver, and it looked as though in a short while the appendix, which was about five inches long and which was stretched taut, including the attached pus tube, was about to become adherent to the gall-bladder. This condition existed in a married woman from Yuma, Arizona, age 34 years, who, two months previously, had a criminal abortion produced. Sepsis followed, she was in a most critical condition and the above condition was the result. However, she made an uneventful recovery.

Case No. 45, the appendix was adherent to the upper surface of the right Fallopian tube, and both tube and appendix contained pus.

In case No. 39, the patient, aged 40 years, was a widow of broken down health for past several years. Diagnosis, appendicitis and left ovarian cyst. On opening the abdomen a beginning peritonitis was found. The ovarian cyst, the size of a pint mug, together with the left ovary and pus tube were removed. There was also a chronic salpingitis of the right tube; this, with the right ovary and the diseased appendix, was removed. The abdominal cavity was sponged dry of all exudate wherever that could be reached, and the wound was closed. The uterus was then curetted. After twenty-four hours pulse and temperature were normal, and on the sixteenth day after operation the patient went home.

Case No. 24 was a young lady whose uterus had been curetted nine months previously by her physician at that time. Her health, however, grew worse and she complained of a great deal of pain in the left pelvic region. On bimanual examination on the left side a mass the size of an orange, presumably a pus tube, was diagnosed. There was a little fluctuation and operation was advised. One week later I removed an old hematoma which included the tube and ovary. This mass was dissected out from between the folds of the broad ligament. The omentum and sigmoid were adherent to the upper surface of the mass. Before operation this patient suffered greatly from chronic constipation; since operation her bowel movements have been normal and she enjoys the best of health, having gained twenty pounds.

The remaining cases of the series are of no special importance. The operations were for simple removal of pus tubes, salpingitis, etc., and one for dermoid cyst uncomplicated and one for gall-stones, the gall-bladder containing three stones of irregular size.

In the remaining herniotomy case, No. 37, the patient had been operated on by one of our leading surgeons two years previously, but unfortunately the hernia, a right inguinal, reappeared within four months. It is now two years since and there is no sign of return.

I am sorry to say that only in a few instances did I have made a histopathological examination of the specimens. In those instances Dr. E. H. Leonard examined the specimens for me. When we consider that the frequency of malignancy of tumors of the ovaries is variously estimated by different authorities at from 15 per cent. to 25 per cent., we can readily see the importance of such examinations, and then only are we better prepared to care for such patients in the future.

In three cases, Nos. 43, 47, and 50, there developed stitch abscesses, due to faulty technique. There were no cases of post-operative pneumonia and no cases of shock worthy of mention.

End Results—Forty-eight recoveries and two deaths.

The first death was that of the patient in case No. 3, who died on the third day following removal of both tubes and ovaries and uterine suspension.

In case No. 49, previously described, the patient died twenty-seven hours following total hysterectomy. In case No. 32 the patient recovered from a total hysterectomy for carcinoma uteri and died five months later from pulmonary hemorrhage. The remaining forty-seven patients are alive and in improved health to-day. In one case, No. 4, an appendectomy, as before stated, the patient has a

ventral hernia. In case No. 40, a supravaginal hysterectomy, the patient still has a small cystocele. It is gratifying to me to say that all are my friends —and with the exception of four cases sent to me by my associates, all were of my own clientèle.

Forty-one of the cases are living in Los Angeles and vicinity, all of whom I see and communicate with occasionally; two are living in Chicago, Ill.; one at Attica and one at Columbia City, Ind.; one at Yuma and one at Prescott, Ariz., and one at Toledo, Ohio.

Dr. F. D. Bullard administered the anesthetic, ether, to forty of the patients; Dr. Chester L. Magee administered ether to five; Dr. J. Lee Hagadorn administered anesthol to three; and Dr. F. R. Frost administered ether to two, and assisted in three operations; Dr. A. Tyroller assisted in three operations; Dr. A. F. Zimmerman assisted in three; Dr. H. Y. McNaught assisted in two, and Dr. A. Godin assisted in the balance.

Perhaps my judgment at times in some of the cases, from my limited experience, was not the best, but the end results and the success achieved in these fifty consecutive abdominal operations speak for the work done. From this limited work and for guidance for the future I have drawn the following conclusion:

1. Make a diagnosis and with this in mind proceed deliberately but not hastily to remove this pathological condition and as much more as is present. But do not go mauling around in the abdomen in search of other pathological conditions when there is no hint or evidence of their ever existing.

2. Do not alarm the patients either by word or action, especially by unduly rushing them to the hospital, but eradicate all dread and fear of a surgical operation by calmness in action and thereby gain their full confidence and place them in as easy a frame of mind as possible.

3. Get your patients in the best possible condition before operating, and allow none other than a faithful, competent, sympathetic nurse to care for them after operation.

4. Yourself be strictly and thoroughly aseptic and see that all assistants and nurses are likewise, as well as everything else in connection with the operation, and be sure of your technique in every detail.

5. Handle all parts involved with the utmost gentleness and delicacy of touch; tie ligatures snugly but never too tightly, and avoid the use of compression clamps whereby bruised tissue would be left to slough.

With the advantages offered to familiarize one's self with the surgical technique of the more common abdominal operations, there seems to me no reason why the intelligent family physician should not fit himself for and be competent to perform such work.

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A STUDY OF THE URINARY ACIDITY AND ITS RELATIONS.

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The estimation of the urinary acidity has in the past been considered a more or less useless procedure, the simple test with litmus paper sufficing for all purposes. The study of this subject does not seem to have received nearly the attention that it deserves, and it is to be hoped that this paper will serve to emphasize the fact that the quantitative examination of the urine for acidity is a most important procedure and a part of the urine examination which should always be carried out.

The mixed 24-hour specimen of urine is normally acid in reaction, this condition being principally due to certain acid salts, in particular diacid sodium phosphate, NaH_2PO_4. The acidity is probably due, in a measure, to other acid salts which are also present, although in considerably smaller amounts. The experiments of Voit and others have conclusively proven that uric acid has nothing to do with urinary acidity.

The index of urinary acidity undoubtedly varies in direct ratio with the metabolic changes going on in the body. The manufacture, as waste products, in the body cells of acid substances—of which sulphuric acid is probably the most important—must have a decided influence upon this factor. In addition to this, certain products of intestinal putrefaction when absorbed into the blood are eliminated in the urine and thus serve, as will be shown later, to increase its degree of acidity.

Several factors cause the normal urinary acidity to vary considerably, such as an exclusive meat diet; excessive muscular exercise; highly concentrated urine, due, perhaps, to febrile conditions, after free perspiration, or diminished water drinking. Then, too, the internal administration of acids, such as benzoic, phosphoric or boric acid, and the presence of abnormal fatty acids resulting from pathologic conditions also play their part.

Undoubtedly the degree of acidity of individual voidings of urine is quite irregular, and in order that the physician in his diagnostic work may gain an accurate idea of the elimination and metabolism of his patients, it is distinctly necessary to make an examination of a part of a mixed 24-hour specimen of urine. This point cannot be too strongly emphasized. The urinary examination is usually not made nearly as frequently as it should be, and, unfortunately, when the physician realizes the necessity and importance of this procedure, he rarely bothers to have his patient make a complete 24-hour collection and take a specimen from it.

One of the most common factors which has to do with the degree of urinary acidity is the concentration of the urine. That is, if the amount of urine is large, it is normally faintly acid, while on the other hand, if the amount is below the average, the acidity should be relatively higher. While this is usually the case, it must not always be depended upon, because it is a very frequent occurrence to find the urine of patients passing considerably above the normal amount, even as high as three or four thousand cubic centimeters *per diem*, to evidence a considerable increase in the degree of acidity. In fact, an examination of a series of specimens of urine from diabetics and patients suffering from those forms of Bright's disease which are associated with the passage of large quantities of urine, leads me to believe that this depraved condition of metabolism is constantly associated with such conditions as are evidenced by an excess of acidity due to the increased amount of acid substances eliminated by the body-cells.

Dr. A. L. Benedict of Buffalo, N. Y.,[1] mentions a factor which I think should be much more frequently used and given more publicity. I refer to the term, "acid unit." An acid unit practically is

determined by the relation of the acidity of a whole 24-hour specimen to the amount, thus: 1 c.c. of urine with an acidity of 1° or 1 c.c. of urine exactly neutralized by 1 c.c. of decinormal sodium hydrate solution is equivalent to 100 acid units. Dr. Benedict believes that the average urine is from one-fourth to one-half the equivalent of the decinormal strength, and that the normal acid elimination in 24-hours should be about 40,000 acid units. This I believe is a very good average figure. It means that with one liter of urine the average acidity would be 40°, each degree representing the amount of decinormal sodium hydrate solution required to neutralize 100 c.c. of urine. On the other hand, 1,300 c.c. of urine with an acidity of 30° gives us practically the same number of acid units. The same is true of 800 c.c. with an acidity of 50°. It can readily be appreciated, however, that this last figure cannot be normal, as the total amount of fluid passed is too low, and consequently the acid-index too high.

As has been said before, the accurate estimation of the urinary acidity is a matter of vital importance, and by making much more frequent use of it the physician will gain many valuable pointers which will enable him to treat his patients more successfully.

It is unfortunate that so little attention is given to the value of this examination. There are many statements similar to the following, taken from recent books on the subject: "For the practitioner the mere determination of the presence of an excess of acid or alkali by litmus paper is sufficient."[2] "For clinical purposes the litmus test is sufficient. In view of the many variable factors that determine the reaction of the urine—it is usually an altogether futile task to determine the urinary acidity by titration."[3] This is a decided fallacy. The examination of a large number of specimens of urine associated in every case with the clinical findings present in the individual passing these specimens shows conclusively that many unpleasant symptoms and even dangerous conditions are associated with, if not actually caused by, high urinary acidity and those disturbed metabolic conditions causing it. It is well known that the urine is usually intensely acid in rheumatic conditions as well as in acute fevers, due in all probability to the increased manufacture of acids in the body tissues (a hyperoxidation of the body-cells) and, of course, the usual decreased amount of fluid secreted by the kidneys. That increased urinary acidity is distinctly abnormal seems to me to be proven by the findings which are given below.

In a series of over 250 analyses the average urinary acidity was 60°, the lowest being 10° and the highest 274°. (These specimens were examined in routine laboratory work.) Many of these individuals were passing urine with an acidity from 300 to 500 per cent. of the normal and with an acid-unit-index of from 100,000 to 200,000 per day (the minimum in this series being 8,030 and the maximum 358,050) very much above the normal amount.

The other findings show that in 35 per cent. of these cases casts and traces of albumin were found; and in 83 per cent. of these cases indican was present to a greater or less extent, usually in large amounts.

Eighteen of this series evidenced glycosuria with a sugar content varying from 0.3 to 13 per cent In these cases the average acidity was 77°, with an average acid unit elimination of 132,130 an increase of 330 per cent., and in only one of these was there is a positive test for acetone or diacetic acid.

From these findings it would seem to me (1) that there is a distinct association between highly acid urine and autointoxication due to putrefaction of the intestinal contents shown by the relation between indicanuria and high acidity; (2) that in diabetes an excess of acid (not necessarily diacetic or oxybutyric) is the rule, and in addition (3) that this condition of high acidity is very frequently associated with albumin and casts in the urine.

It must be evident that an excessively acid urine must be more or less irritating to the kidney cells and tubules secreting it, and it is not unreasonable to suppose that such urine is a distinct factor in the production of casts in the urine, predisposing to serious and definite kidney lesions. From these findings I am constrained to believe that a definite diagnosis of Bright's disease should never be absolutely made until the urinary findings aside from albumin and casts are normal. (Since compiling these results my attention has been called to an interesting article[4] from which I quote: "The occurrence of albumin in the urine, alone or associated with casts, is not the absolute indication of a nephritis, once believed, as we know that its presence does not necessarily indicate an inflamatory lesion of the kidney. The subject of faulty metabolism as a cause of albuminuria is one which is attracting more and more attention, and deservedly so; for there seems but little doubt that this is the direction in which we must look for the etiological factors of at least one type of nephritis, the interstitial form.")

This brings me to an important point. It is quite possible that, to a greater or less extent, the conditions found in the kidney known as chronic Bright's disease, or interstitial nephritis, are in a measure due to those conditions which produce indican in the urine and high urinary acidity, and consequently the regulation of these conditions, the elimination of indican from the urine and the reduction of the acidity to normal should be distinctly valuable *prophylactic* measures.

Another point of interest is that in the majority of cases, probably from 60 to 75 per cent., where the urinary acidity is excessive and indican is present, the urea elimination is invariably below the normal. From the findings in my 250 examinations the urea elimination was reduced to an average of 60 per cent. of the normal (taking 30 gm. as the normal daily output) in as many as 81 per cent. of the whole series. Dr. Foxhall, in a very interesting paper in the London *Lancet*[5] has said that if the average urea excretion is below 1.4 per cent. for 10 or 15 days it nearly always indicates definite renal damage. And so from this it would seem that conditions under discussion—high urinary acidity and indicanuria, and the low urea-index—are very closely related, and have a definite effect, the one upon the other.

Right here I wish to emphasize the fact that the quantitative estimation of the *normal* substances excreted by the body through the urinary channel gives definite information as to the actual metabolic activities of the body, which information should be of great value in the examination of the majority of those individuals consulting the physician; while even the most careful examination of a complete 24-hour collection for *abnormal elements* only assists in the diagnosis if certain definite disturbances are

present, the frequency of which is not to be compared with the abnormal metabolic states which are unfortunately so very common.

No one finding in the urine examination is of infallible diagnostic proof, as has already been stated regarding casts and albumin. Those laboratory facts which tell us of the exact status of the body functions are especially valuable when one is dealing with chronic conditions which do not prevent the patient from continuing his usual vocation. This general idea of the extent of the metabolic functions of the body is unfortunately very seldom known in the routine work of the average man. The test for albumin and perhaps sugar, in addition to the estimation of the specific gravity, is about all the "urine examination" usually done, and very rarely is a twenty-four-hour collection demanded. Rather than forestall possible difficulties he advises a complete urinalysis only *in extremis*, and even then not too frequently.

In this connection it might be well to quote from an excellent article by Dr. Cruise in the *Lancet*. In this article he says: "Every cautious physician examines the urine for albumin in all serious cases of ill health, and not infrequently comforts himself and his patients when he finds that this substance is absent. I doubt that I am in error in adding, on the other hand, that very few practitioners attempt the quantitative estimation of urea in such cases. Nevertheless the importance of ureametry is far greater than testing for albumin alone, because while the latter is often present, and signifies little, and may be absent in very grave cases, the quantity of urea is a matter of serious and often vital consequence."

And to this must be added that the estimation of the acidity will very quickly give an idea as to the general metabolic conditions of the patient, for, as has already been shown, this is nearly always associated with diminished urea.

Regarding the collection of the specimen of urine several matters of importance require consideration. In order to get correct results it is necessary for a whole 24-hour specimen to be collected, care being taken to instruct the patient as to the proper method of doing this. During the collection the vessel should be kept in a cold place, and preferably five or ten drops of chloroform placed in the vessel to preserve the urine from fermentation. The test is then made as soon as possible after the receipt of the specimen at the laboratory.

Of course some specimens will be alkaline in reaction, and in a majority of cases this will be found to be due either to retention of the urine, cystitis, or fermentation during the collection and transit of the specimen. The microscopic examination usually confirms this by showing the presence of either pus cells and various forms of epithelial cells, or crystals of ammonio-magnesium phosphate, or both. If the above methods are carried out, practically no error will be caused from the lack of proper preservation of the specimen.

So far nothing has been said regarding the method of estimating the urinary acidity. As yet no one method is scientifically accurate, for since the acidity of the urine is not due to any one acid or acid salt, the selection of a suitable indicator is a matter of considerable importance. Different indicators vary greatly in the degree to which they are affected. Methyl orange, congo-red, etc., are more sensitive to the OH-ions of the alkalies, while phenolphthalein, rosolic acid, etc., are more sensitive to the H-ions of the acids. Litmus in its affinities occupies a place somewhere between these two groups.

As has been stated before, the urinary acidity is due chiefly to the salt with the formula NaH_2PO_4, which reacts acid to phenolphthalein, the neutral point with this indicator not being reached until enough sodium hydrate solution has been added to convert this salt to that with the formula Na_2HPO_4. As a matter of fact, disodium-hydrogen phosphate, owing to dissociation into NaH_2PO_4 and NaOH, reads faintly alkaline to phenolphthalein. It has been found that this can be diminished by the addition of a saturated solution of NaCl which is neutral in reaction and consequently cannot itself affect the reaction. That the addition of salt solution is of value can be proved by titrating to the point where the pink color just appears, and then adding the salt solution, when it will disappear.

Salts with the formula Na_2HPO_4 also exist in the urine, and these react alkaline to methyl-orange and congo-red, while those of the formula NaH_2PO_2 are neutral to the same indicator. Consequently urine containing the above salts and which shows an acid reaction to phenolphthalein, when titrated with methyl orange as an indicator, will display an alkaline reaction, which is not destroyed until enough hydrochloric acid solution has been added to convert the salts of the formula Na_2HPO_4 into those of the formula NaH_2PO_4. Any carbonate present must also be decomposed by the hydrochloric acid before the pinkish tinge indicative of the neutral point is reached.

Litmus, which in the phesence of the abovementioned salts gives an amphoteric reaction, is absolutely useless in the titration of urine. A urine which shows a marked degree of acidity when titrated with phenolphthalein as indicator is often strongly alkaline to red litmus paper. Dr. Benedict, in his article[1], has well said: "The simplest way to deal with litmus is to discontinue it altogether, at least for such purposes as the present. All things considered, the best indicator for determining acidity not due to pure acids, is phenolphthalein, which, on the whole, places the neutral point about where it should be according to our general conception of acidity and alkalinity."

The most satisfactory method of ascertaining the urinary acid-index is by titrating a definite quantity with an alkali solution of known strength, using phenolphthalein as an indicator. The technique is as follows:

With a pipette or other measuring instrument measure out 10 Cc. of urine and add 2 or 3 drops of the indicator. To this add, drop by drop, from a burette, a decinormal sodium hydrate solution until a faint pink color is just obtained. (To those having no burette the use of the acidimeter is recommended.[7]) The amount of solution required to give this reaction is read off and multiplied by ten, to reduce the figures to terms of 100 Cc. This is the acidity in degrees or per cent. This figure multiplied by the number of cubic centimeters of urine passed in 24 hours gives the number of acid units passed.

There are other methods of estimating the acidity—involving other principles. Some add an excess of potassium oxalate crystals to the urine before titration, believing that this makes the results more accurate, by ruling out error from the pres-

ence of ammonium salts. Others have various ways of expressing the acidity; some use terms of phosphoric acid, others terms of oxalic acid, and again others terms of hydrochloric acid. These methods all make considerably more figuring, and they also necessitate the use of an empirical alkali solution which is standardized to equal a certain number of milligrams of phosphoric acid, etc.

The above method gives us a very good idea of the acid elimination, and enables one to obtain therapeutic information which is of value.

It must be remembered that the usual examinations made in quantitative urine analyses for medical purposes are all very crude when viewed from the strictly scientific standpoint. The hypobromite method, which is probably the best method for the clinical estimation of urea, gives 6 to 8 per cent. error. The estimation of the specific gravity is rarely corrected to temperature, and consequently varies quite a little from the actual specific gravity of the specimen; and the urinary acidity is probably from 5 per cent. to 10 per cent. away from the true figure if an ideal method could be devised for its estimation. But when the results are compared with the average of a large number of similarly obtained figures from normal individuals or with the estimations previously made on the same patient, it will be seen that approximate figures are distinctly valuable because they give *comparative information* that is just what is needed in the practice of medicine. It is (quite) possible that it is because of the difficulties associated with the *accurate* estimation of urinary acidity that the matter has remained so much in the background.

The physician will not, of course, be as interested in the scientific side of this paper as in the help that it may afford him in obtaining results, and so a few words regarding the principles of treatment which seem to be indicated in those conditions presenting high urinary acidity and the associated conditions may not be amiss.

It must be understood that the acidity of the urine varies in direct proportion with the alkalinity of the blood, and that in turn depends upon the general health and vital powers of the body. The normal blood-plasma is alkaline in reaction, due to the fact that it carries in solution certain alkaline salts, especially disodium phosphate, Na_2HPO_4, and sodium carbonate. Upon this reaction depends to a greater or less extent, the ability of the blood to absorb carbonic acid gas, and thus to carry on the good work of elimination by means of the lungs.

When the normal alkalinity of the blood is diminished and there is an excess of acid substances in the blood, an acid intoxication results which is called by some acidosis and by others acidemia. Both terms are correct, but since the word acidosis is almost invariably associated with serious organic lesions, such as are present with diabetes mellitus, after chloroform anesthesia, and in other serious toxic states, I believe that the term acidemia is more appropriate for the condition which is under discussion at present.[8] It is probable that the blood never becomes acid, as in such cases death would undoubtedly result, since the capacity of the blood for carrying excrementitious substances from the cells to the eliminative organs would be absolutely nil and thus a general paralysis of elimination would occur.

One function of the kidneys is to eliminate from the blood all excess of acid substances, and they are so constructed that they are able, not to filter, but to secrete from an alkaline blood-plasma an acid urine. Now, if the amount of acid substances formed in the body metabolism is excessive, the kidneys frequently can no longer accomplish the work required of them, when the condition termed acidemia results. These harmful substances are carried around in the blood stream, neutralizing to a greater extent the alkalies of the blood and thus diminishing its power to carry carbonic acid gas, hence making a bad condition worse.

It must be evident, therefore, that a diminished degree of the alkalinity of the blood-plasma, evidenced by increased urinary acidity, should be a danger-signal of extreme value to the practitioner, as it is positive that an excess of acid products of metabolism in the blood is most harmful, and it should therefore be the duty of physicians treating such cases to attend carefully to the modification of these particular conditions in addition to changing the causes of the abnormal metabolic functions.

For some time French investigators have been treating such diseases on the assumption that the reaction of the urine is a definite index to the state of the blood, and with excellent results. Their method of estimating the acidity is by Boussingault's titration method, using instead of sodium hydroxide a standard solution of calcium sucrate.(?) Boussingault does not claim that his method estimates the exact quantity of acid present in the urine, but that it represents the physiological acidity —the acidity which is of interest to the medical man.

In those conditions which have as one of their manifestations high urinary acidity it has been conclusively demonstrated that the judicious use of alkaline remedies is of distinct value.

My friend, Dr. Eugene S. Talbot of Chicago, has done much original work along this line and has accomplished excellent results in the treatment of pyorrhea alveolaris[9] and other serious mouth conditions by simply cleaning the mouth thoroughly and neutralizing the general systemic hyperacidity with the suitable alkaline remedies, such as sodium bicarbonate, magnesia, etc. Twenty to forty grains of sodium bicarbonate dissolved in water, with or without other synergistic remedies, is administered about one hour before meals and at bedtime. This very soon reduces the excessive acidity to normal.

That this treatment is of value is evidenced by the resulting influence on the unpleasant conditions which are so commonly associated with the high acid-index. The mental dulness, many aches and pains, irritability and general restlessness, dyspepsia and biliousness, together with the lowered vital resistance evidenced by frequent colds, etc., is modified, the patient begins to mend immediately, and the change is both favorable and marked. The alkalies should be given judiciously, and for not longer than a few days, and a careful watch over the urinary acidity made from day to day. This procedure, associated with the removal of the principal causative factors—intestinal putrefaction, constipation, indigestion, excessive feeding, the sedentary life in general—soon brings the patient to a more normal condition.

Right here I can do no better than to quote from a very able article by Dr. Eustace Smith in the *British Medical Journal*[10] as follows: "Alkalies when absorbed into the circulation increase the alkalinity of the blood, modify secretion, and if

continued too long, may become a fruitful source of anemia and languor. Carried out through the kidneys, alkalies reduce or annul the acidity of the urine, and are at first beneficial, but in a moderate dose or in too protracted a course may cause cystitis or even vesical hemorrhage. The effect of alkalies is not alone limited to the local action on the stomach, for when used with judgment they seem to have the power of influencing the whole system for good and setting up a very favorable change, which is not always a merely transitory improvement. We often have occasion to notice the prolonged benefit which follows a course of alkaline waters at one of the many spas both at home and abroad. Acting in this manner the salts of the alkalies are not so much antacid as alterative drugs, which, given in moderate doses for a period of weeks and months, are able without producing any immediate or striking change to correct a morbid condition of an organ or of the whole system and set up an improvement which if not permanent is slow to pass away. In addition to their value in derangements of digestion, alkalies are of special service in the treatment of urinary acidity and the discharge of sand and gravel."

Careful investigation will prove that in the majority of chronic diseases, and especially in those diseases which are so very common, such as tuberculosis, rheumatism, neurasthenia, etc., together with the hundred and one other conditions associated with autointoxication, will usually show a decidedly high degree of acidity, and also a marked increase in the number of acid-units eliminated *per diem*. When the conditions causing this are modified and the findings in the urine changed, the chances of the patient for recovery are greatly increased, because the body and its cells do not have the extra work of getting rid of these poisons, and hence can better attend to the work of overcoming the ravages of the tubercle bacillus and of building up the body-structure in general.

The study of the urinary acidity and its relation to disease is yet in its infancy, and it is to be hoped that in the future more time and effort may be expended on the investigation of this important subject. My sincere wish is that this paper may serve to arouse greater interest in this important matter.

In closing I will say that the time spent in making the quantitative acidity test as a routine will be more than repaid to the general practitioner in the indications for treatment he will receive from this information and the more satisfactory results derived from the better adjusted treatment.

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ADAMS-STOKES' SYNDROME (HEART BLOCK).

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OF the various cardiac diseases giving rise to arrhythmia, Adams-Stokes's syndrome seems to be, at the present time, foremost in the realm of experimental medicine as well as in the field of journalistic comment. The great problem of the phenomenon of the heart beat, upon which much light has recently been thrown, is involved in a study of this symptom complex. The investigation of this disease takes one into the hypotheses of the myogenists and the neurogenists of the rhythmic quality of the heart beat, which also adds interest to the study.

Adams-Stokes' disease is a functional disturbance of the heart, associated, frequently, with organic change in the auriculoventricular or in the sinoauricular muscle bundles, characterized by (A) ventricular bradycardia, usually permanent but sometimes paroxysmal; (B) visible auricular impulses in the veins of the neck, the rhythm being at variance with that of the arterial pulse; and (C) cerebral attacks—transient vertigo, syncope, pseudo-apoplectiform attacks, or epileptiform seizures.

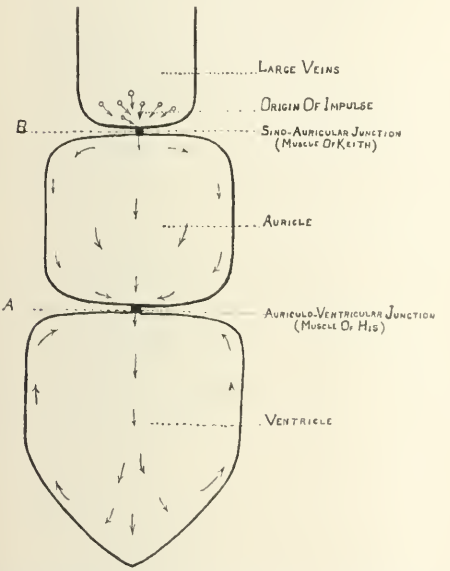
Our present knowledge of the morbid physiology of this disease has evolved from the works of several observers. In 1883 Gaskell[1] and also Wooldridge[2] laid the foundation upon which other workers have built. These investigators succeeded in producing independent atrial and ventricular contraction of the heart by constriction or destruction of the muscle at the atrioventricular junction. To the younger His[3] is due the credit of the anatomical discovery of this muscular connection between the auricle and ventricle. It remained for Erlanger[4] to show that the symptoms of the Adams-Stokes' syndrome are due to an interruption of the function of this atrioventricular bundle of His—heart block.

This muscle bundle, in the adult heart, is about 18 mm. long, 2.5 mm. broad, and 1.5 mm. thick. Its fibers arise in the auricular septum just below the foramen ovale, and pass downward and forward through the trigonum fimbriosum of the auriculoventricular septum, at which place they are in close relation with the mesial leaflet of the tricuspid valve. The band passes along the upper edge of the muscular septum where it joins the posterior edge of the membranous septum, and terminates in the muscular septum just below the root of the aorta.

This discovery by His gave to the myogenists additional substantiation of their theory. It is quite likely that they possess the path of conduction of the impulse passing from the auricle to the ventricle, but a summary of the works of both sects seems to give to the neurogenists the origin of the impulse responsible for the beat as well as the control of the heart.

Hoffman[5] demonstrated the rhythmic contraction of the large veins at the atrium of the heart and suggested that they are probably the seat of origin of the heart's action. Now comes Keith[6] with the anatomical discovery of a bundle of muscle fibers in the junction between the great veins and the atrium of the heart, which fibers ramify about the atria and are lost in the septum. It is not unlikely that this is the path of conduction from the site of origin of the beat (the large veins?) to the atrium. The fact that it has many ganglion cells and nerve fibers suggests that it may be the connecting link between the muscular conduits and the nervous control.[7]

Cardiac mechanism has, of course, been studied in the lower animals. As the origin of the heart beat has been pretty well located in the venous sinuses, it must be remembered that the sinus region in the human heart is not so well separated from the auricle as it is in the lower animals. Recent observations of Koch,[8] however, upon the dying heart of a human fetus, tend to support the view that the sinus is the site of the primary motor centers. He found the last part of the heart to die was that situated in the wall of the coronary vein. This situation, he believes, belongs embryologically to the sinus venosus. The fact that the ramification of the conducting muscle bundle has been traced to this region gives color to the original hypothesis of Hoffman. Schoenberg,[9] from examinations of about fifty arrhythmic hearts, also thinks that the stimuli for contraction originate at the sinoatrial junction. In five cases he demonstrated inflammatory changes in this region.



Diagrammatic illustration of the transmission of stimuli to contract through the heart. The arrows represent the course of the impulse, not the blood current. A block may take place at points A or B (?).

The propagation of the stimulus to contraction has been traced from the auricular to the ventricular portions of the heart by way of the muscle band of His. Because of the proximity of the base to the auricles, one would think that the basal portion of the ventricle contracts first. Tawarra and Retzger,[10] however, have shown that the stimulus-conducting system, continuous with the muscle band of His, passes downward into each muscle to the region of the papillary muscle, where the fibers break up into arborizations and are distributed partly toward the apex and partly toward the base of the heart. From this distribution it would seem that the roots of the papillary muscles and the lower portion of the ventricular wall receive the stimulus to contraction earlier in the cycle than the fibers at the base of the heart. This hypothesis seems to have been confirmed by Rehfish.[11] He has been able to demonstrate in graphic curves that the impulse is received at the apex before any other part of the ventricular wall and that this stimulus to contraction is propagated from this point to the base.

Summarizing the above works, then, we find that the impulse causing the heart to beat originates at the venous end and is transmitted in such a way that the auricles contract first and the ventricles an instant later. In passing from the great veins to the atrium the stimulus traverses the bundle of muscle fibers described by Keith, is then propagated like a peristaltic wave through the auricles, thence by the muscle band of His to the bases of the papillary muscles and lowermost portion of the wall of the ventricle, and finally to the base (see diagrammatic illustration).

Interruption of this impulse is known to take place at the auriculoventricular band. As has been said, Gaskell and Wooldridge produced independent atrial and ventricular contractions by constriction or destruction of this muscle. Erlanger, by an ingenious contrivance, has been able in the dog to compress the bundle of His and produce various stages of heart block, namely, one ventricular silence in twenty-seven auricular beats and one ventricular silence in every other auricular beat, giving a rhythm of 2:1 and proceeding to a 3:1 and a 4:1 rhythm, until finally no impulse passes from the auricle, but the ventricles beat with their own inherent rate, which he estimates to be about twenty-three to twenty-eight beats per minute in man (Osler).

Gibson has suggested that heart block may take place at a higher location than in the auriculoventricular junction, namely, at the sinoauricular junction. In view of the hypothesis that the impulse to contract originates at the large veins, and the discovery by Keith of a muscle band in the sinoauricular junction, Gibson's belief seems to be a well-founded one.

As Holst[13] has suggested, this is not a specific affection but merely a combination of symptoms with constant phenomenon of heart block, and the pathogenesis and etiology may differ in each case. Of thirty-seven cases from which I have been able to compile data, few furnish information that makes statistics on age, sex, or occupation of much value in considering the etiology. The disease seems to be more common, however, in those of advanced years, due, perhaps, to sclerotic changes or a greater susceptibility to fatigue of the muscle fibers.

There is a neurotic group of cases in which all the symptoms may be present but in which no lesions are found post mortem. Heineke, Muller, and v. Hosslin[14] state that this arrhythmia may be due to pathological processes in the vagus nerve.

Syphilis must be named among the etiological factors. Jagic[15] reports the study of a case of the Adams-Stokes' syndrome in a man of thirty years of age in whom no suggestion of syphilis was found until at autopsy a syphilitic gumma was detected in the interventricular septum and bundle of His. Karcher and Schaffner[16] summarize twelve cases, in six of which the muscle band of His was the site of syphilitic change. This symptom complex may also occur in the course of acute infections.

Gerhart[17] tells of a case developing the first week of an attack of acute articular rheumatism in a man aged twenty-five. Symptoms of heart block recurred at intervals and finally disappeared. The patient contracted enteric fever from his attendant and succumbed to hemorrhage in the fifth week. Autopsy revealed considerable anatomical change in the bundle of His, which sooner or later would probably have induced renewed symptoms.

During the normal rhythmicity of the heart's action, sufficient time elapses between successive beats to permit these muscle bundles to return to their normal state, but when they are injured the irritability of these fibers seems to be considerably reduced and therefore may not react to the stimulus from higher up. The impulse is then blocked. If blocking takes place at the muscle band of His, the auricles continue to beat, but there is an asystole of the ventricles, for a time at least.

The macroscopic appearance of the heart may fail to reveal any pathological changes but sections from the organ under the microscope usually show the seat of trouble to be in or encroaching upon the auriculoventricular or sinoauricular bands. These changes vary from a cloudy swelling to complete obliteration of the muscle fibers. Gerhart, Schoenberg, and others have demonstrated inflammatory changes in the musculature between the veins and the atrium or the atrium and the ventricle.

Gummatous infiltration in the interventricular septum and bundle of His is recorded by Jagic[15] in one case, and in half a dozen of the cases summarized by Karcher and Schaffner,[16] the band of His was the site of syphilitic change.

Turrell and Gibson[18] record the autopsy in a case studied for eight years in which the microscope showed a tendency to fibrosis in the region of the central fibrous body of the heart, extending down to and encroaching on the bundle of His. Fibrous myocarditis with atrophy of the muscle fibers of the bundle of His is reported by Beck and Stokes[19]. These changes were due to pressure from calcareous infiltration of the auriculoventricular groove and its surrounding muscular and fibrous tissue.

In spite of the fact that there was a complete obliteration of the bundle of His in one of the three cases of Heineke, Muller, and v. Hosslin,[14] the ventricles frequently contracted with the auricles. These writers assume that under certain circumstances and long duration of the affection, other routes for the conduction may be developed.

In this connection Lewis[20] says that we are not justified at present in assuming that heart block will invariably arise from such lesions in the band of His or that it is invariably dependent upon such a lesion.

That we have not yet come to a full knowledge of the morbid physiology of heart block, is quite evident. When more is known of ionic influences (Loeb) and also the coincidence of vagus impulses and the liberation of potassium in the heart (Howell and Duke), some of the present inexplicable phenomena of this arrhythmia may fade into the dim past.

Adams-Stokes' disease manifests itself primarily upon the vascular system and secondarily upon organs suffering as a result of faulty cardiac action. A constant feature is bradycardia of the ventricles. This, of course, varies in degree. Erlanger estimates the ventricular beat to be about twenty-three to twenty-eight per minute. With the auricles contracting at the usual rate there may be a rhythm of 2:1, 3:1, 4:1, or even as few ventricular systoles as six per minute.

In the case of Karcher and Schaffner[16] tachycardia of the auricles was present; there was a radial and carotid pulse of thirty-three with a jugular pulse three to four times as rapid. This arrhythmia usually progresses to a complete asystole of the ventricles. On the other hand it may be transient. Gerhart[17] reports two cases of retrogression of the Adams-Stokes' symptom complex, in both of which the beats returned to normal.

Failure to empty itself on the part of the right ventricle causes a distention of the auricle and great veins of the neck. Stokes drew attention to the visible auricular impulse in the veins of this region.

The great reduction in the output from the left ventricle of arterial blood serves to explain the various cerebral manifestations of this disease. This anemia may give rise to vertigo, syncope, pseudo-apoplectiform attacks, or even epileptiform seizures. In a case studied by Beck and Stokes[19] the attack was usually preceded by a distinct aura in the form of sounds resembling the ringing of bells or music. The patient suffered from severe pain in the right side of the head and face and spasmodic contraction of the muscles of that side. Unconsciousness for from five to fifteen seconds would come on, when the face would be ashen gray, the lips cyanotic, and the breathing slow, irregular, and stertorous. In the early history of the case unconsciousness was not complete and other symptoms were not so severe.

The development of this symptom complex is of ill omen. The underlying cause, of course, influences the prognosis. If it comes on suddenly, the patient soon perishes; but if the development is insidious death may be stayed for days, months, or even years. In a case studied by Turrell and Gibson[18] the patient lived eight years. Retrogression of symptoms has been reported, but such are uncommon occurrences.

It will be remembered that the late president of one of our greatest railway systems succumbed to this affection.

I have been able to find but little bearing on treatment. Jagic[15] obtained good results from small doses (0.05 gm per day) of digitalis, claiming that the amount was too small to excite the vagus but large enough to act upon the heart muscle alone. He emphasizes the necessity of antisyphilitic treatment in the young. When we consider the nature of the local disease, its etiology and pathogenesis, it must be acknowledged that expectant and symptomatic treatment is at present the method of handling Stokes-Adams' syndrome.

My thanks are due Dr. H. Smith for abstracts of a number of the valuable articles listed below.

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Lewis Block.

THE PRESENT STATUS OF PROSTATECTOMY.*

By J. BENTLEY SQUIER, M.D.,

NEW YORK.

When your President gave me the courteous invitation to address your society, he requested me to speak about prostatectomy, but did not specify to what particular phase of the subject I should limit my remarks. Therefore, it has seemed to me that it would be most interesting to approach the subject broadly and take "account of stock," so to speak, and see if we can arrive at some definite conclusions concerning the present status of the operation. There is somewhat of a selfish motive on my part in presenting this paper before this society. Composed as it is of workers in so many diverse branches of medicine, I am taking advantage of the opportunity to get from the discussion, which I hope will be free, the views of men whose experience with prostatectomy has been other than that of a genito-urinary specialist.

Surgical attack upon the prostate has been known to surgical literature for some centuries past, but it is only during the last twenty-five years that any real advance in the total removal of the organ has been accomplished. Some of the earlier operations which apparently offered much for the relief of prostatic obstruction, fell into disfavor only to be revived years later as original work on the part of other investigators. A notable instance of this is the operation of vasectomy, which in the early nineties was exploited as the great cure for hypertrophied prostate, even though, as early as 1825, Sir Astley Cooper had proven that vasectomy had absolutely no effect upon prostatic enlargement. Although the specimens of his investigations are still extant and on exhibition at the Royal College of Surgeons, Guyon and others had to repeat the experiments which he made in order to disprove the revived theory. I merely mention this to emphasize the need of our occasionally stopping in our work to study the work of those gone before, to see whether our work is really original or whether we are developing some theory of an earlier observer. The names of recent operators are attached to various surgical procedures on the prostate which differ only in detail of technique, where the names of the original investigators whose work made the present operations possible have become unknown. The names of Mercier, Goulet, McGill, Bellfield, and Goodfellow should never be forgotten, for they were the ones that really paved the way for the present complete operations. Fortunately we have practically passed through the period of Bottini-ism and partial removal of the prostate and have come to appreciate the necessity of radicalism when operating upon it. Surgery of the prostate, like surgery of the appendix, has resolved itself into one operation, removal. Whether this can be best accomplished by the abdominal incision, or by a perineal one, is the bone of contention between the various operators. This difference in operating has brought out an interesting observation. The perineal operation requires more elaborate dissection than the high operation, therefore it has especially appealed to the deft skill of the surgical members of the Latin race; whereas the Anglo-Saxon surgeons, with their ancestral boldness have largely been champions of the high operation. The suprapubic operation is a comparatively simple surgical procedure; the perineal operation rightly executed is a delicate, artistic performance. But leaving these considerations out of the question, feeling that the prostatectomist should be equipped to do either operation equally well, what are the points which should make us choose one rather than the other? Let us first consider the difference in mortality in the two operations. By going over a vast amount of literature one is struck by the fact that the death rate is higher when the operation is done suprapubically, but even this is now open to criticism because the death rate from the suprapubic operation has been materially lessened in the past two years. In 1906, Lynn Thomas, in the *British Medical Journal* for November, collected the statistics of 677 perineal and 583 suprapubic operations. The death rate of the suprapubic operation was 7 7/10 per cent. and 6 1/8 per cent. in the perineal. Freyer has since published the statistics of mortality in one hundred and nineteen cases of suprapubic prostatectomies as being 7.5 per cent. The average operative mortality of eight hundred cases of perineal prostatectomy performed by twelve surgeons, viz., Young, Ferguson, Goodfellow, Albarran, Hartman, Watson, Paucet, Legueu, Murphy, Mayo, Rafin, Syms, from results published from 1904 to 1908, was 6.1 per cent.

The combined mortality of my own cases of suprapubic and perineal prostatectomy in the first one hundred cases was 7 per cent. In the last fifty cases of perineal prostatectomy I have had but one death.

Young has published one hundred and twenty-eight consecutive perineal prostatectomies without a death. Deaver believes that the mortality of the two operations is practically the same in equally good hands, provided the statistics are honestly made and not doctored. From a study of statistics, it is very apparent that as we have gained in knowledge of which are the proper cases to operate upon and carefully limited ourselves to the selection of these cases, the death rate between the two operations probably will vary but little.

In contrasting the two operations, the following points present themselves. By the use of various prostatic tractors the perineal operation can be made a visual one. The suprapubic, necessarily, must be tactile. This is no advantage in favor of the perineal, because if the proper plane of separation is entered in removing a prostate suprapubically, the sense of sight is absolutely unnecessary, whereas in the perineal operation it is of the utmost importance. The point is just this, the question of incontinence of urine following prostatectomy, either performed suprapubically or perineally, depends largely on the condition in which the compressor urethræ muscle is left following operation. In the suprapubic operation all the surgical work is performed behind the posterior layer of the triangular ligament, and, therefore, this muscle lying as it does, between the two layers of the triangular ligament is not disturbed. In the perineal operation one encounters this muscle in the approach to the prostate gland, and to save its integrity it must be carefully retracted out of one's way before prostatic enucleation, and it is principally on account of this that the visual sense is such an aid to the proper performance of the operation. The almost complete guarantee which we can give our patient that there will be no incontinence following operation, is one of the great factors which makes the suprapubic operation so attractive. But I believe that if the operator has suffi-

*Read by invitation before the Physicians and Surgeons' Club of Jersey City, on March 16, 1909.

cient knowledge of the structures of the perineum, he can give this same guarantee by the perineal method. The saving of this muscle is the crucial object in prostatectomy, because injury causing a lack of function may leave the patient in a more deplorable state from incontinence of urine than his former retention produced by the obstruction.

The size of the prostate might bias our judgment for or against one or the other operation. A very large prostate unquestionably can be removed more easily through the suprapubic route and a small, hard fibrous one through the perineal. The presence of stone would argue for the suprapubic operation. The presence of carcinoma of the prostate would indicate perineal operation, although surgery for this condition is still in its infancy. The time required to perform the two operations is practically the same. The length of time the patient is confined to bed following operation is possible a little longer after the suprapubic operation, although by proper dressings a patient can be gotten out of bed in twenty-four hours following either operation if the necessity arises through signs of complicating pulmonary hypostatic congestion. Operative results are practically identical disregarding added danger of incontinence following the perineal operation. The wounds heal in about the same length of time. Strictures following operation may occur alike both after the suprapubic and perineal operations. I have seen one following the suprapubic operation and one following the perineal. In one of these, the perineal, which has been reported by Dr. L. Bolton Bangs, it was necessary to open the bladder suprapubically and do a retrograde instrumentation of the urethra and division of the stricture in order to relieve the condition. The case following suprapubic operation by a prominent New York surgeon also especially skilled in suprapubic prostatectomy. Some months later I had to open the bladder and incise a stenosed vesical neck for a practically complete retention. I make but brief mention of this case at this time as it is of such interest that I expect to report it in full before the American Association of Genito-Urinary Surgeons. The majority of text books on the subject refer to stricture following prostatectomy as an extremely rare occurrence. My own belief is, that it occurs more frequently than is reported.

A word or so now in regard to the recovery of the bladder. In patients who have been suffering from cystitis for a long period prior to operation, we must naturally expect some disturbance of the function of micturition even after removal of the prostatic obstruction. Outside of any existing inflammation of the mucous membrane which may increase the frequency of the act, the condition in which the walls of the bladder have been left by the local inflammation will have an important bearing upon the amount of urine which the bladder will hold. Therefore, it is always wise to be guarded in our statements concerning this detail, because even after the removal of the prostate a contracted bladder may be a source of intense discomfort to the patient from the uncontrollable frequency of urination which it produces. On the other hand, a bladder which has been greatly overdistended for a long period sometimes never regains tonicity enough to absolutely evacuate itself, even though the obstruction is removed, and this inability to empty the bladder may prolong the convalescence from a chronic cystitis almost indefinitely, from the tendency of residual urine to decompose.

While the end result of a well performed prostatectomy is alluring to a degree, I think it is only after mature deliberation and a careful weighing of the pros and cons that a patient should be advised to submit to it. The impetus which prostatectomy has had in the last ten years has been tremendous. Prostatectomists have sprung up everywhere, and consequently patients have been submitted to operation without justification. The subject of prostatectomy cannot come up for discussion anywhere without numerous unfortunate results being related. The question should be one of conservatism in the selection of patients for operation. I believe this is the keynote to the situation. It is only minor details which we take into consideration in our choice of operative route, because as I have stated, the difference of mortality between the two methods is not relatively great, but the question of whether the patient is fit to stand any surgical procedure is the one of paramount importance. Palliative treatment has been said to have a practically absolute mortality. The majority of patients succumb to some infection of the bladder or kidneys directly responsible to it. Nevertheless, we all of us have under our care many patients who have enjoyed an infinite measure of comfort by the intelligent use of the catheter for years. I have one gentleman under my care at the present moment who has been using a catheter since 1873 and has never yet suffered from any complication directly attributable to the use of the catheter. Notwithstanding this, if operation has been elected, early operation would naturally give us a better percentage of results than by delaying until some infection has engrafted itself upon the obstructive condition. In summing up my own experience, which is now considerably over a hundred operations, I feel that the future of prostatectomy depends absolutely upon our wisdom in determining the personal equation of operative risk, and that our decision in each case should be chiefly influenced by the functionating ability of the kidneys.

Histology and Pathogenesis of Condyloma Acuminate.—Pietro Stancanelli has examined many specific condylomata and compared their histology with that of *condyloma aconinato*, and as a result gives us the following conclusions: This growth is a product of chronic proliferation which begins in the mucous corpuscles of Malpighi, resulting in infiltration and proliferation of the papillae; a new formed tissue of embryonal type arises, which tends to organization and histological differentiation. From their mode of origin and tendency to necrobiosis the beginning is in the mucous bodies. The tissue is of an inflammatory-hyperplastic type which tends to organization. It is furnished with a peripheral nervous reticulum fibrillar and ganglionic. Bacteriological and bacterioscopic researches indicate that it is not caused by bacteria. The cause is probably an inflammatory substance of chemical nature coming from without and penetrating through the epithelial strata.—*Giornale Internazionale delle Scienze Mediche.*

Rare Observation of Acute Primary Latent Diphtheria of the Middle Ear.—Olimpio Cozzolino records a somewhat rare observation of primary diphtheria of the middle ear. There was no evidence of primary diphtheria of the nasopharynx, although the child had adenoid vegetation and hypertrophied tonsils during the course of the disease. It began with an acute otitis media which rendered paracentisis necessary. Through the opening of the drumhead was to be seen a grayish white membrane covering the structures of the middle ear. When removed with forceps this disclosed a bleeding base. Antitoxin was administered and relieved the general symptoms, but did not cause the disappearance of the membrane. The serum was then used by instillation into the middle ear, and the membrane promptly disappeared. The exudation from the throat showed no diphtheria bacilli; neither did the membrane removed from the middle ear. Still, the author considered that there were enough characteristic symptoms to show a true primary diphtheria of the middle ear.—*Lo Pediatria.*

MEDICAL RECORD.

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THE CUBAN MENACE.

ELEVEN years ago, when it seemed probable that the United States would be compelled to take over the government of Cuba after Spain had been forced to withdraw from the island, we called attention to the sanitary benefit to both countries which would follow this change of government, and expressed the conviction that the result would be that yellow fever would be driven from its stronghold there.

That our prediction of a sanitary regeneration of Cuba was realized and more than realized is now a matter of history. Through the brilliant work of Major Reed and his associates in establishing as a fact the previously unaccepted theory of Finlay regarding the rôle of the mosquito in spreading yellow fever, and the practical application of this fact by Gorgas, the age-long endemic of yellow fever in Havana was terminated. Havana was cleaned and made a popular winter resort; the handful of hardy Northerners whom curiosity had sent to the island each winter was succeeded by crowds of tourists with pockets full of money and of settlers with capital, bringing the beginnings of prosperity to the country. One would think that a people as acute as the Cubans are reported to be would have seen that their prosperity was dependent upon a continuance of the sanitary condition established by the medical officers of the United States Army, and for a time, indeed, they did endeavor to continue the methods of Colonel Gorgas. But the politicians had their myopic gaze turned toward the fleshpots and failed to realize that there would soon be no fleshpots if they went back to their old dirty ways of living. Yellow fever reappeared in Havana and other parts of the island, but fortunately the quarrels of the greedy politicians among themselves brought about a second intervention in the autumn of 1906. While the United States Army was keeping the Cuban "generals" quiet and restoring order and financial integrity to the island government, the medical officers were instituting a fresh campaign against the yellow fever mosquitos, and with considerable difficulty freed the country once more from this disease.

The seeds of the fever, however, are still there. What they are and where they lurk is a problem that calls for further study; it may be that the disease persists in attenuated form among children in the country districts, or there may be fresh importations from time to time from Mexican ports. In any case it is certain that there will be a return of the yellow fever endemic in Havana and other Cuban cities unless the American methods of warring on the Stegomyia mosquito are maintained. That they will be maintained there is unfortunately little reason to hope. It is only a few months since the control of the government was turned over to the Cubans again, and already cases of yellow fever, as we are informed by a trustworthy correspondent, have occurred in different parts of the island. The authorities, he writes, declare these cases not to be yellow fever, but pernicious malaria or malignant jaundice (*ictero grave*), nevertheless it is believed by many that they are cases of genuine yellow fever.

That the Cuban legislators are so shortsighted as not to see that the prosperity of the island, and consequently a full treasury for personal needs, depends upon keeping their country in a sanitary condition and so attractive to tourists and settlers, is a matter that concerns themselves. They may sink their island to the level of Haiti, if they please, but it is intolerable that they should suffer conditions to be renewed in Havana which endanger the health and prosperity of our entire Gulf Coast. The United States government may let the Gomez administration run Cuba as it will, waste its resources, pile up an unpayable debt, and put an end to public improvements, but that Havana can be allowed to become again a pest hole and a menace to the lives and the property of our own citizens is unthinkable. If the Cuban government will not give a free rein and ample funds to the sanitary authorities on the island—there are capable men there to do the work if they are only permitted—then our government should take the matter in its own hands. The sanitation of the island should be entrusted to the United States Marine-Hospital Service, with absolute authority in all matters of public health, and the Cuban administration should be compelled to vote a sufficient appropriation, untouchable by the politicians, to defray the cost. An appropriation for sanitary purposes was made before the Gomez administration came in, but this, we understand, has been covered back into the treasury, and has been or will be spent by men who are "not in politics for their health," nor for the health of their countrymen or ours.

SEWAGE DISPOSAL FOR SMALL TOWNS.

THE disposal of sewage, so that it is not a menace to health, is a question that is still exercising the minds of sanitarians. Although vast improvement has been made in this direction, the last word on the subject has by no means been said, and the problem yet awaits its final solution. The encouraging feature of the situation is that the ordinary unscientific but intelligent citizen is manifesting an interest in the matter, and is beginning to apprehend that effective sanitation is a long step on the road to good health, and that slipshod methods of carrying out sanitary measures bear with them their own punishment, from the standpoint of both health and expense. The primitive modes of get-

ting rid of sewage in rural districts are undoubtedly a fruitful cause of mortality and sickness. The old oaken bucket is not infrequently the conveyer of dread epidemics of disease, and many of the picturesque spots of the country side, regarding which poets and painters are so wont to rave, are often but whited sepulchres, concealing and fostering the germs of numerous fell maladies. Of course, it would be impossible in a sparsely populated country as is America to dispose of sewage matter everywhere in an effective way. In strictly rural districts, the only thing to be done is to endeavor to educate the inhabitants themselves to take elementary and necessary precautions to prevent the spread of disease, that is by exercising ordinary care in the disposal of sewage.

In small towns, however, more than this should be attempted, and more elaborate schemes for treating sewage are assuredly indicated. In Great Britain, where, on account of the far denser population, the conditions as regards disposal of sewage are more pressing and acute than in this country, the question of small towns in this relation is arousing general concern, and the decision has been come to that modern methods of sewage disposal must be introduced, and in fact in a large number of instances these have been already instituted. There is, however, no agreement with regard to the particular form of sewage disposal best suited to small towns.

In the *Sanitary Record* of April 22, this matter is treated at some length, and it is shown from the report of the British Royal Commission on Sewage Disposal, issued a few months ago, that in the majority of cases land treatment is the best and cheapest method to adopt. At the same time it should not be forgotten that the old idea that sewage farms could be so managed as to be a source of profit to the town has been wholly exploded. When it has been decided that such a farm shall be made near a town, there are certain rules to be observed which may almost be termed axioms and which are laid down in the article in the *Sanitary Record* above mentioned:

"The farm should be placed in such a position that while it is within easy reach of the town it should be sufficiently remote to be neither an agency for the spread of disease nor an offense to the nostrils. All sewage works are liable at times to give off unpleasant smells; they should therefore be situated away from dwelling houses wherever this is practicable. The area of a sewage farm should be large enough to allow of ample space for the proper treatment of sewage that is placed upon it. Again, the farm should be situated if possible upon low-lying lands, so as to avoid to a great extent the expense of pumping, which adds very materially to the cost of up-keep. The success of a sewage farm depends very largely upon its management. A well conducted farm will yield excellent results, and a badly managed one will be a source of constant danger, nuisance, and expense." All the foregoing is without doubt true, and it is desirable in the interests of public health that the sanitation of country districts and of small towns should be more carefully supervised than is at present the case. Modern methods of sewage disposal are expensive and for this reason many inhabitants of small towns are opposed to the institution of the system, but on the other hand, the gain in healthfulness is so great that it is at all times money well spent.

PUERICULTURE.

Diseases of the body politic, like many of those of the human body, naturally produce in the course of time their own correctives or antitoxins and so cure themselves. The civilized world at present is suffering from a more or less severe epidemic of "race suicide," but already the reaction is beginning and in the movement of puericulture, naturally enough taking its origin, or at least undergoing its greatest development, in France, where the death rate exceeds the birth rate, there are signs of the working of the antitoxin which will eventually restore the normal ratio of births to deaths. The movement is not without interest to us also in a country where the so-called pure American is dying out and is being replaced by a conglomerate of all the races of the world. G. Eustache, in the *Journal des Sciences Médicales de Lille*, for March 27 and April 3, 1909, divides the subject of puericulture into three divisions: the duty of having children; the duty of bringing them into the world healthy; and the duty of preserving them in good health so that they may have the chance of living to adult age.

As to the first of these duties he arraigns his countrymen as too lazy to bring forth children, and cites this fact as a sign of degeneration in the race and the greatest peril of society. He calls it pediophobia in an age of phobias. It is a product of the egoism of the parents which increases as they rise in society. As to the second duty society should be warned of the dangers to the child of the possession of certain hereditary diseases by the parents, which will inevitably lessen his chance of a healthy life. Did the public understand fully these dangers it would protect itself against them. Marriage would be regulated by laws which would require healthy parents. The care of the mother during pregnancy would be greater and more rational, so as to allow her to produce a stronger and better child. The State would aid the pregnant mother when she was too poor to care properly for herself and her family, and would allow her to live without severe work during the last two months of pregnancy. All measures that would tend to produce abortion during the early months of pregnancy would be guarded against.

Under the third head—that, namely, of keeping the child in good health, are included the prevention of the avoidable diseases of childhood, most of which are the result of infections. This is a question of advanced hygiene. Preventing the effects of cold is important, and may be done by suitable clothing that allows the infant to exercise and produce his own heat, while the air is kept fresh by proper ventilation. The whole question of infant feeding comes next, and we need not discuss it here, further than to say that we must as-

sure every mother that she is capable of suckling her own child, and that it is her greatest duty to do so. Very few women cannot nurse their children, provided they wish to do so. Here, says Eustache, we have to combat the wishes of the grandmother and all the female members of the family, who will try to persuade the mother that she is too refined to nurse her child. Next in importance come the consultations for nursing mothers which have been so successful in France that they may well be imitated here. At these consultations the mother is taught how to manage the feeding and care of her infant, and she is shown how to obtain sufficient nourishment for herself to produce good milk for the child. When she is too poor to live properly she is furnished with nourishing food at cheap restaurants or without cost. All the hygienic measures necessary for the care of the child are taught her, and the infant receives medical care when sick. If artificial feeding becomes necessary proper milk is supplied. Could we have such "consultations" for healthy infants and such stations as the *Gouttes de Lait* of Paris we would need fewer Straus stations for the distribution of pasteurized milk because of less artificial feeding. As the author puts it, we should have no need of so many specialists in children's diseases since there would be few such little patients to care for, and percentage mixtures prepared by trained nurses would sink into the background with the increased knowledge of the mother and the rise of maternal alimentation.

Uncinariasis in the Army.

Considering the careful physical examination undergone by each applicant for enlistment in the United States Army, one might suppose that a recruit depot would contain a comparatively healthy body of men. One would certainly not expect to find there a widespread infection of a chronic disease. When, therefore, among these supposedly healthy and physically perfect men at Fort Slocum Captain Siler, as he reports in *The Post-Graduate* for May, 1909, found 90 per cent. of all those recruited from the Southern Atlantic States suffering from hook worm disease, it would seem that the infection in those districts must be more nearly universal than even the recent work of Stiles had led us to believe. Stiles a few years ago asserted that from 20 to 50 per cent. of all the inhabitants of the Southern States suffered from this form of anemia, and stated that the physical backwardness, lack of energy, and industrial inferiority of the "poor whites" were due to the disease, and not to simple laziness. The crusade of Stiles and his coworkers caused a decided awakening through Georgia, Alabama, and the Carolinas, an awakening so sudden that within a few weeks the supply of thymol in the country was practically exhausted. Later it was found that in Porto Rico 80 per cent. of the population were victims of the disease and that 30 per cent. of the mortality was due to it; and now Captain Siler tells us that 90 per cent. of the apparently healthy youth of the South are in reality infected with uncinariasis. Though many seem to be but slightly affected and appear to be in fair health, at least for some time after contracting the disease, many more are so debilitated that they become incapacitated for any prolonged labor, and as such are unproductive citizens and a care and expense to the State. It would be well if the health authorities in the States affected took up this subject and carried out an extended and systematic warfare against the parasite. The treatment of the disease is simple, and the cure is practically certain and quick. The expense of such a campaign would be negligible in comparison with the industrial and agricultural advance which would be sure to follow its successful undertaking.

Bedside Teaching.

The method of teaching medicine in this country is gradually undergoing a change from the didactic to the practical, from the systematic lecture in the amphitheater to the informal talk at the bedside. In some instances this great step has been made at one bound in the foundation of a new institution. In others it has come about gradually and insidiously more by the quiet work of the younger instructors who here introduce a ward round and there assign a student to a patient for the taking of a history or the making of a physical examination, thus planting the seeds which have grown to the formation of regular systematic dispensary and bedside study. Those who have been most enthusiastic in bringing about this change in method have been the Americans who have spent some time in the great universities and hospitals of England and Scotland, where the system of clinical clerks had its origin. It has, in fact, been common to speak of the clerking system, as the Edinburgh method of teaching medicine. That we, of the United States, have not been backward in this change is emphasized in a recent article by Byrom Bramwell in the *Edinburgh Medical Journal* for May, 1909, on the teaching of medicine in Edinburgh University. Bramwell appeals strongly for an increase in the bedside work and a reduction in the didactic lectures. The number of clinics should be greatly increased provided the number of students is kept small, and the clinical lectures should be abolished entirely. The author then refers to an American university in which the lecture has been displaced by ward teaching, and says that they may learn a great deal and get many hints for improvements in Edinburgh by a study of the methods of the younger and smaller school.

News of the Week.

Abuse of Medical Charity.—At a meeting of the Chicago Medical Society, held May 26, this subject was discussed at great length, and a systematic business administration scheme was proposed which it is thought in itself will largely relieve the situation of the able-to-pay patients. The medical profession, at last, proposes to introduce business methods in the hospitals and dispensaries. The United Charities of Chicago is willing to cooperate with the medical profession in establishing a central registry, which will be a further aid to this end, and has kindly offered the services of its investigators who are scattered through the city to help determine the merits of doubtful cases.

To Enlarge the Mt. Sinai Hospital.—Plans have been filed with the Building Department for improvements in the dispensary and training school

buildings of the Mt. Sinai Hospital, at Madison avenue and One Hundredth street, New York. Two stories will be added to the dispensary, making five in all, and a seventh story will be put on the training school. The ornamental roof house of the medical pavilion will also be considerably enlarged. The two new floors of the dispensary building will be fitted up for a laboratory and a neurological ward, rooms for internal medicine and skin and eye treatment, and a special *x*-ray room.

New Laboratory Facilities.—A large animal house to be used by the laboratories of the College of Physicians and Surgeons, New York, will shortly be erected. The building will have a steel frame, filled in with plaster, and will cost about $10,000. It will be placed back of the present college buildings on Sixtieth street.

Professor Irving Hardest, the head of the Department of Anatomy at the University of California, has been appointed to the head of the Department of Anatomy in the Tulane University of Louisiana.

Diphtheria in School.—Public School No. 61, in East New York, was closed by order of the Department of Health, on May 28, because of an epidemic of diphtheria among its pupils. At that time four deaths had occurred, and thirty cases were under observation. The school will be thoroughly fumigated before the children are allowed to return.

Typhoid Epidemic.—A large number of cases of typhoid fever are reported from Madrid, Spain, where the disease has been epidemic for some months. It is said that the deaths have averaged about twenty a day, and at the end of May there were over eight hundred cases in the San Juan de Dios Hospital.

Free Treatment of Diphtheria and Hydrophobia.—The appropriation bill which passed the House of Representatives of Illinois recently gives the State Board of Health $46,000 for the purpose of distributing free antidiphtheritic serum throughout the State. For this purpose $30,000 was appropriated by the last General Assembly. The Board has also been allowed $4,000 for the free treatment of poor persons said to have been bitten by rabid animals or otherwise in danger of hydrophobia.

Outdoor School.—The Board of Education of New York City has approved the plan to establish a public school annex on the roof of the Vanderbilt Clinic, Amsterdam avenue and Sixtieth street, for the benefit of children attending the Red Cross Day Camp at the clinic.

The Harvard Medical School Alumni held their triennial dinner at the Hotel Somerset, in Boston, on May 20. President Eliot, President A. Lawrence Lowell, Dr. William Osler, and Gen. Leonard Wood were the guests of honor.

Medical Graduates.—Eight students, one of them a woman, were graduated from the medical department of the University of Nebraska on May 20. Dr. W. W. Keen of Philadelphia delivered the address to the class.

The Denver College of Medicine, the medical department of the University of Denver, graduated twenty-three students on May 13, the diplomas being bestowed by Chancellor Buchtel.

At the annual commencement exercises of the Baltimore Medical College, on May 25, fifty-seven students were graduated. The address to the graduates was delivered by ex-Governor Warfield, and the diplomas and prizes were presented by Hon. J. Charles Linthicum.

Compulsory Vaccination in Venezuela.—Acting upon a recommendation of the Sanitary Commission, President Gomez of Venezuela has issued a decree making vaccination against smallpox compulsory throughout the republic. The ruling applies alike to native and foreigners, and non-compliance will be punishable by fines and imprisonment.

Charitable Bequests.—The will of the late Miss Mary E. Lewis, who died in Brooklyn recently, provides for the gift of $1,000 to the Seney Hospital of that city.

By the will of the late Rev. Samuel E. Appleton of Philadelphia the sum of $10,000 is bequeathed to the Episcopal Hospital for the endowment of two memorial beds.

Home for Nurses.—Mr. James A. Patten of Evanston, Ill., recently donated $40,000 toward the erection of a home for nurses at the Evanston Hospital. This home will provide accommodations for forty employes, including internes and nurses.

Removals.—Dr. James W. Markoe has removed to 20 West Fiftieth street. Dr. Frederick Peterson has removed to 20 West Fiftieth street.

The Franklin County (Vt.) Medical Society, at its annual meeting at St. Albans on May 20, elected the following officers for the ensuing year: *President,* Dr. Alan Davidson; *Vice-President,* Dr. A. I. Pratt of Enosburg Falls; *Secretary-Treasurer,* Dr. G. C. Berkley of St. Albans; *Delegates to the State Convention in October,* Drs. J. R. Patton, Arthur Morton, and C. S. Scofield.

The Missouri State Medical Association held its annual meeting in Jefferson City during the third week in May. The following officers were elected for the ensuing year: *President,* Dr. Tinsley Brown of Hamilton; *Vice-Presidents,* Drs. J. M. Bell of St. Joseph, J. A. Harris of Mount Vernon, H. G. Schobe of Paris, B. W. Hayes of Jackson, and J. L. Thorpe of Jefferson City; *Secretary,* Dr. A. W. McAlester, Jr., of Kansas City; *Treasurer,* J. Franklin Welch, Salisbury. The next meeting will be held at Hannibal, in May, 1910.

The Iowa State Society of Medical Women was in session at Dubuque on May 17 and 18. The election of officers for the ensuing year resulted as follows: *President,* Dr. L. Means, Des Moines; *First Vice-President,* Dr. Kate Horpel, Boone; *Second Vice-President,* Dr. Pauline Myers-Townsend, Marshalltown; *Secretary,* Dr. Lena Beach, Cherokee; *Treasurer,* Dr. Clara Whitmore, Cedar Rapids.

The Montana State Medical Association, in session at Missoula on May 12 and 13, elected the following officers: *President,* Dr. T. D. Tuttle, Helena; *First Vice-President,* Dr. J. J. Buckley, Missoula; *Second Vice-President,* Dr. F. C. Cuttle, Hunters Hot Springs; *Third Vice-President,* Dr. F. E. Buchen, Hamilton; *Secretary,* Dr. H. C. Kistler, Butte; *Treasurer,* Dr. C. T. Pigott, Butte. Hunters Hot Springs was selected as the meeting place for next year.

The Oklahoma State Medical Association, at its meeting at Oklahoma City on May 13, elected the following officers for the ensuing year: *President,* Dr. W. C. Bradford of Shawnee; *Vice-Presidents,* Dr. C. L. Reeder of Tulsa, Dr. D. A. Myers of Lawton, Dr. J. W. Duke of Guthrie; *Secretary-Treasurer,* Dr. Claude Thompson of Muskogee.

The Middlesex East District (Mass.) Medical Society, at its annual meeting, on May 19, elected the following officers: *President,* Dr. Philip Hammond of Winchester; *Vice-President,* Dr. Ernest D. Richmond of Reading; *Secretary,* Dr. F. Robertson Sims of Melrose; *Treasurer,* Dr. Charles Dutton of Wakefield.

The California State Homeopathic Medical Society held its annual convention at San José on May 12 to 14. The election of officers resulted as follows: *President,* Dr. Francis B. Kellogg of Los Angeles; *Vice-President,* Dr. Edgar R. Bryant of San Francisco; *Second Vice-President,* Dr. Eleanor Martin of San Francisco; *Secretary,* Dr. Guy E. Manning of San Francisco; *Treasurer,* Dr. Charles M. Tisdale of Alameda; *Board of Directors,* Dr. William Boericke of San Francisco, Dr. Sidney Worth of San Francisco, Dr. A. K. Crawford of Oakland, and Dr. Charles L. Tisdale of Alameda.

The Iowa State Medical Society, at its annual meeting in Dubuque on May 19 to 21, elected the following officers for the ensuing year: *President,* G. E. Crawford of Cedar Rapids; *First Vice-President,* M. L. Bolding, Cherokee; *Second Vice-President,* H. H. Clark of McGregor; *Secretary,* V. L. Treynor, Council Bluffs; *Treasurer,* W. B. Small of Waterloo; *Delegate to National Convention,* A. L. Dwight of Carroll. Des Moines gets the next meeting.

The Illinois State Medical Society, at its annual meeting in Quincy on May 18 to 20, elected the following officers: *President,* Dr. J. Leaming Wiggins of East St. Louis; *Vice-Presidents,* Dr. C. U. Collins of Peoria, and Dr. James E. Stubbs of Chicago; *Secretary,* Dr. Edmund W. Weis of Ottawa; *Treasurer,* Dr. Everett J. Brown of Decatur; *Delegates to the American Medical Association,* Drs. Frank Billings, Charles S. Bacon, and James W. Pettit.

Obituary Notes.—Dr. Thomas J. Happel of Trenton, Tenn., died at his home, from tumor of the brain, on May 24, aged 62 years. Dr. Happel was graduated from the University of Virginia medical department in 1871, and in the following year received a degree from New York University. He had long been active in the affairs of the American Medical Association of which he was vice-president in 1897, and a member of the Board of Trustees from 1898 until his death. He was a member of the Tennessee State Medical Association, the Gibson County Medical Society, the Tri-State Medical Association of Tennessee, Arkansas, and Mississippi, and the West Tennessee Medical and Surgical Association. In addition to other public interests he had served as health officer of Gibson County for sixteen years, and as president of the Trenton Board of Health for twenty-eight years.

Dr. Dorrance William Aldrich of Galesburg, Ill., died at his home on May 8, aged 63 years. He was graduated from the Bellevue Hospital Medical College in 1874, and was a veteran of the Civil War, and a member of the American Medical Association.

Dr. Salvatore Gomez, formerly acting assistant surgeon of the Public Health and Marine-Hospital Service at Gibara, Cuba, and recently head physician of the Spanish-American Iron Company's Hospital in Cuba, died in that institution on May 16, aged 47 years. Dr. Gomez was graduated from the Long Island College Hospital in 1891, and practised in Brooklyn until 1898, when he enlisted for the Spanish-American War. Since that time he had made his home in Cuba.

Dr. Thales Irving Stanton of Willimantic, Conn., died suddenly on May 26, aged 60 years. Dr. Stanton was graduated from the medical department of New York University in 1878, and was widely known throughout the eastern part of Connecticut.

Dr. Adele Stewart Hutchison, for twenty-eight years a practising physician of Minneapolis, died, on May 20, at Andover, Mass., after a long illness, aged 62 years. Dr. Hutchison was graduated from the Boston University School of Medicine in 1877, and the following year settled in Minneapolis. She was a member of the American Institute of Homeopathy.

Dr. Elizabeth D. Kane of Kane, Pa., died on May 26 at the age of 73 years. She was graduated from the Woman's Medical College of Pennsylvania in the class of 1883. She was the widow of General Thomas L. Kane of the famous Bucktails that figured in the Civil War. She was the mother of Dr. Eva O'Veal Kane and Dr. Thomas L. Kane.

Dr. L. E. Zech of York, Pa., died suddenly on May 22, from heart disease, aged 47 years. Dr. Zech was graduated from the University of Maryland Medical School in 1892.

Dr. William L. Steele of Helena, Mont., died at his home on May 16, aged 76 years. In 1857, Dr. Steele was graduated from the Medical College of the State of South Carolina, and in 1863 settled in Montana, where he practised until 1898. He was a member of the Montana State and Lewis and Clarke County Medical Societies, and had been active in public life.

Dr. Roger Brooke of Sandy Spring, Md., died at his home, on May 9, of heart disease, aged 63 years. Dr. Brooke was graduated from the medical department of the University of Maryland in 1887. He was a member of the American Medical Association, and was long a member and at one time vice-president of the Medical and Chirurgical Faculty of Maryland.

Dr. J. L. Hedleston of Woodlawn, Ala., died on May 19, aged 70 years. He was a graduate of the Medical College of the State of South Carolina in the class of 1855.

Dr. John Hammel of Buckshire, Ind., died at his home, on May 12, after a long illness, aged 54 years. He was graduated from the Kentucky School of Medicine in 1880.

Dr. Joseph B. Kinley of Denver, Col., died suddenly, on May 13, while presiding at a banquet given by the medical college of which he was Dean. Dr. Kinley, who was fifty years of age, was graduated from the Hahnemann Medical College and Hospital of Chicago, in 1885. He was Dean and professor of dermatology and genitourinary diseases in the Westminster University College of Medicine, and a member of the American Institute of Homeopathy, the American Society of Microscopists, the Colorado State Homeopathic Medical Society, and also of the Colorado Academy of Medicine.

Dr. C. B. Paul of Des Moines, Iowa, died suddenly at his home on May 8, aged 48 years. Dr. Paul began the study of medicine at the Iowa State University, and completed the work at the Marion Sims College of St. Louis, from which he was graduated in 1883.

Correspondence.

THE ILEOCOLIC CIRCLE.

To the Editor of the Medical Record:

Sir:—I read in the Medical Record of December 12, 1908, a most interesting article by Dr. B. Robinson of Chicago entitled "The Ileocolic Circle." I only regret that Dr. Robinson, without doubt insufficiently informed, should have neglected to mention in his article that I had already, at the close of 1906, described and illustrated the ileocolic circle, which was the subject of his article. He will find in "Les Travaux de Chirurgie anatomo-clinique," published under the direction of H. Hartmann, professor of the Paris Faculty of Medicine ("Chirurgie de l'Intestin," 3e Série, 1907, G. Steinheil, Paris), an article wherein I devote several pages to an account of my researches concerning the vessels of the colon. There are four illustrations in my text, in which one may clearly see the ileocolic circle described two years later by Dr. Robinson.

On page 127 of my article I wrote as follows: "Entre l'artère cœco-colique et la première branche de l'iléon formée par la terminaison de la mésentérique, autrement dit, entre le territoire artériel du gros intestin et celui de l'intestin grêle, il existe d'une façon constante, *hormis l'anastomose qui suit le bord mésentérique de l'intestin*, un espace triangulaire, avasculaire, libre de toute anastomose, dans l'épaisseur des feuillets mésentériques, mais où les ganglions lymphatiques abondent."

And also, on page 126, the origin of the appendical arteries: "L'artère colo-cœcale se dirige vers l'iléon, en décrivant une arcade qui passe dans l'aire de l'angle iléo-cœcal; *c'est elle qui abandonne le plus souvent les artères cœcales antérieure et postérieure et l'artère appendiculaire.*"

I would request the insertion of this letter in the Medical Record, the object of which is solely to promote the exact bibliography of the ileocolic curve.

Dr. J. Okinczyc,
Prosector at the Paris Faculty of Medicine.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HEART FEVER—MONGOLIAN IMBECILITY—LINACRE LECTURE—NURSING QUESTIONS, DEPUTATION TO GOVERNMENT, DISTRICT NURSING JUBILEE—ROYAL SOCIETY'S CONVERSAZIONE.

London, May 14, 1909.

In continuation of my last week's notes on Dr. Norman Moore's lectures on rheumatic fever, or, as he would like to have it called, "heart fever," I may remark that, in accordance with his view of its pathology, the cases of recurrent attacks are in reality instances of a long-continuous disease. As we hold that a recurrent tertian fever is due to the parasite having remained in the system just as the various indications of tubercle bacilli become active from time to time, so the several attacks of "heart fever" from which many patients suffer he regards as successive developments of an organism which remains in the endocardium throughout the series of attacks. Thus heart fever has a very variable duration; it may last two months and no longer, but that is rare; it often lasts three to ten years or longer still. A long attack is more probable when it begins in childhood. While endocarditis is thus to be regarded as an essential part of the disease, Dr. Moore admitted that some few cases recovered without permanent damage to the valves, and a further small percentage received damage the signs of which in time disappeared, but he maintained that the great majority acquired permanent valvular disease. He added that the proportion of those which are not permanently damaged may be increased by judicious treatment and that the commonest cause of continuance of the disease is the patient getting up too soon. A condition of absolute rest in bed as much as in enteric fever was advised. Dr. Moore's experience was that redevelopment is to be feared whenever the patient is allowed to leave his bed before the temperature has been absolutely normal, without any rise whatever, for three weeks at least from the last rise. Even after this the chart should be watched day by day and if any definite rise occur he should go back to bed for another three weeks. If no rise occur, he should, when possible, continue under observation for three months, taking salicylates in diminishing quantities, and great care being taken that no strain be put on the heart. Thus a school boy must not join in games all this time, and a lad at home should have carefully regulated exercise and get one rest or more in the day, as well as a long night. Of course, so experienced a hospital physician sees that three weeks before getting up is a serious call, but may not be enough in such cases—a point which would be discovered if three weeks were to be adopted as the minimum. He said he was "certain" an earlier day would only tend to prolong the disease.

The result of an attack of rheumatic fever to the valves of the heart cannot be estimated until the patient has been up and about for some time, and the tone of the myocardium has been quite restored. Then the damage may prove either less or greater than anticipated. One remark made by Dr. Moore was that in every case it is safe to predict that there will be no permanent damage to the joints. This shows how rigidly he would exclude from heart fever all cases of chronic rheumatism or any other form of arthritis. Yet the experience of most spa physicians supplies cases in which various forms of so-called rheumatic affections began, according to their history, with attacks diagnosed by their attendants as rheumatic fever.

A point of practical importance when a case of valvular disease is brought before us was urged by Dr. Moore, viz., taking the temperature. Thus only, he declared, can we be sure that there is not endocarditis present, and that treatment need not be rest in bed. Most physicians have seen patients walk to hospital who had been playing about the day before, but when examined had marked alteration of cardiac sounds with raised temperature, proving that they had had endocarditis for days. Some arthritis would be present, perhaps, with a little pain in a small joint. In such case the first question should not be when he had rheumatic fever, but has he got it now? Must endocarditis be treated or only an attempt made to relieve the difficulties of valvular defect? In conclusion the learned lecturer reiterated his firm conviction that (1) rheumatic fever is a single definite disease; (2) that endocarditis is always an essential part of it; (3) that its duration may extend over many years, and that these circumstances but half demonstrated, as they necessarily are at present the safest indications for treatment. Quoting Lord Lyndhurst's remark that the "worst exaggerator is he who understates." Dr. Moore said he had tried to avoid that fault, too common in books on this subject, and to state the conclusions to which his own experience had led him, without abatement and without reservation. He had risked censure for this because he believed the adoption of his views would not merely lead to the saving of lives but also to the prevention of many of the fatigues, disappointments in work, checks in usefulness, and other inconveniences which follow valvular disease consequent on the endocarditis of rheumatic fever.

Those who are interested in Mongolian imbecility had an excellent opportunity of studying its features at the meeting of the Clinical Section, Royal Medical Society, on the 30th ult., when no less than fourteen examples were exhibited by five members. The ages varied between nineteenth months and nine years. Some had congenital heart disease, others had not. Some had been treated with thyroid gland, others not. There was just as great variety in the degree of intelligence, though in none was it very great. Some were dirty, but others were fairly clean in their habits. Some were remarkably imitative, some fond of music, some playful, some mischievous, some very ill-tempered, and so on. A selection of the remarks made by the exhibiting members may interest you. Dr. Sutherland, having spoken of the chief features of the condition, said to deal successfully with these cases we need to know the cause, but it remains quite unknown. He thought thyroid was useless and a case improved by it was probably not Mongolian. Many died from tuberculosis in the first two or three years of life.

Dr. Poynton said he had treated a number of cases of the usual type for prolonged periods with thyroid, but thought it had little if any influence on the constitutional deficiency. Full doses soon brought on excitment and disturbed health. He only gave 1 grain doses of powdered gland when the treatment was continued a long time.

Dr. Langmead said one of his cases was the first-born of a young healthy mother, aged twenty-six. Contrary to the usual rule of birth toward the end of childbearing or late in large families. In his second case the patient was the tenth child and the mother thirty-nine at its birth. Both had congenital heart disease, one an accessory right auricle.

Dr. Fletcher said it was difficult to explain the almost constant presence of blepharitis. The flushed cheek only appeared after the second year and was preceded by a paleness and transparency of the skin.

Dr. L. Guthrie said thyroid was no use unless there were signs of cretinism. His cases were very imitative. One of them would mimic all he saw in hospital, as feeling pulses, auscultating, and simulating the walk of a lame patient. Notwithstanding this, neither of them seemed to profit by teaching.

Dr. Shuttleworth feared there was much confusion in the mind of many as to the distinction between Mongols and cretins. He did not think thyroid improved Mongols. They mostly died early, but some had survived to full age. The condition was seen in 5 per cent. of the defectives in the Royal Albert Asylum and in 2.6 per cent. in the Earlswood Asylum.

The Linacre lecture of St. John's College, Cambridge, the establishment of which dates back to the time of Henry VIII., was delivered this year on the 6th inst. by Sir Victor Horsley. He took as subject "The Motor Area of the Brain" and said it had been gradually discovered by researches carried on for a good many years that the movements of different parts of the body were under the control of various parts of the brain and one object was to determine how far those parts which controlled the movements of the arm were the recipients of sensation. He described a number of experiments he had made on animals and on men, the latter being of the greater importance, because only man could obey directions and indicate his sensations. In professional work, when tumors had to be removed from the brain, their presence was detected and located by failure of arm, hand, or fingers to perform their functions. When a tumor was removed from a part of the brain which was believed to control these movements, sensation was gradually recovered. The experiments that had been made were described and illustrated by lantern slides.

Yesterday the Prime Minister received a deputation got up by the Society for Securing Registration of Nurses. Sir V. Horsley's help had been secured and he said he made the amazing statement that the British Medical Association was the only body that could represent the medical profession—thus ignoring the General Medical Council and all the colleges and setting up a mere trading company. Mr. Asquith quietly corrected him and showed that there was not the unanimity he had represented in the profession. The Premier added that he had a list of 100 of the most eminent members of the profession, in all departments in London, and about 120 of the highest distinction in the provinces, who were entirely opposed to the legislation suggested. Also 49 matrons of London hospitals and 109 of provincial hospitals equally opposed. The question, therefore, was controversial and he only promised to give it careful consideration.

Yesterday, too, at Liverpool nurses were in evidence, though of a different order. The Queen Victoria District Nursing Association had organized a congress to mark the jubilee of the first establishment of district nursing in England. Messages from Miss Nightingale, Lady Aberdeen, and others were received. The Princess Louise and Duke of Argyll paid a visit and Her Royal Highness brought a sympathetic message from the Queen, who was sorry to be away, but would learn all that went on. "She feels that this is a thing that only women can do. The women try to be like men at the present day, but this is a thing which men cannot do, so we feel that here we are superior to anybody." You may guess Her Royal Highness was highly applauded. The congress is being continued to-day.

The Royal Society's conversazione was held on Wednesday, when many exhibits illustrating the advances in science were on view. Nothing seemed more generally attractive than Dr. Bushford's diagrams shown for the Cancer Research Fund and the Kashmir fire-basket, to the wearing of which cancer of the abdominal skin is attributed; the microbe of tick fever, radium in various forms, and other interesting exhibits made this meeting notable even for the Royal Socety.

Incontinence of Urine in Children.—Meuljikovsky of St. Petersburg divides cases of incontinence of urine in children into two classes. One in which the bladder is hypersensitive he treats with cocaine and adrenatin. The other, characterized by a bladder of reduced sensibility, and consequent overdistention and dribbling, he stimulates with 1 to 3 per cent. silver nitrate.

OUR LETTER FROM ROME.

(From Our Regular Correspondent.)

ROME AS A HEALTH RESORT—OPEN-AIR HOSPICES FOR CHILDREN—WAR AGAINST MALARIA—UNAUTHORIZED EMBALMING.

Rome, May 6, 1909.

There are two important factors that are almost always lost sight of in looking at Rome from a hygienic and climatic standpoint, and these are the sea and the mountains. Rome is really a seaport, although the Tiber is not freely navigable to all vessels. Only a short time ago we had a torpedo destroyer actually moored in the city, and the distance from the mouth of the river is a short fifteen miles, while an air line from the city to the sea reduces the distance greatly. About the same distance on the other sides are the Sabine Hills, Mount Soracte, the Alban Hills, and farther north the spurs of the Apennines, the city itself being about 200 feet above sea level. There is not a better watered city in the world, and few as well watered, with its excellent drinking water and copious fountains in every piazza or open space. Nor is there one that affords purer and more health-giving air, as might be expected from the topographical situation. The winter climate is cold enough to make indoor fires comfortable, and we always have a stretch of some six weeks of unbroken cloudless weather in December and January—just crisp enough to be invigorating. The temperature of the summer months averages about 85° F. For bronchial affections in all their forms and neurasthenia a winter in Rome is usually very beneficial, and one can be assured of being cooler all through the summer than in either New York or Boston.

The municipality evidently favors open air, whether for prophylaxis or treatment, and realizing how many cases of incipient phthisis or those predisposed to it may be thus cured or benefited have established hospices in the hills for the climatic treatment and recreation of children during the summer months. These hospices are entirely gratuitous, the only requisites for admission being that the child must be between 7 and 12 years of age and must have an attestation of poverty and a physician's certificate of vaccination.

Roman fever, so called, no longer exists. It was really a malarial fever with every now and then a malignant case. Since the Campagna has been drained and cultivated, and old portions of the city, where fevers of this nature were of more frequent occurrence, have been demolished and new buildings with modern improvements put up, no one ever hears of Roman fever. To find malaria one must go farther nowadays to the district known as the Agro Romano, which is to the south of the Alban Hills and toward the sea, where are the famous and deadly Pontine marshes. Even there, by means of draining the marshes and planting eucalyptus trees, the percentage of cases of malarial fever among the inhabitants is rapidly and constantly diminishing. For instance, according to a recent report by the Medical Inspector, Professor Postempski, the average percentage of malarial cases collated was as follows: From 30 in 1900 it fell to 10 in 1903, to 5 in 1905, to 4 in 1906, to 3 in 1907. The number of those belonging to the fixed and moving population, whether presumed immune or presumed malarial, who received the quinine treatment at the three stations in the Pontine Marshes was, collectively, 19,283, the number of cases of malarial fever observed among them being 1,443. Professor Postempski advocates an all-the-year-round antimalarial campaign instead of one of five months, such as have been undertaken thus far, the last one having been the eighth. The commune of Rome furnishes for the Agro Romano such quantities of quinine as may be demanded, according to need and without limit. The distribution of quinine for the Pontine Marshes is less regular and more difficult. The favorite ways of administering it are in the form of tannate of quinine chocolate lozenges, which, it seems, are most efficacious; tabloids, and Baccelli's mixture, which is akin to Warburg's tincture.

It is noticeable that employees of the customs, railway employees, and others who live in these districts, and who have the doors and windows of their cabins closely screened with a very fine wire gauze, through which it is impossible for mosquitos to pass, remain exempt from malarial fever, which is, however, prevalent among those who have not their doors and windows thus protected.

The Pope's recent attack of influenza has left him as well as he was before, and thus far no unpleasant sequels have manifested themselves. There have been no further consultations between Professor Marchiafava and Commander Giuseppe Petacci, the physician-in-ordinary to His Holiness. Dr. Petacci at present visits the Pope professionally twice a week, Dr. Marchiafava going once a week, usually on Sunday. His Holiness is following the régime prescribed for gout and uric acid diathesis, using as a beverage Fiuggi water. This mineral water is furnished directly from the springs at Anticoli, on the road to Naples, and is analogous to that of the "Hôpital" or "Grandi Grille" of Vichy. It is used also as a table water. He takes daily exercise walking and driving in the gardens of the Vatican.

After denunciation made by the Municipal Hygienic Physician of Rome, two doctors of the city have been brought before the judicial authorities for having made preservative injections on cadavers before the period fixed for observation had expired and before the Municipal Physician had attested the deaths. Their names are withheld, but the infraction of the law is considered a very serious one here, although they undoubtedly acted from the best of motives, such as the request of the family of the deceased or from threatened rapid decomposition of the bodies. The offense is rather a technical one, but still it may have unpleasant consequences for the offenders.

Progress of Medical Science.

Boston Medical and Surgical Journal, May 20, 1909.

A Functional Relation of the Tonsil to the Teeth.—G. H. Wright calls attention to the four periods in the development of an individual from two to eighteen years, when the tonsils become slightly enlarged without inflammation and without obstruction or evidence of inflammation, and these four periods are represented practically at the time when four groups of molars are in the process of eruption. These periods, with slight variation, are from two years from the first group, six years the second group, twelve years the third group, and seventeen years the fourth group. The author demonstrated his paper by the exhibition of patients, and supported his theories by references to the findings of other observers. He offers the following conclusions: Infection from the external surface of normal tonsils is rare. The usual source of infection is secondarily through the lymph channels. Tonsils though slightly enlarged when not infected return to normal with complete eruption of the teeth. Diseased teeth are prolific sources of enlargement of the glands through proximity of membranes either directly, by infections, or by the tonsils.

The Value of Ethyl Chloride as a General Anesthetic.—A. H. Miller says that the relative danger from an anesthetic depends on two factors: the margin of safety of the drug, and the character of the danger signs. The margin of safety of an anesthetic may be represented by the proportion of the drug which may be administered beyond the amount required to produce anesthesia without causing symptoms of danger. Nitrous oxide has a small margin of safety, but the danger signs are so marked that nitrous oxide anesthesia is the safest known. Ether has a fairly large margin of safety and quite well-marked danger signs, so it is quite a safe anesthetic. Chloroform has but a small margin of safety, and the danger signs are readily overlooked. It is always a dangerous anesthetic, but especially so in inexperienced hands. Ethyl chloride has a large margin of safety, but the danger signs are not marked. While it is very safe when administered by an expert, it may be very dangerous in unskilled hands. With an expert administrator, it should be safer than ether but less safe than nitrous oxide. With an unskilled or careless administrator, it is probably more dangerous than ether, but not as dangerous as chloroform.

New York Medical Journal, May 22, 1909.

The Medical Importance of the Study of Anthropology.—A. E. Woodruff discusses, among other topics, the greater mortality among the blonds, who appear to have a lower birth rate and a higher death rate. The preponderance among the population of blonds is due to immigration. What diseases, he asks, carry them off in the country at large? Here is where the medical profession can be of immense value to anthropology by simply recording the complexion of patients of each group of diseases. By a study of cases which have been under identical influences we can quickly determine what diseases afflict brunettes most and which the blonds. Then we can evolve therapeutics and preventative means. At present we have only the general law to guide us—men who migrate to a climate where the native is heavily pigmented are in some way damaged by the light. Experiments and observation in India during the last three or four years have established that generalization on a firm basis. The medical director of the British army has proposed to take up the matter of protecting the soldiers. In other words, pigmentation is of survival value, and men the world over instinctively hide from the light or protect themselves. Sambon, of the London School of Tropical Medicine, has devised a cloth with the outer surface light to reflect the rays as much as possible and an inner opaque surface to stop the rays which are not reflected. It is cool and comfortable. In the Philippines there is a growing tendency to wear black underclothing, and if one must go abroad in the daytime, the outer garments are of light color. It must be remembered that though black absorbs heat it aids radiation when the surroundings are cooler than the body, so that black tropical animals tend to hide in the daytime to avoid absorption, and are cooler for their black skin. In like manner, it is found that in the evening and indoors in the daytime, dark outer clothing is more comfortable than white of equal thickness and porosity. The blackest negroes do not live in the hottest parts of the world, and, contrary to popular opinion, they cannot stand a high degree of heat as well as white men, and suffer more from thermic fever in such conditions.

Electricity in Genitourinary Diseases.—S. Tousey utters a caution with reference to the dangers to the operator from careless use of this therapeutic agent. In the special field referred to in his paper, he reports the discovery in several instances of prostatic calculi not revealed by the other usual means of examination. Much benefit has resulted from the use of the ray in cases with considerable residual urine and frequent and painful micturition. In one case of tuberculosis of the prostate, the ray applications proved resolvent, causing a mass of exudate to break down into pus, while high frequency currents applied from an ultraviolet ray vacuum electrode in the anus were eliminant. The latter action caused the abscess cavity to contract and expel its contents, to be voided in the urine. Cases of cancer of the prostate treated by the author have not been cured, but the pain and tenesmus have been greatly relieved, the urine has cleared up to some extent, and life has been prolonged. The technique employed differs according to circumstances. In case of cancer and hypertrophy of the prostate the *x*-ray has been applied from an ordinary *x*-ray tube in a localizing shield which allows the rays to shine only upon the perineum, while in tuberculous cases a special tube has been introduced into the rectum and the *x*-ray has been generated almost in contact with the diseased tissues.

Blood-Pressure Observations and Life Insurance.—F. A. Faught describes and figures a portable instrument for estimation of blood pressure. He says that, while gross lesions of the heart and vessels are easily discovered, he feels certain that many applicants for insurance who are really good risks are rejected because of an inadequate appreciation of the difference between vessel contraction and vessel disease, and that a diagnosis of arteriosclerosis is often made erroneously. The feel of the radial pulse is not always a reliable guide as to what the instrumental reading will be. Cases have come under observation in which the reading of the sphygmomanometer was above 200 mm. Hg., while the vessel felt neither hard nor incompressible. On the other hand, the reading of the pressure may be lower than palpation of the vessel would suggest. Conclusions follow: (1) Recent increase in clinical data, which is the result of finer methods of observation, demand greater recognition by the practising physician and the medical examiner. (2) To facilitate a better understanding of the conditions met, more care should be exercised in the employment of clinical terms. (3) More careful study should be made of the vessels in an effort to distinguish atheroma, hypertension, and arteriosclerosis. (4) The sphygmomanometer is a valuable aid in determining arterial tension, and in differentiating diseases of the cardiovascular system. (5) Our present knowledge of the subject of diseases of the circulatory apparatus demands a critical revision of the present examination questions to be answered by the life insurance examiner.

The Therapeutic Use of Alcohol in Internal Medicine.—G. B. Twitchell believes that in alcoholic pneumonias the use of alcohol is very important to prevent

the nervous disturbance its discontinuance would cause, but in the nonalcoholic its value appears as a therapeutic agent, pure and simple. It is rarely needed in children and many adults do well without it. In the severer forms of the disease it is very useful. The pulse and first heart sound are the best indications of its need. The temperature comes down a little, the pulse is quieted and strengthened, and the livid face is flushed. Keep it up and the case, apparently lost, will meet the crisis successfully. The trouble from alcohol in this disease is that we give it too sparingly. A quart of whiskey in twenty-four hours may not be too much. In septic conditions also alcohol is very valuable. In pyemia, septicemia, and in the suppurating stage of smallpox it is a great help to the physician. In typhoid fever, especially toward the end, when we have to deal with a septic fever which in a worn-out patient may be dangerous, its use is very valuable, nor may we dread any untoward effect it may have on the ulcerated Peyer's glands, if, indeed, it ever reaches them. In cases of ptomaine poisoning a good dose of alcohol in some form will relieve symptoms that are left after a thorough cleansing of the alimentary tract. Probably the relief in some cases of uncomfortable stomach is attributable to the fact that we are dealing with mild forms of ptomaine poisoning. The danger of formation of the habit must always be borne in mind. *Journal of the American Medical Association, May 22, 1909.*

Typhoid Fever.—M. P. Ravenel and K. W. Smith describe a localized outbreak of typhoid fever occurring in a student's boarding house at the University of Wisconsin shortly after its opening, October 1, 1908. Commencing with the scholastic year, it soon had from 95 to 100 boarders, many applicants being turned away. The working force consisted of the landlady and her two sisters, a cook, two young women just from Norway, and thirteen student helpers, most of them waiters. Two or three of these students assisted in dishwashing, etc., but while hot water was used there was no attempt at thorough sterilization. About the middle of October, 50 or 60 of the boarders were attacked with diarrhea and nausea, some being ill for several days. The majority, however, recovered promptly without consulting a physician and the outbreak was attributed by some to veal and by others to bananas. During the last week of October a number of the boarders became ill with symptoms of headache, lassitude, loss of appetite, and pains in the limbs. These symptoms were generally attributed to grip, and by the middle of November more than 40 cases of illness were known to exist. Typhoid fever was suspected in several by the physicians, but the first Widal test made in the laboratory was negative. A number of the sick went at once to their homes without seeing a physician, some returned to work, though in a poor condition, others did half work. So far as possible all the cases were investigated, and in all a positive Widal was obtained. In less than a month 41 cases of typhoid fever were diagnosed among the boarders or workers, three of which terminated fatally. During the same time there was only one case of typhoid fever among the students not boarding there, and only three or four in the city of Madison, which has a very pure water supply at all times. Every possible source of infection was studied, the water, the ice, the milk supply, raw vegetables, oysters, etc., but no adequate cause was found. Attention naturally turned to a possible typhoid carrier, and one was found among the student waiters, and the exclusion of every other possible source has forced the conviction that the infection came through him. One fact seems to militate against this, however, namely, the rapidity with which the patients came down, which may indicate that a large number of persons were infected at the same time. Probably suggestion had something to do with it, as it was just at this time that the house was inspected, closed, and fumigated, and there was considerable excitement over the large number of students taken ill. This, however, only explains the breaking down. The possibility that the outbreak may have been due to a massive dose of typhoid bacilli suggested itself, but if so the source of the germs is a great mystery. Paratyphoid could be excluded, as all the cases gave the typhoid agglutination. Certain features seemed predominant in this outbreak—the headache was in the occiput and the pain extended down the back of the neck; constipation was more common than diarrhea. All precautions were taken and no case of sickness has developed since November.

The Combined Course.—J. M. Dodson defends the combination in universities which have a medical department of the two curricula, literary and medical, so that a student can obtain his degree by taking his junior and senior years, those branches which constitute the first two years of his medical curriculum. He gives at some length the history of how the adoption of this plan originated through the elective principle adopted in the literary courses of the higher schools, and shows how, in his opinion, certain medical subjects, like chemistry, histology, embryology, and bacteriology, are unquestionably such as can be considered branches of general learning. Human anatomy, though more directly medical, is still properly an important branch of zoology, and the same may be said of physiology. Two other branches, pharmacology and fundamental pathology, are essential branches of physiology, and as such are entitled to a place in the university curriculum. The idea maintained by some that teaching these medical sciences to medical students must be entirely different from the teaching given those who do not intend to enter the medical profession, is in his opinion entirely fallacious, and he does not consider the change which would have to be made degrades at all the baccalaureate degree. This does not, as it formerly did, stand for a classical education, but is a testimony that the student has spent so many years in liberal studies. The elective principle which is so generally accepted is a concession to the discovery that the student is capable of selecting his studies at the age in which it comes in play. "There is no line," he quotes from a prominent educational authority, "between cultural subjects and professional subjects." Similarly he maintains the change has not degraded the medical degree. The question whether two degrees are desirable, M.B. and M.D., the latter being the higher, he considers as decided in the negative on account of the lack of uniformity of the practice requirements in the different States, but he thinks that the giving of a second degree of M.S. or Ph.D. for advanced requirements is perfectly practicable and desirable. It is objected by some of the detached colleges in the country that the combined course is unfair to them, as they do not possess any relation to a university with a medical course. This can be obviated by the medical school giving credits for time spent in college for work in medical branches, and the proscription of this by certain examining boards he considers illogical. There is doubt of the legality of such proscription, and at least one attorney general has rendered an opinion in flat opposition to the contention of the examiners. Undoubtedly some colleges have attempted the teaching of medical branches for which they were not prepared, but the remedy for this is for the examination of their curricula by the examining boards and their classification accordingly.

Gallstone Disease.—J. R. Eastman says that it has been conclusively proved that smooth foreign bodies do not of themselves produce gallstones, and Mignot has found in his investigations that even when carrying virulent microorganisms they do not give rise to gallstones unless the infection is attenuated. Much, of course, must be presumed to depend on the character of the foreign body, a rough or irritant one being more apt to produce the irritation that would favor infection than would a smooth, unirritating substance, and we may assume also that bacteria may easily pass up from the intestines by way of gall ducts. It is well known that intestinal parasites are frequently found associated with gallstones and they doubtless furnish at once the foreign bodies and the atria of infection. Sutures, wandering needles, etc., have been found incrusted in the cavity of the gall-bladder, and Eastman reports a case of this sort in which the needle was presumably swallowed and had penetrated through the intestinal wall at one of the points where the gall-bladder is in immediate apposition with the intestinal canal, carrying in infection and producing sufficient inflammation of the gall-bladder and duct with consequent obstruction as to lead to precipitation of the bile salts and gallstone disease. The symptoms accompanying these conditions disappeared on its removal.

Removal of Arterial Obstruction.—J. B. Murphy reports the removal of an embolus from the common iliac artery which had completely obstructed the circulation in the left leg. The patient was a woman of 41, who after an attack of rheumatism suffered from shortness of breath and heart disease was diagnosed. Three years after the last rheumatic attack on April 5, 1909, she was seized with a sharp pain in the lower part of the left chest and upper abdomen which was considered pleuritic and treated accordingly. The next morning she was taken with an attack of nausea and vomiting, followed by pain in both legs which became cold and remained so till the morning following, when the pain in the right leg ceased and it regained its normal temperature, the left leg remained cold, was blue in the thigh, and very pale and shriveled at the toes. It was cold to half way between the knee and the

trunk, and there were large blue blebs scattered over the middle third of the thigh. On admittance at Mercy Hospital, Chicago, careful examination showed that the patient had a mitral, direct, and regurgitant murmur. There was no pulsation in the left femoral artery. The upper margin of the area of the demarcation was then about four inches below Poupart's ligament. The limb was undergoing dry gangrene from arterial obstruction, and it was decided to operate at once to remove the embolus which was diagnosed as obstructing the iliac artery. Nitrous oxid was given for thirty seconds and an incision four inches long was made downward from an inch above Poupart's ligament parallel to the femoral artery, which was exposed for a length of two and a half inches. Two provisional catgut ligatures were put around it, but not tied, so as to aid in elevating the artery, which was then incised for one inch parallel to its long axis. It was completely thrombosed. With the delicate forceps the clot (a bifurcated plug an inch and a half long) was drawn from below upward, causing a flow of fresh arterial blood, evidently collateral, through the femoral profundus. This was stopped by finger pressure and the extraction of the clot from the proximal side was begun, but the artery did not empty at once. A spoon was then used and more clot withdrawn, but no flow. A number six soft catheter was passed up the artery a distance of seven and a half inches, bringing away grumous bloody débris but no arterial blood. It was reintroduced but could not be forced through an obstruction at that point. Finally, by the use of a ureteral catheter passed up nineteen inches, a small quantity of arterial blood was released. Then a uterine sound was employed, and on the third attempt it seemed to penetrate a free space at a distance of eight and a half inches, and was followed by an intense arterial flow carrying much embolic débris. This was stopped by finger pressure in the ligature loop and the incision in the artery was closed with a rapid continuous suture of silk. One or two additional supporting stitches were inserted to control the hemorrhage completely. Unfortunately, the operation was made too late to save the limb, and it was amputated four days later. Murphy remarks on the symptoms of occlusion of large arteries, and refers to his own former experience since he first made a successful end-to-end union of a severed femoral artery. The suture of an incision in an artery is as easy as an incision of the intestine, provided a sufficiently small needle is used. He believes that even cerebral ischemia should be amenable when due to an embolus arrested in the common or internal carotid. He thinks, however, that aspiration through a catheter is better than the method he employed in removing the plug, for if the catheter is divided on the slant with the end open it can be readily introduced, and unless the embolus is very hard it can be removed by suction or fragmented by the catheter. Murphy does not advise incision into the exact site of the obstruction, as there would be less tendency to thrombosis if the point selected is above or below, preferably the latter. As in other types of emergency surgery, the operation must be done early to be successful. This applies especially to the cerebral ischemias. The removal of an embolus from the pulmonary artery by Trendelenburg, though unsuccessful, is worthy of special mention.

The Lancet, May 15, 1908.

A Plea for the Use of Antidiphtheritic Serum in the Laryngitis of Measles.—A. A. Warden believes that in the laryngitis of measles we should not wait for the result of a bacteriological diagnosis, but inject serum immediately. Laryngitis is a frequent complication of measles and is occasionally membranous in character, while nondiphtheritic membranous laryngitis is rare. We should inject the serum as early as possible when once laryngeal symptoms are noted. One case illustrative of the advisability of the author's plan is described.

Calcium Lactate in the Treatment of Epilepsy.—A. R. Littlejohn gives notes of two cases and relates his experience with a ward full of patients in hospital. He gives 15 grains of the remedy three times daily. In one case, that of a woman of forty-six years, with attacks of the petit mal type, the seizures were reduced from 45 to none in 24 hours after a three months' treatment. In a second case, a woman of thirty-three years, from 31 to none in the same length of time. No remarks are made with reference to the mode of action of the remedy.

The Histology of Endocarditis.—C. Coombs says that the reaction to the rheumatic invasion of the endocardium is characterized by the formation of very large fibroblasts in groups, which, so far as his own experience goes, are constant in rheumatic but absent from other forms of endocarditis. The valvular inflammation of rheumatic carditis is set up by microorganisms carried to the endocardium by the coronary arteries and their branches. There is evidence to show that the inflammatory reaction of rheumatic endocarditis begins deeply and spreads to the surface. The inflammation begins as a lymphocytosis, sparsely scattered through the valve, with greater concentration at some spots. Another form of leucocytosis is occasionally seen in rheumatism. Over those surfaces where the fibroblasts are plentiful and the endothelium stripped off polymorphonuclear leucocytes are sometimes deposited freely, especially on the patches of mural endocarditis. The changes remaining after acute inflammation has cooled down are summed up in two words—fibrosis and vascularization.

The X-Ray Treatment of Ringworm of the Scalp.—J. M. H. Macleod concludes from an experience of three years: (1) That the *x*-ray treatment of ringworm by the single dosage method with the dosage regulated by the pastille is practically safe and harmless. (2) That it is a method of treatment of such delicacy that even in the hands of an experienced operator an accident such as an overexposure might happen, but that such accidents should be of such extreme rarity as not to discredit a mode of treatment possessing such obvious advantages. (3) That severe dermatitis followed by permanent baldness is the result of an overexposure or is due to some accident such as the exposing of an area the resistance of which has been lowered by the previous application of strong irritants before the inflammation has entirely subsided, the use of wrong or inaccurately standardized pastilles, or from overlapping. (4) That permanent baldness or delayed hair growth without marked dermatitis is the result of overexposure, but that it might in rare instances be due to some idiosyncrasy on the part of the patient in the same way as the occurrence of alopecia areata after ringworm. He has been unable to obtain any definite evidence of injury to the brain by this method of treatment from his own cases, from the literature on the subject, or from anyone with experience of this treatment whom he has asked, and the experiments which he has done in this connection strongly negative the possibility.

British Medical Journal, May 15, 1909.

The Causation of Appendicitis.—W. S. Shepperd refers to the case of a man of thirty-six years with all the signs and symptoms of appendix inflammation, who experienced a sudden relief, followed by a desire to evacuate the bowels. A hard body was passed, looking like a date stone. There were no further symptoms, although tenderness over the region lasted some days. Examination of the body passed showed it to consist of calcium and magnesium phosphates, calcium and magnesium soaps, fecal detritus, inclusive of a small amount of inspissated mucus. The shape of the mass was elongated and from this and its composition the author thinks it probable that it had been formed in the appendix.

Treatment of Sleeping Sickness.—A. Balfour suggests that the same method may be applied to trypanosomiasis and sleeping sickness as has given good results in cerebrospinal meningitis, viz., the local introduction by spinal puncture of a highly immune serum obtained from the blood of patients who have recovered from the disease. In the past great difficulty has been experienced in attacking the trypansomes present in the cerebrospinal canal, and Kopke has made special efforts to overcome the difficulty when treating patients with atoxyl and other chemical substances. It is true that comparatively few cases of human trypanosomiasis recover, but a suitable serum might be obtained from the blood of patients subjected in the first instance to chemotherapy. A combined treatment might prove useful, attacking the trypanosomes in the blood by some of the more promising of our present drugs, and attacking those in the cerebrospinal fluid by performing lumbar puncture and injecting the patient's own serum, or the serum from a case which is improving, obtained by defibrinating and centrifuging the blood. It would seem that so far as the cellular contents go, the fluid in trypanosomiasis may approximate to the conditions found in cerebrospinal fever, a fact which is rather in favor of adopting the line of treatment indicated.

Surgical Considerations Connected with the Anatomy of the Maxillary Sinus.—A. S. Underwood dis-

cusses the anatomy of the antrum with reference to transillumination. He says that if the apices of the roots of the cheek teeth terminated below the antral floor or even protruded a little into it the transillumination might show a darkness where a small amount of pus was collected in one of the basins between the two septa, but if the roots of the molar teeth are imbedded in the walls of the cavity the buccal roots in the outer wall and the palatine roots in the inner wall, the thickening of these regions would prevent any transillumination and the deep pocket of the antral floor descending between these roots might contain certain things quite undemonstrable by transillumination. The first, second, and third molars in order are most commonly in relation to the sinus, the third invariably, and the cavity extends a little behind the third molar root. Moreover, the bony septa which divide the part of the sinus embraced by the roots of the third molar from the part in relation with the second molar are generally simple septa of bone, whereas the septa which are in relation to the front portion of the cavity are very often traversed at their upper edge by canals in the bone, sometimes closed and sometimes partially opened, which convey nerves and vessels across the cavity. Finally, in rare instances the whole of the third molar region of the sinus is entirely shut off from the rest of the sinus except for an insignificant hole very high up on the nasal side.

Acute Rheumatism, Its Allies and Its Counterfeits.—F. de Haviland Hall discusses this question under the headings of life insurance, pleurisy, tonsillitis, chorea, skin affections, subcutaneous nodules, diagnosis from pyemia and influenza, infective endocarditis, antitoxic arthritis, pneumococcic arthritis, and gonorrhea. His paper is a most readable one and we can refer to only a few of the salient points. There is much evidence in favor of the specificity of the *Diplococcus rheumaticus*. Insurance companies would save money if they would refuse all applicants who had suffered from an attack of rheumatic fever. The occurrence by preponderance on the left (cardiac) side would seem to indicate that it arises in connection with some cardiac infection. It is the lacunar form of tonsillitis which is most frequently associated with rheumatism. Chorea is probably caused by the toxins of the rheumatic bacillus affecting the motor areas in the brain. The most common skin affections in rheumatism are erythema papulatum and marginatum or circinatum. Less common are erythema nodosum, urticaria, and angioneurotic edema. Purpura may occur, also herpes labialis and zoster. The exact relation of the so-called "peliosis rheumatica," to rheumatism is uncertain. Large subcutaneous nodules mean persistent cardiac disease and add a grave prognosis. Infective endocarditis may or may not be of rheumatic origin. Antitoxin arthritis is certainly nonrheumatic. A peculiar form of eye inflammation frequently accompanies gonorrheal arthritis. Usually first one eye and then the other is attacked. There is injection of the small radiating vessels of the sclera which surround the cornea, sometimes accompanied by iritis and catarrhal ophthalmia. The paper closes with a short description of pneumococcic arthritis. The general style is sketchy, but the paper presents some very suggestive information along the lines of our present conception of rheumatism.

Münchener medizinische Wochenschrift, May 4, 1909.

Bacterial Antiferments and Bacteriolysis.—Kantorowicz says that the protective forces of the organism in its fight with bacterial invaders have been carefully studied. Similar forces exerted by the bacteria, on the other hand, have escaped attention. The latter, however, would throw light on the general problem of resistance of living tissues to the action of ferments, exemplified in the resistance of stomach to pepsin, of the intestines to trypsin, etc. Bacteria introduced into active solutions of trypsin continue growing; that life is not the attribute which explains their resistance to digestion is proved by the fact that dead bacterial bodies likewise resist digestion. Protection by capsules is excluded by first destroying the latter by thorough shaking of the bacteria in a special apparatus. High temperatures, however, have a remarkable effect: all the members of the colon group become susceptible to tryptic digestion after being heated to 75°. On the other hand, staphylococci, streptococci, the organisms of diphtheria and of anthrax undergo a temperature of 100° and yet resist tryptic digestion. The remarkable fact is thus learned, that Gram-negative organisms are the less resistant bacteria, while Gram-positive organisms resist digestion after heating. The supposition is warranted that these differences in behavior are due to the existence of antiferments, which are destroyed by a different amount of heat in different cases. Kantorowicz has succeeded in procuring such antiferment from the bodies of bacteria and in demonstrating its action in various manners, for which the reader is referred to original paper. That this factor is active in the living organism is shown by the staining qualities of bacilli after their ingestion by leucocytes; the previous application of heat, on the other hand, seemed to remove the resistance of the bacteria as shown by their failure to stain. Long action of leucocytes is also capable of affecting solution of bacteria; it may, therefore, be assumed that the leucocytes produce some substances which overcome the antiferments in bacterial bodies. These substances are contained within the leucocytes and are also given up by the latter to the serum of the blood. The bacterial extracts obtained by the author could oppose or delay such action of leucocytes, thus showing their content in antiferments.

The Action of Digalen.—Müller says that Cloetta's Digalen has been critically examined by the French clinicians, who have shown that it possesses no such advantages over other preparations of digitalis as have been claimed. The substance, too, should not be termed soluble, because it probably does not go into solution in pure water, but only in a mixture of water, alcohol, and glycerin. The objections held against other preparations of digitalis prepared for subcutaneous use hold therefore with equal force against this substance. Other authors, on the other hand, have found digalen superior to other preparations because of the lack of cumulative action and of irritating effect upon gastric mucosa. Müller has personally studied the action of digalen in eighteen cases of heart disease. In general, he has found digalen as effective as other digitalis preparations, but could not convince himself of its superiority or even of the absence of cumulative toxic action of the drug. Given by mouth, digalen seems to have less irritating action, but subcutaneous and intramuscular administration has led to such severe local irritation that it was altogether given up in Müller's clinic. Digalen, therefore, simply forms an additional preparation of digitalis, but little differing in its action, and affording not any marked advantages, but simply variety in the administration of digitalis.

Carbohydrates and Proteins in Diabetes.—Gigon says that Naunyn's old advice to limit protein as well as carbohydrates in the diet of diabetics is being proved correct by the results of most recent researches. It has been shown that excess in protein may lead to increased elimination of sugar by the urine, and in some of Falta's cases the patients responded with glycosuria after protein more readily than after carbohydrates. Gigon has made complete studies in the metabolism of five diabetics in order to throw light upon this point. He concludes that in lighter cases of diabetes it is not necessary to omit carbohydrates from the diet, for limiting the protein often leads to the disappearance of glycosuria. A protein-poor diet is much easier for patients than one poor in carbohydrates. In severe cases of diabetes the diminution of protein should go hand in hand with the limitation of carbohydrates; it may prove possible to continue with a certain amount of carbohydrates, so that threatened acidosis may be prevented.

Hematic Cysts of the Breasts.—Pons describes an interesting case of cyst of the mammary gland that required enucleation. These cysts occasion no inflammatory reaction, but when the fluid is drained they rapidly occur. They are lined with pavement epithelium. The contents consist of a fluid that is serous, mixed with blood, seromucous, or oleagenous. The pathogenesis is uncertain. Most authors refer them to an obliteration of the milk ducts, at their excretory extremity. The blood contained seems to be the result of injury to the mammary gland. Or it may be extravasated as a result of the congestive condition that arises in the breasts at menstruation. Another more modern theory refers them to an inflammatory lesion of the gland. The wall of the cyst removed by the author consisted of layers of fibrous tissue, the cavity being lined with cubical and plorostratified epithelium. The surface of the cystic membrane was covered with villosities, each one containing a dilated vessel. These vessels frequently had undergone extravasation of blood into the villosities. The structure resembled a fibroadenomatous tumor. This would show that extirpation was necessary on account of the danger of cancerous degeneration.—*Gazette de Gynécologie.*

Book Reviews.

THE BOOK OF PRESCRIPTIONS (BEASLEY). Containing a complete set of prescriptions illustrating the employment of the materia medica in general use; comprising also notes on the pharmacology and therapeutics of the principal drugs and the doses of their preparations, according to the imperial and metric systems, with an index of diseases and remedies. Rewritten by E. W. LUCAS, F.I.C., F.C.S. With an Introduction by ARTHUR LATHAM, M.A., M.D., F.R.C.P. Ninth edition Philadelphia: P. Blakiston's Son & Co., 1907.

BEASLEY'S Book of Prescriptions has been well known for a number of years. The present edition has been rewritten so as to bring it up to date by including the large number of recent additions to the materia medica. The directions are all given in English, and the doses are in both systems. Properly employed, this volume will be of much value; but it should be used in conjunction with some standard work on materia medica and therapeutics.

A SYSTEM OF MEDICINE, by many writers. Edited by SIR CLIFFORD ALLBUTT, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge; Fellow of Gonville and Caius College; and HUMPHREY DAVY ROLLISTON, M.A., M.D., F.R.C.P., Senior Physician, St. George's Hospital; Physician to the Victoria Hospital for Children; Some time Fellow of St. John's College, Cambridge. Volume IV, Parts I and II. London: Macmillan & Co., Ltd.; New York: The Macmillan Company, 1908.

VOLUME IV of the original edition of Allbutt's System has been so amplified in this revision that it was found necessary to issue it in two parts, constituting actually two volumes of 764 and 566 pages respectively. Volume II was similarly divided, so that the first half of the work is now represented by six volumes, instead of the four of the original edition. No one, we venture to affirm, will object to this increase in size when the new matter is of such value and so excellently presented as it is here.

Part I of the fourth volume contains sections on Diseases of the Liver, Diseases of the Pancreas, Diseases of the Ductless Glands, and Diseases of the Kidneys. The first section opens with an article on the anatomy of the liver, including congenital deformities, by Dr. A. Keith, and following this is an account of displacements of the organ by the same author. The section on functional disorders of the liver, jaundice, Weil's disease, congestion of the liver, and delayed chloroform poisoning, which is included among disorders of the liver, since the anatomical changes are most pronounced in this organ, are written by Dr. William Hunter, who also writes in collaboration with Dr. E. I. Spriggs on acute yellow atrophy and phosphorus poisoning. Dr. John Thomson contributes the article on jaundice of the new-born, Dr. Herringham one on diseases of the blood-vessels of the liver, Dr. W. Hale White treats of perihepatitis and of tuberculosis and tumors of the liver, Dr. Herbert P. Hawkins on portal cirrhosis and syphilis of the liver, and Dr. H. Morley Fletcher on biliary cirrhosis. Diseases of the gall-bladder and bile-ducts, including gallstones, are discussed at length and very clearly by Mr. Mayo Robson. The Diseases of the Pancreas are covered in two articles by Dr. Bosanquet and Dr. G. Newton Pitt. The section on Diseases of the Ductless Glands is the most interesting part of the book, perhaps because it is the most original. The chapter on diseases of the thyroid is rather unnecessarily divided into four parts, three of which are discussed by Dr. Hector Mackenzie, and one, that on myxedema, by Prof. George R. Murray. The section on cretinism is good, and no exception can be taken to the manner in which it is treated, but the unity of the subject would have been better preserved had it been included with myxedema in one article. Anomegaly is written by Prof. E. F. Trevelyan, diseases of the adrenals and of the spleen by Dr. H. D. Rolleston, lymphadonoma by Prof. George R. Murray, and status lymphatics by Dr. John Thomson. In this part are included, rather illogically, four other subjects, namely, infantilism by Dr. John Thomson, obesity and adiposis dolorosa by Sir Dyre Duckworth, and edema by Dr. W. D. Halliburton. The Diseases of the Kidneys are considered under five heads: General pathology and nephritis by Prof. J. Rose Bradford, nephroptosis by Prof. A. Macalister, and other diseases of the kidney and malformations and diseases of the ureter by Mr. Henry Morris. This volume is very sparingly illustrated, only nine pictures being found in the edition of 764 pages. Many books err on the side of too profuse illustration, but there is such a thing as sinning in the other direction, and we think many of the articles in this volume would have been improved in clarity by a more liberal use of cuts.

Part II is devoted to Diseases of the Nose, Pharynx, Larynx, and Ear, the latter being a new subject not treated in the original edition. Although the diseases of the ear belong rather more definitely to surgery than do the other affections here treated, they are logically considered in connection with the latter, and the editors have done well to include them in this volume. Articles on diseases of the nose are contributed by Dr. Gerville MacDonald, Mr. Herbert Tilley, Mr. Ernest Waggett, Dr. F. de Havilland Hall, Sir Felix Semon, and Dr. P. Watson Williams. The two last named have also written the chapters on diseases of the pharynx, of the larynx, and of the trachea, and on foreign bodies in the air-passages and upper food-passages. Mr. Ernest Waggett treats of direct examination of the air- and food-passages. The articles on diseases of the ear are contributed by Dr. Thomas Barr, Dr. W. G. Porter, Mr. Hunter F. Todd, Dr. Dundas Grant, Dr. Milligan, Mr. C. A. Ballance, Dr. Cresswell Baber, Dr. Albert Gray, Dr. McBride, and Dr. Kerr Love. Some of these authors are not recognized as authorities on this side of the Atlantic, even among specialists, but their articles are for the most part well written and justify their selection by the editors. In contrast to the first part of Volume IV, this one is profusely illustrated by 14 colored plates and 61 figures in the text; the plates are excellent, but some of the text illustrations leave much to be desired in the way of beauty, though they are for the most part clear enough and elucidating. For the very good plate illustrating transillumination of the antrum acknowledgment is made to Dr. Coakley of New York.

Those two volumes constituting Volume IV of the series are perhaps not so interesting as some of those that have preceded, notably the one dealing with tropical diseases, but that is the fault of the subjects, and not of the manner in which they are treated. In the latter respect the volumes are fully on a par with the others, and they sustain the high reputation which the series won in its first edition and which has been increased by the first half of the present revision. It compares very favorably with the System of Medicine now being edited by the Regius Professor of Medicine of Oxford, though we cannot accord it superiority over that excellent work. It would be a very difficult task, indeed, to judge between them, and, fortunately, the reviewer is not called upon to do so. Suffice it to say Allbutt's work is thoroughly satisfactory in every respect, and while one might say how happy he would be with either, he would really be far happier with both, and there is no law but that of economics to prevent him.

NEURASTHÉNIE ET NÉVROSES, LEUR GUÉRISON DEFINITIVE EN CURE LIBRE. Par Dr. PAUL-EMILE LÉVY, Ancien Interne des Hôpitaux de Paris. Paris: Felix Alcan, Editeur, 1909.

THIS is a continuation of and sequel to the author's very popular book entitled "L'éducation rationelle de la volonté, son emploi therapeutique." It exploits his theories in regard to the great value of reeducation and mental and moral training in the treatment of the neuroses and psychoneuroses, while the dangers are pointed out in the prevailing treatment of these affections by suggestion, isolation, and the rest cure, etc. He sums up his method in the formula: "Rééducation totale en cure libre." Among the disorders discussed are: neurasthenia, hysteria, spermatorrhea, pseudoappendicitis, pseudodyspepsia, and periodic depression; treatment by hygiene, medicines, hydrotherapy, psychotherapy, etc., is also described and recommended where appropriate. Reeducation is in the air. The book is timely.

THE CHANGING VALUES OF ENGLISH SPEECH. By RALCY HUSTED BELL. New York: Hinds, Noble & Eldredge, 1909.

ALTHOUGH the author's intention is to emphasize the need for preserving the purity of the English language, it must be said that there is very little need for the kind of a book he has given us. For the most part the work is made up of quotations from writings on the history of the English people and the English language, and various excerpts from the poets and Crabb's "English Synonyms." The entire volume is lacking in that wholesome restraint of the commonplace which makes for dignity in any essay which is not distinctively humorous; consequently the style is not of the best. The author thinks that the English language has stopped growing, is "dead," in fact, and "probably reached its perfection several centuries ago." However, he brings no sufficient argument to bear upon this extraordinary assertion.

Society Reports.

ASSOCIATION OF AMERICAN PHYSICIANS

Twenty-fourth Annual Meeting, Held in Washington, D. C., May 11 and 12, 1909.

DR. VICTOR C. VAUGHAN OF ANN ARBOR, MICH., IN THE CHAIR.

(*Concluded from page 949.*)

A Case of Stenosis and Insufficiency at the Pulmonary Orifice of the Heart, with Exhibition of the Specimen.—Dr. JOSEPH SAILER of Philadelphia reported the case of a negro, thirty-five years old, who had at the age of fifteen a form of venereal disease, probably a chancre. Shortly after he had an attack of some form of articular disease, which affected especially the knees, compelling him to use crutches. He was a laboring man and undoubtedly addicted to great excesses. He was admitted to the hospital, giving a history that he had had pain in the region of his heart for eighteen months, and that three weeks before he had been compelled to quit work. There was marked edema of the feet and great dyspnea. When admitted there was noted the Corrigan pulse, also pulse in the veins of the neck, and a large and distinct pulsating liver. He was edematus, with a marked degree of ascites; there was fluid in both pleural cavities and an intense orthopnea. The apex beat was not palpable. There was a marked pulsus alterans; the radial pulse was 51, while the heart beat was 102. A diagnosis was made of involvement of all four orifices. The physical signs, however, suggested some pulmonary lesion. At the autopsy a large gumma was found occupying the pulmonic orifice and causing stenosis and insufficiency. The lesions were so numerous as to distract the attention and make the diagnosis very difficult.

A Case of Brain Tumor Presenting a Very Unusual Clinical Course.—Dr. R. D. RUDOLF of Toronto, Canada, reported the case of a patient, forty-six years old, who, after a prolonged period in which she presented no definite symptoms except those of neurasthenia, with some hesitation in speech, was suddenly seized with what appeared to be a condition of acute cerebral compression, with vomiting and profound coma. She recovered from this, but had similar seizures during the following six months, with intervals in which she was comparatively well and able to get about the house. In each of the acute attacks the blood pressure would rise from about 120 mm. to about 200 mm., and some hours before the acute compression symptoms would lessen, the pressure would fall to normal again. There were practically no localizing symptoms. She died in a compression attack; and the post mortem revealed two large tumors growing from the pia mater, the one over the left occipital lobe, and the other over the left brain just behind the ascending parietal convolution.

Dr. R. SACHS of New York spoke of the importance of two symptoms in diagnosing such conditions,, the headaches, periodical or persistent, and occasionally or frequently the convulsive seizures without epileptic symptoms. He had had a young man under observation, and he positively had no other symptoms but an occasional convulsive seizure at intervals of three or four months. Although he had examined this patient very closely, he had never been able to find any other symptoms. He had been under his observation for three or four years. Last year he died suddenly and at autopsy was found an enormous glioma which occupied almost the entire left hemisphere; it was so huge in size that it hardly seemed possible that so few symptoms resulted. The glioma grew very slowly and very few symptoms in some cases were produced. Such a case, of course, was only an exception, the vast majority of these cases presented such definite symptoms that no difficulty was encountered in making a diagnosis.

Dr. LOUIS B. WILSON of Rochester, Minn., reported the case of a woman with symptoms the replica of those in the case reported by Dr. Rudolf. At autopsy there was found an encapsulated epithelioma extending from the tentorium on the left side 3x2x5 cm. in diameter. Only four weeks before death the patient had convulsive seizures, and there was nothing else to indicate a brain tumor.

An Experimental Study of the Changes in Metabolism Produced by the Total Exclusion of the Pancreatic Juice from the Intestine.—Drs. J. H. PRATT, P. D. LAMSON, and H. K. MARKS of Boston presented this report. The head of the pancreas was separated from the duodenum, the ducts tied and a portion of the great omentum placed between the pancreas and the duodenum. In a dog in which the ducts were tied, but no barrier of living tissue placed between the cut ends and the intestinal wall, a small fistulous tract formed and pancreatic juice entered the intestines. Failure to exclude all the pancreatic secretion explained the results obtained by recent investigators who found no marked disturbance of metabolism after ligating the ducts. In all the four dogs of this series there was a great interference with the absorption of nitrogen and fat. There was a marked loss of weight. The stools were very large; one dog passing feces equivalent to his own body weight in three days. The splitting of the fat was normal.

Study of the Development of the Bones in Childhood by the Roentgen Method, with a View of Establishing a Developmental Index for the Grading of and for the Protection of Early Life.—Dr. THOMAS MORGAN ROTCH of Boston gave the results of an investigation by means of the Roentgen ray of the development of the bones in early life. An examination of a large number of cases, perhaps a thousand, in children in regard to the development of their joints, showed that the development of the wrist might be taken as an index of the development of the entire skeleton. The investigation also showed that the development of the various carpal bones seemed to indicate that an index of strength for the early years of life might be based on the gradual development of the carpal bones and the lower epiphyses of the radius and ulna. These studies also seemed to indicate that children could be graded according to the stages of their development rather than according to their chronologic age. Dr. Rotch gave a lantern slide demonstration.

Exophthalmos in Chronic Nephritis.—Dr. L. F. BARKER and Dr. HANES of Baltimore illustrated by lantern slides several instances of exophthalmos with associated eye signs of chronic nephritis, and the condition was regarded as toxic in origin.

The General Movement of Typhoid Fever and Tuberculosis in the Last Twenty-five Years.—Dr GEORGE M. KOBER of Washington gave a lantern slide demonstration showing the influence of water supplies upon typhoid fever and the results achieved by purification of the water supplies. The general movement of typhoid fever since 1880 in different countries and cities and the percentage of decrease he discussed; but the general fact appeared to indicate that in spite of the many factors concerned in the dissemination of typhoid fever, the water supply played the most important rôle in the spread of the disease. The movement of tuberculosis in the last fifty years in England and Massachusetts, and the general movement in the cities of New York, Baltimore, and Washington, seemed to indicate that the introduction of sewers and general sanitation had influenced to a great extent the gratifying decrease of this disease.

Experimental Infection with Leishmania Infantum.—Dr F G. NOVY of Ann Arbor, Mich., gave a lantern slide demonstration. At present three infections (Leishmania-

ses) due to the Leishman-Donovan bodies were recognized. These were the kala-azar of India, the oriental sore, and an infantile splenic anemia. The organisms of the last two diseases could be readily cultivated on blood agar, the same as trypanosomes, and an abundant growth of flagellates thus obtained. A number of animals had been tested as to susceptibility to infection with the cultures derived from infantile anemia. The diagnostic importance of the cultural method was shown.

The Pathological Relationship of Gastric Ulcer and Gastric Carcinoma, Based on a List of 180 Cases.—Drs. Louis Blanchard Wilson and William Carpenter McCarthy of Rochester, Minn., gave a lantern slide demonstration. Their report was based on the study of specimens from gastric resections for ulcer and carcinoma by Drs. W. J. and C. H. Mayo from January 1, 1905, to April 1, 1909. One hundred and eighty cases in all The morbid anatomy and histology of simple ulcers, the transitional cases, the cases of early but undoubted carcinoma showing evidences of previous ulcer, and cases of carcinoma showing no evidence of previous ulcer were illustrated with lantern slides.

Symmetrical Adenolipomatosis.—Dr. Irving P. Lyon of Buffalo reported some cases and gave a lantern slide demonstration.

Experimental Study of Leucocyte Extract and Its Action on the Course of Pneumonia.—Drs. C. H. Ernst, C. Floyd, and William P. Lucas of Boston presented this paper, which took up the rôle of the leucocyte in the protection of the body against bacterial invasion and its powers of phagocytosis and bacteriolysis. The mere matter of englobing the bacterium was only a small part of its action, and the application of intercellular substances of the leucocytes upon ingested organisms was important in their destruction. That these cellular juices might be used in the treatment of disease was first shown by His in both experimental and clinical work. In carrying on this work rabbits were used, and leucocytes were obtained by interpleural inoculations of aleuronat. The result of pleural irritation had varied considerably, some animals showing dry adhesive pleurisy, others pleural effusion, and still others sterile empyema. The cellular content of the fluid obtained from the chest had shown great numbers of eosinophiles and large phagocytic cells, with an occasional small cell. Clinical application of this method of treatment had been made by the writers in a series of cases of pneumonia, some thirty in all. The apparent action of the leucocytic extract had been to diminish the toxic manifestations of the disease and possibly to aid in a lower mortality.

Wednesday, May 12.—Second Day.

Election of Officers.—*President,* Dr. Henry Hun of Washington; *Vice-President,* Dr. F. Forchheimer of Cincinnati; *Secretary,* Dr. George M. Kober of Washington; *Recorder,* Dr. Solomon Solis Cohen of Philadelphia; *Treasurer,* Dr. J. P. Crozer Griffith of Philadelphia; *Councilor,* Dr. Henry Sewell of Denver.

The Resemblance Between the Clinical Effects of Pneumococcus and Meningococcus Infections.—Dr. Robt. B. Preble of Chicago took up a consideration of what might be called the specific effects of pneumococcus infections, with a comparison of these with certain phenomena due to the meningococcus infections, with a comparison of the complications seen in the two infections. Among these phenomena were considered the following: (1) The acuteness of the onset. The pneumococcus, whether in pneumonia, tonsillitis, etc., began its action so acutely that the individual could tell the day the onset began, even at times the hour or even the minute. (2) The development of leucocytosis. (3) The eruption of herpes, usually over the fifth nerve distribution. This phenomenon occurred with great frequency in pneumococcus infections, irrespective of the localization of the infection. He knew of no other affection which gave rise to this group of three phenomena. (4) The exceedingly low amount of chloride in the urine. Here were four phenomena which occurred together in only the pneumococcic and meningococcic infections. After referring to the epidemic and seasonal relation of the two, he spoke of the differences between the effects of the two infections. With pneumococcus infections they had learned to associate certain complications, such as arthritis, pleuritis, pericarditis, and endocarditis. He was convinced that in cases of endocarditis complicating pneumonia occurred as the result of a relatively low virulence, as shown by Rosenau, and he was inclined to believe that the meningococcus, was in fact but a pneumococcus with a low virulence. He asked whether it was possible that the miningococcus was the pneumococcus with its virulence lessened.

Dr., William Osler of England said there was a great similarity between these two infections, particularly when meningitis was alone considered. The source and origin were practically the same, yet the pneumococcic meningitis was almost uniformly fatal; in fact, Dr. Osler had never seen a case of pneumococcic meningitis recover. Another point he brought up was in regard to the distribution of the lesions; the meningococcic infection might be a spinal affair only, but this did not apply to the pneumococcic infection. An endocarditis was quite common as the result of a pneumococcic infection, yet it was very rare in cerebrospinal fever. However, there was no question about the great similarity between these two infections, and the two diseases should be sharply separated from each other. Dr. Osler had spoken of the meningococcus being a half-sister, and a very poor one at that, of the pneumococcus.

Dr. Henry Koplik of New York said that in young subjects there was a great similarity in pneumococcic and meningococcic meningitis, in the cerebral symptoms especially. He reported the case of a child who was brought to the hospital with a very obscure central process which the assistant thought to be a meningitis. After waiting two or three days the symptoms, which were identical with a meningococcic infection, cleared up, and a pneumonia developed very promptly. A point of value he believed was that given a pneumococcic infection of the lungs of severe type, with a complicating meningitis, or peritonitis, or endocarditis, it did not follow that the infection was a pneumococcic one; they had had several cases in which the streptococcic infection was the cause of the trouble.

Dr. E. Libman of New York said he had seen but one case of pneumococcic meningitis that recovered. With regard to the diminished virulency of the pneumococcus, their experiences did not correspond with those of Rosenau. In a study of twenty or thirty cases of long continued forms of endocarditis due to the presence of organisms in the blood of the pneumonic-streptococcic group, they believed that these organisms had become diminished in virulency through their long existence in the body. Personally he believed there was no relationship between the two organisms.

Dr. George M. Sternberg of Washington said that the pneumococcus was in reality a streptococcus; one found it as a diplococcus in the blood, especially in the liquid cultures, when it would be found in chains.

Dr. A. Jacobi of New York reported the case of a child, three or four years old, who was brought to the hospital with convulsions, one attack following another. There were contracted pupils, and the patient was unconscious. The pulse and respirations were frequent, and this directed attention to the lungs, and a beginning pneumonia was found. The symptoms continued. On the second day but little urine was passed; this, together with other

symptoms, made them believe that they were dealing with a general pneumococcic infection. On the fourth day the child took a favorable course. In the urine were eliminated large quantities of pneumococci and, at the same time, the brain symptoms disappeared. Here was a case of general pneumococcic infection which got well. Within a few weeks another case entered and this ran the same course. He was very much surprised at Dr. Osler's statement that these cases did not get well; Dr. Jacobi found there was a greater tendency for them to recover than to terminate fatally. Lumbar puncture in these cases was not done.

Dr. Osler said that he was referring to those cases of pneumonic infection with marked cerebral symptoms, with an actual meningitis which was determined by lumbar puncture. Cases of streptococcic and pneumococcic meningitis were almost uniformly fatal, but the meningococcic cases might recover.

Dr. L. F. Barker of Baltimore said that in his experience with the serum in the treatment of patients with pneumonia he was surprised at the large number of cases in which the pneumococcus was found in the blood, and many of these cases died of pneumococcic septicemia. The matter of meningism, as contrasted with meningitis, could not be too much emphasized.

Dr. Preble said that he had seen cases of pneumococcus meningitis recover; these cases were not diagnosed on their symptomatology, but on lumbar puncture, and they recovered with a typical crisis. With regard to the chloride output, he knew of no affection in which the chloride reached such a low point.

The Present Status of the Serum Treatment of Epidemic Cerebrospinal Meningitis.—Dr. Simon Flexner of New York said that two years had elapsed since the serum began to be used generally in the treatment of epidemic cerebrospinal meningitis in the human being, and up to this time about one thousand cases had been treated with the serum. They had collected between 800 and 900 cases which had been diagnosed bacteriologically, but the entire number had not as yet been subjected to analysis. His last careful analysis concerned 550 cases, and he considered the criteria of usefulness of the serum as based on the results obtained with this group of cases. The remaining cases he hoped to be able to analyze this coming summer, and to report upon them later. Dr. Flexner said he took his former position, that it was not fair to base any conclusions as to the value of this therapeutic method upon the results that had been observed at a time when an epidemic was not prevailing. The final test must come in the future and at a time when an epidemic existed, at a time when the serum can be administered at the beginning. Before the introduction of the serum the mortality in Great Britain was about the same as it was along the Atlantic coast, 75 per cent. After the introduction of the serum at Belfast the mortality there was less than 30 per cent., and the impression was gained by those who had followed this disease closely up to the time of the introduction of the serum that the character of the disease had suddenly changed. During the last two or three months in France, starting in Paris and one or two other points, there promised to be a very severe epidemic of cerebrospinal meningitis. When Calmette was in this country last year he took away with him about 100 bottles of the serum; now practically all the serum produced at the Rockefeller Institute for Medical Research was shipped to France. Calmette had so far reported 14 cases, occurring among soldiers in barracks, with 13 recoveries and one death; 3 patients living outside the barracks who were taken ill at that time, without the use of the serum, died. Dr. Flexner believed it was too early to state the true value of the serum in the treatment of cerebrospinal meningitis. At the Jefferson Barracks, Missouri, one soldier who was not suspected of having the disease died; a second soldier died; then they recognized the nature of the disease, used the serum, and five subsequent patients received the serum and recovered. In some cases, even before symptoms appeared, lumbar puncture was employed, a diagnosis made, the serum administered, and recovery ensued even before the patients considered themselves ill. In a town in Texas five cases occurred in rapid succession, four in one family, and all died. Susbequently five cases were given the serum treatment and all recovered. These were only small figures, but they were interesting. With regard to the manner of application of the serum, it should be administered so that it interfered with the development of the diplococcus, and the injections should be repeated frequently. There was a certain relationship between the amount of exudation and the number of organisms; it would therefore seem, so far as he was able to judge from the statistical evidence at hand, that there was produced a change in the nature of the disease, an abrupt termination and other indications of bacterial changes; therefore the serum was indicated in these cases. At the same time Dr. Flexner said that the value of this therapeutic measure could not be determined as yet, not until there occurred an outbreak of an epidemic, when cases could be diagnosed and treated in the beginning.

Dr. Abbott of Philadelphia emphasized the importance of removing an amount of cerebrospinal fluid equal to the amount of the serum to be injected.

Dr. Henry Koplik of New York believed that with the serum they had a weapon at least which would be effective against this scourge, and particularly in subjects below two years of age the results had been very gratifying.

A Systematic Comparison of Radiographs of Cadavers with Autopsy Findings in the Pathological and X-Ray Departments at the Boston City Hospital.—Dr. Francis H. Williams of Boston said that radiographs of cadavers might show differences in density, volume, and chemical composition, though in some cases they did not show as much as those taken in life, or as much as was shown by the fluoroscope in life. The interpretation of radiographs was difficult, but the errors made in their use for diagnostic purposes had been due to lack of training on the part of those who had employed this method or to failure to use the more important fluoroscopic examination with it, rather than to the method itself. A good radiograph might show much that was misinterpreted, or not interpreted at all. To assist in the correct interpretation of radiographs they should be studied systematically, and the findings obtained from them compared with the pathological conditions, whenever possible. Such comparisons had been made at the Boston City Hospital, and this communication presented examples of the work done jointly by the pathological and *x*-ray departments. The study showed conclusively the trustworthiness of the radiograph in certain directions; for example, the cardiac outlines, unless they were obscured by a very dense lung or a large amount of fluid in the thorax. The radiographic and the pathological findings taken together assisted in the correct interpretation of some parts of the negative. This method was useful in the training of those physicians who assumed the responsibility of giving an opinion based upon *x*-ray examinations in part.

Respiratory Variations of the Intrathoracic Pressure.—Drs. S. J. Meltzer and John Auer of New York reported some experimental investigations of the changes in pressure taking place within the intrathoracic cavity during the two phases of respiration. The pressure was studied in the esophagus in the anterior and posterior mediastinum and in the pleural cavities. The problem was to determine whether various parts of the lungs participated in the respiratory movements in a different degree.

Hyperplasia of the Hemolymph Nodes.—Dr. Alfred Scott Warthin of Ann Arbor, Mich., described the different forms of hyperplasia occurring in the hemolymph and hemal nodes, and the conditions under which such hyperplasias had been noted. From a histological standpoint hyperplasias of the lymph nodes fell into four classes. First, lymphoid hyperplasia; secondly, hyperplasia of the endothelial cells of the blood sinuses; thirdly, myeloid hyperplasia; fourthly, fibroid hyperplasia. The question of the hematoblastic function of the hemolymph nodes was gone into in detail, and cases were reported showing myeloid transformation of the hemolymph nodes in man.

Further Studies of the Disorder of Muscles Due to Intense Heat.—Dr. David L. Edsall of Philadelphia made some additional observations regarding the occupations in which this occurred, its frequency, and its economic influence in some of these occupations. The observations seemed to indicate that the trouble was due to the heat itself (and probably chiefly to the intense radiant heat), and not to light, gases, etc. Most of the physicians in the United States Navy had recognized the condition described, and one captain had said that he had been compelled to shut down to one-half speed because of the cramps of the muscles produced in the men. Iron and steel workers were very prone to this affection. This disease occurred in nearly all occupations in which was associated intense heat and hard muscular work. The degrees of heat the men worked in was sometimes astonishing; some firemen worked as long as two hours, sometimes even four hours, in a tempertaure 204 F. and not infrequently 180 or 190. One superintendent in an iron works observed the temperature in which men worked at 235 F.: in such a temperature a steak could be broiled. The men remained in this temperature from eight to ten minutes, although they were not working there. The degrees of severity of the condition varied enormously, but in general the attacks lasted but one or two hours, and were accompanied especially by cramps in the forearms, legs and especially in the abdominal muscles. There was an enormous output of creatinin, and chlorides were absent from the urine during the attack and for many days after the attack. There seemed to be a very severe protein destruction. A possible prevention was proper ventilation; also to supply the men who were exposed to this intense heat radiation with asbestos aprons. Enemata of saline solutions had also been advised by a naval surgeon.

A Small Epidemic of Jaundice with Symptoms of Gastrointestinal Catarrh.—Drs. L. F. Barker, Sladen, and Clough of Baltimore reported this epidemic.

The Effect of Cutting the Branch of the His Bundle Going to the Left Ventricle.—Drs. L. F. Barker, Hirschfelder, and Bond of Baltimore told of the methods devised for cutting the branch of His bundle, which went to the left ventricle. Hemisystole did not result.

A Comparative Study in the Serum Diagnosis of Syphilis.—Dr. Homer F. Swift of New York briefly discussed the Wassermann reaction; he also compared the Wassermann with the Bauer technique.

A Case of Severe Scarlatina Complicated with Gangrenous Diphtheria Treated Successfully without Medicine.—Dr. W. H. Thompson of New York reported the case of a girl, five years old, who was first attacked with scarlatina and on the seventh day developed diphtheria. When Dr. Thompson first saw her in consultation, the membrane had extended over the pharynx, uvula, and into the nose, and it had a very fetid odor. She was wholly unable to swallow. The further complications were abscesses in both ears, pneumonia and pleurisy on the left side, and persistent heart weakness, with a very intermittent pulse. She wholly recovered after very thorough douching of the throat with two gallons of hot water every two hours. This result Dr. Thompson regarded as in keeping with his recommendation to douch the throat in every case of scarlatina from the first onset of the symptoms so as to prevent invasion by streptococci which, in his opinion, was the main cause of the complications of both scarlatina and diphtheria.

The Cammidge Reaction in Experimental Lesions of the Pancreas.—Drs. John H. Musser, John Speese, and Edward H. Goodman presented this communication, and offered the following conclusions: (1) The Cammidge reaction was a constant feature in acute hemorrhagic pancreatitis in the mechanical injuries to the gland (crushing and partial extirpation) and in total extirpation. (2) In certain cases of the subacute type of pancreatitis the reaction was inconstant. (3) The nature of the phenylhydrazin compound was not definitely established. If it was a pentose, it was not derived from a pentose-yielding material of the pancreas. (4) A positive reaction was indicative of altered carbohydrate metabolism due to disturbances of the internal secretion of the pancreas.

The Value of the Wassermann Reaction in Cardiac and Vascular Disease.—Drs. Joseph Collins and B. Sachs of New York had collected a large number of cases of cardiac and vascular disease in order to test the value of the Wassermann reaction, with reference to the claim that the test was positive in many of these, and above all in aortic insufficiency. The results of these various tests tended to prove the great importance of syphilis as an etiological factor in diseases of the heart and blood vessels.

Some Observations on Adrenalin, Clinical and Experimental.—Dr. T. J. Halsey of New Orleans read this paper.

The Importance of Blood Cultures in the Study of Otitic Infections.—Drs. E. Libman and H. L. Celler of New York presented this paper and offered the following conclusions: (1) They had shown that negative results could be obtained, even though not frequently, in cases in which sinus thrombosis was present. The absence of bacteria in a doubtful case would make one hesitate to explore for any thrombus until the possibility of all intercurrent diseases had been excluded, or until the symptoms had become so severe as to justify an exploratory incision. (2) If the blood culture should be negative and the symptoms should persist in a given case, whether there was a sinus thrombosis or not, acute endocarditis could be excluded. In such cases it was advisable to take two blood cultures. In their experience in cases in which endocarditis was due to the ordinary streptococcus (and staphylococcus) the bacteria were always in the blood if two cultures were made. (3) As they had already stated several times, if there had been a sinus thrombosis and bacteria had been present in the blood and the jugular vein had been tied, a negative culture was not of value in showing that a general infection had been stopped. (4) Occasionally negative blood cultures had been of value in all cases with the clinical picture of rheumatism. It was very valuable in such cases to know that they were not dealing with an arthritis due to a general infection by ordinary bacteria.

Further Observations on the Influence of the Ductless Glands on the Pancreas.—Drs. D. L. Edsall, Ralph Pemberton, and J. Edwin Sweet presented this communication. They told of their previous observations that extracts of the suprarenal and pituitary bodies inhibited the flow of the pancreatic juice when excited by secretin; they had made an extension of these observations to the inhibition of the flow following the injection of hydrochloric acid into the duodenum. Similar effects were obtained from synthetic adrenalin. Their previous observations that adrenalin might lose its inhibitory powers while preserving its blood pressure raising qualities were corroborated. There was evidence of a greater pancreatic flow from secretin in thyroidectomized and parathyroidectomized dogs showing tetany, than in normal animals. Adrenalin exercised less inhibition on the pancreatic flow in

such dogs in whom active response to secretin could be obtained after repeated injections of adrenalin; thyroid and parathyroid glands apparently were necessary to the full action of adrenalin.

The Effects of the Injection of Bile Constituents on the Circulation.—Drs. John H. King and H. A. Stewart presented this paper.

The Relation of the Thyroid to Carbohydrate Metabolism.—Dr. John H. King of Baltimore presented this paper.

Studies on Isoagglutins and Isohemolysins.—Dr. W. L. Moss of Baltimore presented this paper.

Renal Suppuration in Typhoid Fever.—Dr. Charles F. Withington of Boston called attention to the occasional occurrence of miliary abscesses and pyelitis as local expressions of the typhoid septicemia. The organisms might be typhoid alone, or combined with others, the streptococcus, colon bacillus, etc. This might be the first expression of typhoid and so obscure the diagnosis. It might prolong the fever or it might occur late and be the cause of some relapses. It always aggraviated the prognosis. He reported cases from his own observation and from the literature. Acute symptoms referred to the upper abdominal quadrant had led to needless operation. Surgery was only useful if there was a closed pyonephrosis.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held April 15, 1909.

The President, Dr. John A. Wyeth, in the Chair.

This meeting was held under the auspices of the Section on Pediatrics.

Pathology of the Status Lymphaticus.—Dr. Aldred Scott Warthin of Ann Arbor addressed the members of the Academy on this subject, illustrating his remarks with lantern slides. An enlarged thymus played an important part as an etiological factor in cases of sudden death. The deaths that occurred from the mechanical obstruction caused by enlarged thymus glands presented rather peculiar symptoms. As early as the seventeenth century sudden deaths with enlarged thymus and lymphatic glands had been recognized. Dr. Warthin had seen a number of these cases. Until recently the minute anatomy had not been touched upon. Sudden death occurred during or immediately following anesthesia, after examinations, after going into water, etc. Some cases were associated with marked stridor, marked asthma, or with the administration of diphtheritic antitoxin. During the past four years ten per cent. of the cases dying in this sudden manner were autopsy cases; these did not include cases of Graves' disease showing enlarged thymus. The fact that an enlarged thymus was a constant feature in all these cases led him to look upon the thymus as an important thing to consider. The pathological findings caused him to look around for living cases, with the hope that a diagnosis might be made during life. In his own town he found two children with a peculiar stridor and he could state positively that they had enlarged thymus glands; the percussion area was large and definite and the *x*-ray picture was convincing. Some cases had been apparently cured under simple treatment; the treatment was pursued on the ground that there existed some chronic affection. However, the symptoms would disappear, sometimes to return again. In all the cases there was this enlargement of the thymus and, in the majority of the cases, more or less enlargement of lymphatic structures, not necessarily all, but sometimes one set, sometimes another. The lymphatic glands presented a rather uniform appearance microscopically. The one feature present in all cases was a hyperplasia of the thymus. Many lantern slides were used to illustrate Dr. Warthin's remarks.

The Clinical Features of Status Lymphaticus.—Dr. Emmett Holt said that he did not quite agree with what Dr. Warthin had said regarding the clinical features of this condition. His experience with status lymphaticus had been mostly with infants of from four to eighteen months of age. He had found the clinical manifestations different from those described by Dr. Warthin, as the following case illustrated. An infant, three months of age, weighing six pounds, had been very difficult to feed and had been under his observation for a month. The child seemed to be well except for the symptoms referable to the digestive tract and had gained two pounds in weight, when about ten o'clock one night the child vomited and seemed ill. At three o'clock the next morning the child was in collapse, with a temperature of 103° and respiration 100 per minute. There was intense prostration, moderate dyspnea, but no stridor. Thirteen hours after the appearance of the first symtoms the child died without having rallied from the state of collapse. At autopsy an acute congestion of the lungs with a beginning bronchopneumonia was found, the general lesions of status lymphaticus were also present together with an enormous thymus resembling the one Dr. Warthin had shown in the picture. Dr. Holt said that most of his cases had been of this type. These children were usually slightly rachitic, and were regarded as healthy even when under observation for some time and showed no symptoms referable to the thymus, but from apparently slight causes they suddenly developed most severe symptoms and death usually followed in from twelve to twenty-four hours. Bronchopneumonia was the associated condition which seemed most frequently to be the cause which precipitated the fatal attack. In several instances the exciting cause was the beginning of some acute infectious disease. The four symptoms usually present in the terminal stages of the disease were intense prostration, dyspnea and cyanosis, convulsions, and fever, which was often very high. The dyspnea was seldom of the obstructive type. In one case which was under observation for thirty-six hours he felt sure that he was dealing with an enlarged thymus, but he had found it impossible to map out the thymus by percussion. At autopsy an enlarged thymus was found. He believed that mapping out an enlarged thymus in infants was a very uncertain procedure. Children suffering from status lymphaticus had very feeble resistance and the slightest thing like the prick of a needle, anesthesia, acute indigestion, the beginning of some acute infection, seemed sufficient to disturb the delicate balance and to precipitate the fatal attack. He was of the opinion that the symptoms pointed rather to a toxic condition than to mechanical obstruction. It was often difficult to reconcile the clinical picture with the pathological findings. Status lymphaticus was not a very uncommon condition, one or two examples occurring in his experience in the course of a year. The condition was frequently, though not always, connected with rickets. He had not found the enlargement of the external glands to be as common in infants as in older children.

The Surgical Aspects of Status Lymphaticus.—Dr. Joseph A. Blake said he had hitherto held a view quite different from that set forth by Dr. Warthin. Some six or seven years ago he had the misfortune of meeting with eight cases of sudden death within one year at Roosevelt Hospital. These cases occurred either during or shortly after the administration of an anesthetic and were attributed to the status lymphaticus. In no instance were there symptoms of obstruction to respiration; the patients seemed to go into collapse and to die of heart failure. In one instance death occurred twenty-four hours after the administration of the anesthetic, the patient dying in coma. Necrosis of the liver might possibly have been the cause of death in this case, although at autopsy the signs of status lymphaticus were present. One patient died at the end of an operation for Graves' disease; after having stood

the operation well, the heart failed, respiration ceased, and death ensued within a few minutes. Several cases of so-called thymic asthma were recorded in the literature which seemed to have been cured by an operation that might be termed thymopexy. The thymus was stitched to the manubrium so as to relieve tracheal compression. It had been demonstrated that in intubating these cases to relieve pressure, the tubes would not pass the thymus unless they were extremely long. The questions as to whether operation should be performed in these cases and as to what anesthetic should be used were of interest. When only a minor operation was called for, as the removal of tonsils or adenoids, one should hesitate before operating, but as the condition of status lymphaticus was so difficult to diagnose it was almost impossible to refuse operation in cases that demanded it. Most of the deaths reported had occurred under the administration of chloroform. Three of the four deaths that had come under his observation were under ether narcosis. He preferred, however, to give ether and not chloroform as in his experience death had resulted from cardiac failure. Possibly some of the deaths attributed to the administration of chloroform might be due to the effects of chloroform on the liver.

Dr. A. Jacobi said that he believed that sudden death in cases of status lymphaticus was not due to that condition alone. Dr. Holt's case showed bronchopneumonia at autopsy. One should remember that not only were the blood vessels of the lungs enlarged in such cases, but those in the neighborhood as well. In speaking of the surgical aspects of these cases, Dr. Jacobi recalled an operation performed by Rehn at Frankfort-on-Main, in 1893 or 1894, in which the thymus was not removed but stitched to the anterior wall. There were a number of such cases now on record. Within the past two months he had seen an account of a case in which favorable results had been obtained by the removal of the entire organ. One should not lose sight of the fact that the space between the sternum and the vertebral column was very narrow, only 2.2 cm., and slight changes in the size of the blood vessels were liable to cause obstruction of respiration and to such an extent that death might occur. If in such cases the head of the child were bent forcibly backward or the child was lying in an uncomfortable position, the difficulty in respiration would be lessened by bending the head forward. Dr. Jacobi thought that one who saw these cases often enough would not have much difficulty in making a diagnosis. One could not detect the thymus with the baby lying on its back, but if the baby was turned over and raised gently the thymus could be found. Dullness behind the manubrium was quite characteristic of an enlarged thymus. The status lymphaticus might be the cause of difficulty in respiration, occasional convulsions and sudden death partly from hypertrophy of the thymus and partly from congestion. Laryngismus stridulus had seldom anything to do with enlarged thymus. A considerable amount of cranial and meningeal injection, as well as edema of the brain, was present in these cases; in some there was beginning hydrocephalus. If the rickets was successfully treated the patients recovered, but this took time. The prognosis depended upon the possibility of relieving the cerebral changes connected with rickets. Five or six weeks were usually required in order to get the baby in non-rachitic condition and until this was done one could not be sure that the baby would not die suddenly. The laryngismus did not, as a rule, result from the enlarged thymus, but from edema of the brain, which was connected with rachitic tabes. There were complications in most of these cases and it was necessary to improve the general condition of the child, to watch it carefully, and to keep the head well forward.

Dr. John A. Wyeth referred to an article published in the *Laryngoscope* by Roberts of California in which a series of seven cases of sudden death occurring in children who had been operated upon for adenoids was reported and, in which, at post mortem, status lymphaticus was demonstrated. Death, in these cases, occurred during the operation or immediately after. A series of thirty cases of status lymphaticus which ended fatally during narcosis was reviewed. In seventeen of these chloroform was the fatal agent; in six, ether; in five, chloroform and ether, mixed, and in two, nitrous oxide gas. Dr. Wyeth said that his personal experience with status lymphaticus was limited to one case. A boy received an injury to the ring finger from which infection, lymphangitis, and a metastatic abscess in the epitrochlear region at the elbow had resulted. There was no appreciable lymphatic enlargement in the neck or elsewhere. Chloroform was administered as least likely to cause nausea, the child having eaten a hearty meal within two hours. A single incision was made, the abscess cavity mopped out and the anesthetic discontinued. Whereupon the child gave a gasp, the pulse ceased at the wrist, and all efforts at resuscitation failed. The child had died from heart paralysis. At the autopsy by the coroner no mention was made of an enlarged thymus, but the glands of the mesentery were enlarged and soft. The physician who performed the autopsy stated that the death was due to chloroform, the patient suffering from status lymphaticus.

Dr. John Howland said that there was a division into two camps in regard to the cause of death in status lymphaticus, those who believed that pressure caused death and those who did not believe this. The great majority of pathologists had failed to find evidences of compression at autopsy. Friedleben, Paltauf and Richter expressly stated that they had never seen it. Dr. Bovaird had used the method that Dr. Warthin had insisted upon, namely, that of dissecting the trachea from above and splitting it before opening the thorax for many years at the Foundling Hospital and had never seen compression. During the past seven years Dr. Howland said that his experience had been similar. It was claimed that the congestion or edema responsible for the pressure disappeared after death. Theoretically it was impossible to conceive that a congested thymus could exert sufficient pressure to cause death in an individual who up to the very time of his demise showed no signs of dyspnea. The testimony of those who had seen children die suddenly was also conclusive. In the course of fifteen years Pott saw four children die of status lymphaticus while he was examining them. There was cyanosis, convulsive movements and gasping respiration, but in every instance the heart had stopped beating when he had examined it and attempts at respiration were continued for a time. Such was not the case with asphyxia. Escherich had had similar experience. There was lack of great and persistent cyanosis in children dying with symptoms that had lasted for several hours. The edema that one would expect from pressure on the great veins was also lacking. The dyspnea was not accompanied by the supraclavicular, suprasternal and epigastric retraction that would result if air were prevented from entering the lungs. The dyspnea came and went with great rapidity and death might occur without any whatever. In cases that had been operated on for thymus obstruction, the dyspnea had been constant and unremitting for periods of from a few weeks to two and one-half years. It seemed to him that evidence both anatomical and clinical of death from pressure was wanting. We were still without a satisfactory explanation for death in status lymphaticus.

Dr. James Ewing said that while in Vienna, in 1895, he had seen several cases of *"constitutio lymphatica"* at autopsy. In these cases the thymus was persistent or enlarged, the faucial, intestinal, and splenic lymphoid follicles were hyperplastic, the aorta was usually small, there were often signs of rachitis, and in the older subjects there was

a peculiar faminine type of physical development. These features were very striking and the condition was entirely new to him, not having been described at that time in American medical literature. Yet within a few months after returning from Vienna he had encountered two fatal cases, one in a young girl who died under ether narcosis, and the other in a parturient woman who died unexpectedly from a trivial hemorrhage. Status lymphaticus had now become a well recognized condition of great clinical significance in relation to sudden death. It was frequent enough to be kept constantly in mind, being found in from one to three per cent. of autopsies. It had been found by Ohlmacher in many cases of epilepsy. Hannseman had emphasized its importance in Graves' disease, and he himself had observed it in four of five fatal cases of that disease. It figured in most fatalities from short submersion in water, and was the chief underlying condition in fatalities under narcosis. Elser had recently shown that it was present in many cases of fulminant meningitis, an observation which was verified by Norris and in Germany, so that it must stand as an important predisposing cause of fatal meningitis. Dr. Warthin's contribution seemed important as furnishing evidence from the proliferation of endothelial cells in the lymph nodes that there was a toxic element in the condition, and his observation of a case of advanced atrophy of the abdominal lymph nodes was distinctly new. The chief point of debate was the etiology of status lymphaticus. Many had thought that in young subjects death must result from sudden compression of the trachea by the large thymus, and he was inclined to believe that in such subjects this might be an important consideration. The compression of the trachea or vagus could not figure in the majority of the cases. The disease was not one of young children but occurred in adults in whom there could be no question of death by pressure. An interesting point of view was that of Bartel, who held that the condition might have a definite relation to tuberculous intoxication. There was occasionally some histological resemblance of the hyperplastic lymph nodes to tuberculosis. An opinion largely held in France was that the enlarged thymus yielded an excess of internal secretion, with hyperthymization of the system. This theory was open to experimental study. Systematic investigation from these theoretical standpoints was, therefore, indicated. Careful clinical analysis of the cases was also discussed. Status lymphaticus was not always fatal, but must influence the course of many diseases. Yet one saw in clinical literature little reference to the part played by this condition in the so-called idiosyncrasies of disease.

Dr. Charles Norris said that he had never seen a single death either in the young or in adults from compression of the trachea as the result of status lymphaticus. Though his experience with children had been somewhat limited he had seen many cases of this condition among adults. It was conceivable that an enlarged thymus might compress the trachea, but it was inconceivable that the thymus could increase in size so suddenly through hyperemia. Dr. Norris said that he wished to emphasize the point that a clinical diagnosis of status lymphaticus could not be made out, but that a diagnosis could be made quite readily at autopsy. In his opinion patients did not die of status lymphaticus alone, but as they grew up they became more susceptible to infections of various kinds and this might account for sudden deaths attributed to status lymphaticus.

Dr. William P. Northrup said that he wished to remind the audience to what extent the trachea could be narrowed without causing symptoms. A child could breathe through the small calibre of an intubation tube; this seemed incredible in the first days of intubation. Dr. Northrup cited the case of a child, eight months old, whose tonsils and tongue were so swollen and whose adenoids were so congested that breathing was very difficult and the child was exhausted for want of sleep when nasal intubation was resorted to and the smallest sized drainage tubes were passed through the nostrils, past the swollen adenoids and tonsils to the larynx. The child then slept seven hours. These drainage tubes were barely large enough to admit the smallest probes. From this it would seem that an extreme enlargement of the thymus must be present in order to cause sudden death from compression of the trachea.

Dr. S. J. Meltzer said that he thought the sudden deaths in status lymphaticus were not respiratory deaths. The phenomena of asphyxia were so characteristic that there could be no doubt as to the cause of death; even a layman would state simply that the child suffocated. The descriptions of these deaths all indicated plainly that cardiac failure was the cause. However, sudden increase in the size of the thymus might have occasioned the cardiac failure. A normal heart might be arrested many times without serious consequences, but with hearts that had lost their stability this was not the case. Dr. Meltzer said that from experimental experience he knew that a single slight stimulus applied directly to the vagus would cause sudden and fatal stoppage of the heart. With a heart whose stability was lost a sudden enlargement of the thymus might occasionally be capable of exerting a pressure sufficiently strong to bring a heart to a fatal standstill. From this point of view one could accept Dr. Warthin's theory that a considerable amount of lymphoid material was being absorbed by the system and that these substances robbed the heart of its "factors of safety."

Dr. Charles G. Kerley related three cases of sudden death from status lymphaticus without any evidence of tracheal obstruction. In the first case the child died in convulsions; at post mortem a large thymus was found. The second case also had convulsions and died very suddenly without any evidence whatever of tracheal obstruction. In the third case the conditions were similar to those in the case reported by Dr. Holt: all inhibitory control seemed to be abolished and the child died from exhaustion as a result of the tremendous efforts at breathing. At autopsy an enlarged thymus was found.

Dr. Warthin, in closing the discussion, said that he did not know exactly what status lymphaticus meant aside from sudden death that did not seem to be associated with other things. There seemed to be danger of attributing all cases of sudden deaths to status lymphaticus. One should be very careful as to what he called the lymphatic struma. Dr. Warthin thought it meant an enlarged thymus. In the literature, especially in France and Germany, there seemed to be an increasing amount of evidence favoring the obstruction theory, pressure being on the vagus nerve, the recurrent laryngeal or the trachea. Pressure on nerves might, of course, play a part in causing sudden death. Intoxications might occur, but they were not the cause of death in these cases. The enlarged thymus might be the cause of intoxication and this in turn might be the cause of sudden death.

Stated Meeting, Held May 6, 1909.

The President, Dr. John A. Wyeth, in the Chair.

Acute Pulmonary Edema as a Terminal Event in Certain Forms of Epilepsy.—Dr. A. P. Ohlmacher of Detroit, Mich., presented this preliminary communication. This gave him an opportunity of bringing before the Academy a much belated report on certain phenomena in epilepsy which, so far as he had been able to determine, had received no general recognition. In fact, at the time the observations narrated occurred, during the period of his active connection with the Ohio Hospital for Epileptics, from 1897 to 1905, and his then close touch with the literature of epilepsy, he could find no record to indicate that

the syndrome acute pulmonary edema, epileptic seizures, status epilepticus, and sudden death in epileptics had been recognized. Acute edema of the lungs, even apart from any relation to epilepsy, was an uncommonly discussed clinical event. Riesman described the history of six personally observed cases of acute pulmonary edema, but nowhere in his study did he mention its association with epilepsy, nor with status lymphaticus. The acute serous inundation of the lungs which Dr. Ohlmacher described had been observed in epileptics under several types, as accompanying a single major fit with death soon succeeding, after a single attack of coma, and death after a longer interval, and after a series of fits not reaching status epilepticus, and as hastening status epilepticus to a lethal termination. There was also evidence, so far as postmortem observations went, that some of the not uncommon nocturnal fatalities (the "found-dead-in-bed" class of institutional records) in reality were instances of acute pulmonary edema after one or more epileptic attacks, rather than of mechanical asphyxia by bed clothing or otherwise, as was commonly believed. To illustrate the variations just alluded to, five typical cases had been selected from his notes and were described. Thorough investigation at autopsy precluded the existence of renal, cardiac, or cerebral disease as explaining the causation of edema; in each case also a negative result followed the search for foreign bodies in the air passages which might have induced a mechanical suffocation. As to the relative frequency of pulmonary edema in epileptics, the following statistics from the records of the Ohio Hospital for Epileptics would bear witness: In the years 1903, 1904, and 1905 there were a total of 203 deaths; of these, 41 followed a single epileptic attack, or were otherwise sudden. In this group of 41 edema of the lungs was noted, either as a terminal event, or was verified at autopsy in 13 cases. Again in the period above mentioned, 41 patients succumbed to status epilepticus, and here edema of the lungs was noted in 15 cases. That the syndrome acute edema of the lungs and epileptic attacks was truly a "terminal event" seemed evident from his recital; he had no record of a case in which pulmonary edema clearly manifested itself as a coincidence of grand mal or of status epilepticus that did not result in death. The full significance of acute pulmonary edema in epilepsy was at most conjectural, but with what his studies had disclosed as to the existence of a status lymphaticus in those cases they could suggestively recall the fact repeatedly emphasized by those who had occupied themselves with that peculiar morbid condition, viz., that a tendency to sudden and usually fatal edema, as of the larynx, lungs, or brain, was one of the outstanding peculiarities of the victims of the lymphatic constitution. Accordingly the observations recorded should tend in two directions—to emphasize the importance of acute edema of the lungs as a concurrence in epilepsy, and to further illustrate the kinship between certain types of epilepsy and status lymphaticus.

The Structural Side of Epilepsy.—Dr. E. E. Southard of Boston said that, although the analysis of his material was not complete, he could not withstand the temptation to draw a few conclusions. He had been especially interested in the nervous side of epilepsy, and there were an extraordinary number of cases in which there were found lesions of the kidneys, liver, and other organs. The nervous system was the trumpet through which sounds were emitted in this disease. The nervous mechanism might be normal in certain cases of epilepsy. In many cases of insanity the histological aspects of the brain were normal. In epilepsy there might be a possible, though not a definite, division made along the lines of heredity. All books on epilepsy dealt with heredity, and the more recent the book the larger the percentage of hereditary cases of this disease. The brain in those cases which showed some heredity of epilepsy in one or both parents was likely to be absolutely normal, so far as could be detected. With a technique relatively perfect they could say that a large number of epileptics which they had examined showed absolutely nothing in the brain that was at all significant, nothing in the shape of a lesion. In the past, cases in which no lesion could be found had been termed idiopathic epilepsy. Cases which showed more or less gross lesions microscopically were not regarded as idiopathic, but as being secondary to the lesion. The point he wished to make was that when they looked into heredity they found these so-called idiopathic cases. These hereditary cases of epilepsy were subjected to a great variety of diseases; they might even show lesions; epileptics were subject to other lesions. He wanted a careful study of the so-called idiopathic cases of epilepsy from the standpoint of heredity. Gower's figures dealt with about 2,400 cases, and in 1901 he showed that 973, or about 40 per cent., of these had a neuropathic heredity. In the statistics of 1881, 429 out of 1,218 cases showed a strong heredity, or 35 per cent. a neuropathic heredity. In 1901, 544 out of 1,182 cases, or 46 per cent., showed a strong heredity. There was a distinct advance in the number of cases of hereditary epilepsy found when there was a neuropathic background in the family. Gower's later statistics included only such cases in which they could get reliable accounts of the condition of both parents, statements by physicians, relatives, and employers; in these cases they found that the true percentage was not beyond 50 per cent. Dr. Southard said that he could find no data in literature upon which he could rely, and the cases that he had taken into consideration were examined very thoroughly and reliable biological results were given. Most of the cases of epilepsy with marked lesions of the nervous system were cases in which they could not demonstrate heredity. A few, however, showed epilepsy in some relative, but far the greater number of cases did not. The investigations carried on in those cases which presented no determinable lesion of the nervous system were of far more importance. In interpreting the data to which he had access in literature he had no difficulty; he found that there was a group of cases in which there could be shown definitely certain foci, tumors, infarctions, hemorrhages, all in the brain, and even spots of encephalitis, and among these the most striking cases were reported. In some the only lesion was a distinct kink or streak. There was a gliosis as the result of encephalitis which resembled somewhat the acute inflammation of a finger following an infection. The fact that cultures were negative did not mean that organisms were not present. In some cases there were spots in the brain which were erosions, the result of pressure of the nerve cells. In nine cases out of ten epileptic lesions were not found in the motor area; they were found particularly in the occipital lobe and the hippocampal gyrus. One case had been reported as occurring in the General Hospital in Boston in 1890, in which there was an aneurysm the size of an egg occupying the site of the anterior choroid artery. This aneurysm had produced the attacks of epilepsy. It was necessary to distinguish conditions or tissues underlying in the cerebral structures which promoted the spread of impulses; that spread was usually laterally. A number of instances were found in which an invasion of the gyrus would produce a condition of gliosis. In cases of hereditary epilepsy in which no lesion could be found he thought that the condition could probably be explained by conditions in the parent; in cases of hereditary epilepsy the habit should be considered. In general they should differentiate sharply between the acquired and hereditary forms of epilepsy. In the hereditary cases they would often find signs of organic disease in the nervous system either in life or after death. In the acquired cases they usually found an original focus, such as an infarction, hemorrhage, or tumor, which produced a spread of the epileptic impulses.

A Brief Review of the Broader Lines of Progress in the Treatment of Epilepsy During the Past Two Decades.—Dr. William P. Spratling of Baltimore presented this paper, which was read by title.

WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting Held April 12, 1909.

Dr. William Lindner in the Chair.

The Medical and Surgical Treatment of Erysipelas.—Dr. Adolph Bonner of Brooklyn read this paper. He said that erysipelas attacked individuals of robust constitution and also those predisposed to its invasion by diabetes, alcoholism, decreased resistance from previous illness, and mental anguish. He cited three cases that he had seen in which diabetes had not been suspected, but was disclosed upon urinary examination. Internal medication in erysipelas was not of a specific nature, but was symptomatic, being directed toward sustaining the heart, reducing the temperature, quieting the nervous system, caring for the stomach, intestines and kidneys, and seeking the source of the infection. The majority of cases ran a short acute course and did not show any marked constitutional disturbances. These cases needed little or no stimulation. The speaker employed whiskey in cases that did not show cerebral involvement, and in which there was no delirium. In the latter, caffeine had proven valuable as a cardiac stimulant. For high temperatures the tepid sponge bath of alcohol and water had been used, or if this was not sufficient, the warm pack. The use of the coal-tar products for this purpose had to be condemned. The sodium salts administered per rectum had been efficient in the treatment of restlessness and delirium. For gastric irritation functional rest had been employed, or if this had been inefficient, vomiting had been induced by means of large draughts of lukewarm water. Clearing of the intestinal tract with salines, and avoidance of milk when the temperature had been very high, with the administration of fair amounts of water, plain or acidulated, to lessen the concentration of the urine, in addition to the enforcement of physical rest, were all important elements in the treatment. The topical treatment had been quite varied. Ichthyol, either in ointment or in solution, had stood the test of time, and had been found efficacious in the milder types, especially when located on the face. Erysipelas of the scalp was best treated by first cutting the hair as close as possible. Shaving was an added irritating element. Alcohol in 25 or 50 per cent. solution, constantly applied, had given satisfactory results. The best remedy for local application was pure carbolic acid. This attacked the infectious process, which was superficially located. It was applied by means of a metal probe; the surface of the infected area, and especially its edge, were swabbed with the pure carbolic, and when the surface showed distinct whitish discolorations it was quickly sponged with pure alcohol, which was not discontinued until the whitish color disappeared. It was important that the edge of the infected area and an area at least half an inch outside of this should be thoroughly treated in this manner. This method had been tried in cases of severe type and long standing. If the process seemed to advance the application might be repeated in ten to twelve hours. Bier's hyperemic treatment had been also employed. Phlegmonous infection needed surgical treatment. In the severe type of cases that continued to grow worse in spite of any form of medical treatment, some measure was necessary to prevent the advance of the process.

Where Is the Appendix?—Dr. George I. Miller of New York read this paper. He said that for practical purposes the theoretical surveys of the anatomical landmarks of the appendix were generally useless. In the fifth week of fetal development the cecum was high up, and in close relation with the transverse portion of the large intestine. The later development of the ascending colon caused the cecum to descend. The apex of the cecum did not keep pace with the remainder in the course of further growth, with the result that the narrow tubular appendix vermiformis represented the oldest portion of the cecum. The text-book descriptions that the appendix lay in the right iliac fossa, with its base midway between the anterior superior spine and the umbilicus, or in the pelvis, or in the left iliac fossa, or near the spleen and beneath the diaphragm, were all diagrammatic and did not apply to pathological contortions or resulting destructions. In catarrhal appendicitis the three muscular bands of the colon easily led to the point of attachment of the appendix. Extensive and firm adhesions changed the scenery of the operative field, and the appendix was so completely buried in cicatricial tissue as to be scarcely recognized and only liberated with great care and considerable force. The appendix was sometimes adherent to the wall of the cecum, so that it could not be separated from it with safety, or it was similarly caught between a coil of intestine, with the result that separation from it would involve the risk of tearing the gut. Many appendices were blended in adhesions and apparently formed part of the fascia covering the right psoas muscle. The sloughed appendix was sometimes found floating in a localized abscess cavity, or it was fished out of a diffused pyoperitoneum. Sometimes the appendix that had been sloughed off migrated somewhere in the abdomen or was swallowed by the cecum and passed through the large intestine and out of the system. The appendix sometimes protruded through a slit in the mesoappendix, the former twisting on itself in passing through the slit. Instead of an appendix, there was found at times a tumor accompanied by suppuration and cellulitis, with the omentum as the main bulk of the mass, adherent and wrapped about the appendix, thickened and infiltrated with inflammatory products. Sometimes the omentum fell over a ruptured appendix and prevented leakage from it. In such cases the omentum was highly inflamed, infiltrated, and often pyogenic. Sometimes the appendix was a fibrous cord, very small and atrophied, and when fused to inflammatory products furnished the cases in which the appendix was not found. Sometimes an enveloping appendix, although not itself diseased, produced strangulation of a loop of bowel. The ovary or fallopian tube might be fused with the appendix into one indistinguishable mass; this occurred mostly on the right side, although the appendix had been found by Rochard drawn across the abdomen and adherent to the left tube. The appendix was always behind an enlarged uterus, whether the enlargement was due to physiological or pathological causes. In appendicitis complicating pregnancy the offending structure had been found at the lower end of the kidney. A strangulated appendix without perforation gave the appearance of a cyst in the right iliac fossa. The appendix, either gangrenous or not, had been found in the sac of various forms of hernia, such as umbilical femoral, or inguinal. A supposed suppurating inguinal adenitis had been found to be the sac of a femoral hernia. The presence of a fulminating appendicitis in an irriducible inguinal hernial sac gave symptoms simulating strangulation. In 3,054 hernias operated upon the appendix had been found in the pro-

portion of one in about fifty-three cases. The author had operated on a five months old infant, in which the appendix, cecum, and colon were all invaginated in the rectum and protruded partly through the anus. This was a rare form of intussusception. There was a case recorded by Bary, in which the perforated appendix was found in a collection of pus behind the obturator foramen. In nondescent of the cecum there was a corresponding abnormal situation of the appendix. Turner of Moscow, quoted by G. R. Fowler, in a study of 83 cadavers in which the appendix lay freely in the abdominal cavity, found that it was located in order of frequency, as follows: In the lesser pelvis, transversely on the psoas muscle toward the sacral promontory, freely upon the iliacus or upon the psoas, in the mesogastric region, with the commencement of the colon, lying transversely, upward upon the lateral surface of the descending colon, and in front of a right-sided sigmoid flexure. The appendix had been found in the quadratus lumborum muscle, an inch and a half above the right iliac crest; in contact with the under surface of the liver; behind the peritoneum, with no peritoneal covering, constituting a retroperitoneal hernia of the appendix; coiled on itself and embedded in cellular elements on the surface of the iliac fascia entirely outside of the peritoneal cavity; and in the scrotum, instead of the testicles. Cases had been reported in which no appendix was found. In considering the location of the appendix, one had to bear in mind, first, its position with regard to the cecum; second, its direction, and third, the relation it acquired to the neighboring peritoneum. In conclusion the speaker stated that where the appendix should be everyone knew, but where to find it was guesswork until the problem was solved by opening the abdomen.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF MONTANA.

April 6, 7, and 8, 1909.

ANATOMY.

1. Give the origin, insertion, and action of the following muscles: deltoid, latissimus dorsi, rectus femoris, and tibialis anticus.
2. Trace the arterial blood supply from the heart to the foot, naming the principal branches given off.
3. Give the origin, course, and distribution of the following nerves: seventh cranial, great sciatic, median.
4. Give classification of joints, with an example of each.
5. Name and describe the salivary glands.

PHYSIOLOGY.

1. Give the varied functions of the sympathetic nervous system.
2. How is normal body temperature regulated and sustained?
3. What is metabolism? What are its objects?
4. Give the mechanism of respiration. How is it regulated?
5. How is the heartbeat regulated and sustained?
6. Describe the digestion of a meal of beefsteak and potatoes.

Answer five questions.

MATERIA MEDICA.

1. What is the alkaloid of hyoscyamus? What is the dose of hyoscyamus? What is the dose of hyoscine hydrobromate for hypodermic use?
2. Give the average adult dose of the following: (1) liquor potassii arsenitis, (2) tinctura nucis vomicæ, (3) tinctura opii, (4) spiritus glyceritis nitratis, (5) oleum tiglii, (6) eserina, (7) hydrargyri chloridum corrosivum.
3. Mention the conditions which affect the dosage of medicines.
4. What are incompatibles in medicine, and what are the different kinds of incompatibles?
5. Name four efficient hypnotics and give source and dose of each.

THERAPEUTICS.

1. By what methods do antipyretics act? Give an example of one that acts by each method.
2. What are the physiological effects and medicinal uses of the preparations of belladonna?
3. State the condition of the venous system and that of the arterial system that indicate the use of digitalis, and what effect this drug has on the arterioles.
4. How do antagonists and antidotes differ? Illustrate.
5. Name three drugs used to accelerate the action of the heart, also three drugs used to retard its action, and state the dose of some preparation of each.

PRACTICE.

1. Differentiate cardiac hypertrophy from cardiac dilatation; organic from functional heart murmurs.
2. What are the causes and symptoms of dilatation of the stomach?
3. Give the causes and symptoms of ascites, and tell how to recognize by what disease it is produced.
4. If summoned to a middle-aged person discovered in a comatose condition, explain how to recognize upon what disease the condition depends and give treatment for the uremic type of coma.
5. Differentiate catarrhal from croupous pneumonia and give treatment for the former disease.

SURGERY.

1. Give symptoms, diagnosis, and treatment of strangulated inguinal hernia.
2. Give differential diagnosis between gallstone colic, appendicitis, and kidney colic.
3. Give symptoms, diagnosis, and treatment of acute empyema.
4. Give symptoms, diagnosis, and treatment of acute osteomyelitis.
5. Give symptoms, diagnosis, and treatment of fractures in general. Give differential diagnosis between fracture and dislocation.

DISEASES OF WOMEN AND CHILDREN.

1. Give the symptoms, diagnosis, and treatment of gonorrheal cystitis.
2. What are the indications for a complete hysterectomy?
3. Give the symptoms, diagnosis, and treatment of laryngeal diphtheria.
4. Differentiate scarlet fever, measles, and rötheln.
5. Give the varieties, symptoms, diagnosis, and treatment of stomatitis.

OBSTETRICS.

1. Give the differential diagnosis of the different kinds of convulsions which may arise in the puerperal state.
2. Give diagnosis of a transverse presentation and its causes and management.
3. Give the causes and treatment of post-partum hemorrhage.
4. Give the symptoms and treatment of an incomplete abortion.
5. Describe the third stage of labor and its management.

DISEASES OF THE NERVOUS SYSTEM.

1. Give the etiology, diagnosis, and treatment of chorea.
2. Differentiate neuritis from neuralgia.
3. What is aphasia? Describe its varieties.
4. Give the etiology, symptoms, and treatment of acute anterior poliomyelitis.
5. In what conditions is the patellar reflex increased, diminished, or absent?

DISEASES OF THE EYE AND EAR.

1. Give the diagnosis and treatment of gonorrheal ophthalmia.
2. Give the causes and sequelæ of suppurative middle-ear disease.
3. Give the etiology, diagnosis, and treatment of trachoma.
4. Give the symptoms and treatment of acute mastoiditis.
5. Give the diagnosis and treatment of corneal ulcer.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF MONTANA.

April 6, 7, and 8, 1909.

ANATOMY.

1. DELTOID. *Origin*: From the outer third of anterior border and upper surface of the clavicle, from the outer margin and upper surface of the acromion process, and from the lower edge of the spine of the scapula. *Insertion*: Into the deltoid impression on the middle of the outer side

of the shaft of the humerus. *Action*: It raises the arm from the side so as to bring it at right angles with the body; its anterior fibers draw the arm forward; its posterior fibers draw the arm backward.

Latissimus dorsi. *Origin*: From the spinous processes of lower six dorsal vertebræ, posterior layer of lumbar fascia, external lip of crest of ilium, and from the three or four lowest ribs. *Insertion*: Into the bicipital groove of the humerus. *Action*: It depresses the humerus, draws it backward, adducts it, and rotates it inward.

Rectus femoris. *Origin*: Two heads, one from the anterior inferior spine of the ilium; the other from groove above the brim of the acetabulum. *Insertion*: Into the patella, in common with the Vasti and Crureus. *Action*: It flexes the hip and extends the knee.

2. From the heart the blood flows into the arch of the aorta, thoracic aorta, abdominal aorta, common iliac, external iliac, femoral, popliteal, anterior tibial, and dorsalis pedis arteries.

Branches of the *arch of the aorta*: Innominate, left common carotid, and left subclavian. Of the *thoracic aorta*: Bronchial, œsophageal, pericardial, mediastinal, and intercostals. Of the *abdominal aorta*: Phrenic, celiac axis, superior mesenteric, suprarenal, renal, spermatic (or ovarian), inferior mesenteric, lumbar, and sacra media. Of the *external iliac*: Deep epigastric and deep circumflex iliac. Of the *femoral*: Superficial epigastric, superficial circumflex iliac, superficial external pudic, deep external pudic, profunda femoris, muscular, and anastomotica magna. Of the *popliteal*: Muscular, cutaneous, superior articulars, inferior articulars, and azygos. Of the *anterior tibial*: Anterior and posterior recurrents, internal and external malleolar, and muscular.

4. Classification of Joints. 1. *Diarthrodial*, or freely movable; as hip and knee. 2. *Amphiarthrodial*, or slightly movable; as symphysis pubis and joints between bodies of vertebræ. 3. *Synarthrodial*, or immovable; as ethmoid with vomer and parietal with frontal.

PHYSIOLOGY.

1. *Functions of the sympathetic nervous system*: "It may safely be said that the sympathetic system has, to a great extent, a controlling influence over the secretion of most of the glands, the lacrymal, the salivary, the sweat glands, the glands of the stomach and intestines, the liver, the kidney, etc.; that it presides over the circulation by regulating the caliber of the blood-vessels and the action of the heart; that it influences respiration; and, finally, that all involuntary muscles, those of the digestive apparatus, of the genitourinary system, of the hair follicles (pilomotor nerves), are under its control to such extent that, for instance, in certain mammalians the bladder still continues to fulfill its function for weeks after all the cerebrospinal motor nerves leading to it have been severed. In short, we find that all vegetative life of the organism is, to a greater or less extent, under the control of the sympathetic system. Therefore it may properly be called the vegetative nerve system *par excellence*."—(*Reference Handbook of the Medical Sciences.*)

2. The normal body temperature is *regulated* and *maintained* by the thermotactic centers in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost.

Heat is produced in the body by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord.

Heat is given off from the body, by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and fæces.

3. Metabolism is a name given to the entire series of changes that occur in a cell or organism during the processes of nutrition. It is of two kinds: (1) Anabolic or constructive, and (2) catabolic, or destructive.

The objects of metabolism, are: Nutrition and life, and the conservation of bodily energy.

MATERIA MEDICA.

1. The alkaloid of hyoscyamus is hyoscyamine.
The dose of hyoscyamus is gr. vij.
The dose of hyoscine hydrobromide for hypodermic use is gr. 1/150.

2. Average adult dose of: (1) Liquor potassii arsenitis, is ♏iij; (2) tinctura nucis vomicæ, is ♏x; (3) tinctura opii, is ♏viij; (4) spiritus glycerylis nitratis, is ♏j; (5) oleum tiglii, is ♏j; (6) eserina (sulphate or salicylate), is gr. 1/64; (7) hydrargyri chloridum corrosivum, is gr. 1/20.

3. The conditions which affect the dosage of medicines, are: Age, body weight, body temperature, drug habits, idiosyncrasy, method of administration, intervals between doses, cumulative action of drug, disease, and race.

4. Incompatibles are substances which, when combined or associated, undergo a more or less complete change. The different kinds of incompatibles are: Chemical, pharmaceutical, and therapeutic.

5.

FOUR EFFICIENT HYPNOTICS.	SOURCE.	DOSE.
Chloral hydrate.	Alcohol and chlorine.	gr. xv to xx.
Sulphonal.	Acetone and mercaptan.	gr. xv to xxv.
Trional.	Methylethylketone and mercaptan.	gr. xv to xxv.
Paraldehyde.	Acetic aldehyde and sulphuric acid.	♏xxx to ʒj.

THERAPEUTICS.

1. The following table (from Potter's *Materia Medica*) gives the chief temperature depressants, with their manner of action: Temperature depression may be done by five different actions working upon two principal lines, viz., by—

(*a*) *Lessening heat production, by*
- (1) diminishing tissue change.
- (2) reducing the circulation.

(*b*) *Promoting heat loss, by*
- (3) dilating cutaneous vessels, thus increasing heat radiation.
- (4) promoting perspiration—its evaporation lowering the temperature.
- (5) abstracting heat from the body.

The following list of antipyretics includes a few for each of the above named actions, to which the numbers refer in each case, viz.:

Quinine, 1.	Aconite, 2.	Alcohol, 1, 3,
Phenol, 1.	Nitrous ether, 3, 4.	Antimony, 2, 4.
Salicin, 1.	Acetanilid, 1, 4.	Cold bath, 5.
Digitalis, 2.	Phenacetin, 1, 4.	Cold drinks, 5.
	Antipyrin, 1, 4.	Wet pack, 5.

2. Belladonna and Its Preparations. *Physiological effects*: Anodyne, mydriatic, inhibits secretions, depressant of terminations of nerves, accelerates the heart beat, causes rise in blood pressure, but toxic doses cause the blood pressure to fall, stimulates the respiratory center, but large doses depress the same; it may cause vertigo, restlessness, excitement, delirium, or mania.

Medicinal uses: To relieve pain, relax spasm, check sweating, as a mydriatic, for night sweats, to check griping of purgatives; in asthma, to check fevers, in heart disease, shock and collapse, acute coryza, urinary incontinence, chordee, low delirium of fevers, mania, alcoholism; as an antigalactagogue, spasmodic cough.

4. *Antagonists* "are agents which directly oppose each other in some or all of their physiological actions, and therefore may be used, one against the other, in a case of poisoning by either, to *counteract* its effect upon the organism, after it has been absorbed, and when, therefore, the time for an antidote has passed. Antagonistic action takes place in the blood and tissues, and is applicable almost entirely to vegetable poisons."

Antidotes "are agents which act upon poisons in such a manner as to alter their composition, rendering them more or less innocuous and so *preventing* their toxic action being exerted upon the organism. Antidotal action takes place in the alimentary canal, upon such portion of the poison as is unabsorbed, and is applicable to vegetable as well as to mineral poisons."—(Potter's *Materia Medica.*)

5. *Three drugs used to accelerate the action of the heart*: (1) Ammonia; dose of aromatic spirits of ammonia, ♏xxx. (2) Camphor; dose of spirit of camphor, ♏xv. (3) Alcohol; dose of brandy, ʒi.

Three drugs used to retard the action of the heart: (1) Aconite; dose of tincture of aconite, ♏viij. (2) Digitalis; dose of tincture of digitalis, ♏xv. (3) Veratrum; dose of tincture of veratrum, ♏xv.

PRACTICE.

1. *Cardiac hypertrophy* is usually a conservative process; there is an increase in the muscular tissue of the heart; the cardiac area is enlarged; the precordium bulges; the heart

beat is slow and strong; the pulse strong and regular; the cardiac enlargement is chiefly downward and outward; the first sound is long, loud, and booming, and the second sound is accentuated.

Cardiac dilatation is generally a destructive process; the cavities of the heart are enlarged; the cardiac area is enlarged; the heart beat is weak and diffuse; the pulse is weak and irregular and rapid; the cardiac enlargement is outward and upward, and gives the heart a quadrangular outline; the first sound is short and weak; the second sound is also weak; there may be soft, systolic murmurs, and there are generally signs of venous engorgement.

Organic murmurs are due to stenosis or incompetency of one or more of the valves of the heart.

Functional murmurs are not due to valvular disease.

Organic murmurs may be systolic or diastolic; may be accompanied by marked dilatation or hypertrophy, and there will probably be a history of rheumatism or of some other disease capable of producing endocarditis. Whereas a murmur, usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a *hemic* or *functional* murmur, and denotes as a rule an impoverished condition of the blood.

2. Dilatation of the Stomach. *Causes*: Motor insufficiency of the stomach wall; obstruction of the pylorus by cancer, or cicatrix from ulcer; pressure on duodenum from without by tumors or adhesions; pyloric hypertrophy.

Symptoms: Dyspepsia; emaciation; thirst; constipation; pain, and vomiting at long intervals of large quantities of sour and fermenting fluid, which contains particles of food taken several days previously; yeast cells and sarcinæ may be present in the vomitus. The outline of the stomach may be seen to be enlarged; percussion and auscultation show enlargement also, and artificial inflation of the stomach may also show increased stomach area.

3. Ascites is *caused* by: Mechanical obstruction of the portal circulation; cardiac or pulmonary diseases obstructing the general venous circulation; disease of the peritoneum; diseases of the kidneys; anemia, debility, exposure to cold or wet; cancer, syphilis.

Symptoms: Generally of gradual onset; abdominal distention, sense of weight and fullness; dyspnea; gastro-intestinal disturbances; lineæ albicantes, presence of fluid may be detected by palpation, percussion, or aspiration. If due to heart or lung disease, ascites will occur elsewhere, and the legs are generally affected first; in hepatic disorders the abdominal distention is marked, and appears early; in renal disease, the abdominal fluid is generally small in amount.

4. In *alcoholic coma* the coma is not usually absolute; there may be an odor of alcohol on the breath, the patient can generally be aroused by shouting in his ear; there is no paralysis; the pupils are normal or dilated; respiration is practically normal; the pulse is first rapid and later feeble, and the skin cool.

In *uremic coma* the coma is deep; there may be a urinous odor to the breath; the urine is scanty and contains albumin; there is slow pulse, with high arterial tension; the pupils are usually small and equal; respiration is deep and may be quickened; the body temperature may be above normal or subnormal.

In *cerebral apoplexy* there is generally paralysis of the head and upper limbs, and in left-sided lesions there may be aphasia; the pulse is slow and full; the respirations are at first slow, regular, and stertorous, later on becoming of the Cheyne-Stokes type.

In *opium poisoning* the pupils are contracted, there is no sign of paralysis; both respirations and pulse are slow and full.

In *coma of epilepsy*: History of attack, with previous convulsion; the coma is of brief duration, and the unconsciousness gradually becomes less; there may be a bitten tongue or other scars.

5.

CROUPOUS PNEUMONIA.	CATARRHAL PNEUMONIA.
Generally a primary disase.	Generally secondary (to bronchitis or an infectious disease).
Age has little influence.	Generally found in very young or very old.
Sudden onset.	Gradual onset.
Fever is high and regular.	Fever is not so high, and is irregular.
Ends by crisis between sixth and tenth day.	Ends by lysis, at no particular date.
Generally only one lung affected.	Generally both lungs affected.
The physical signs are distinct, and there is a large area of consolidation.	Physical signs indistinct, and the evidences of consolidation are indefinite.
Sputum is rusty.	Sputum is rather streaked with blood.

SURGERY.

2. In *gallstone colic*: The pain is in the region of the liver; it radiates to the right scapula and toward the umbilicus; chills and sweats are common; also vomiting, and sometimes symptoms of collapse and jaundice; calculi are found, if at all, in the feces.

In *appendicitis*: The pain is at first diffuse, but later becomes localized over the appendix in the right iliac fossa; nausea, vomiting, and constipation may be present; tenderness over the appendix and rigidity of the right rectus abdominis muscle are present; there is generally moderate fever.

In *kidney colic*: The pain is in the region of the affected kidney; it radiates down the thigh; there are intense rigors; retraction of the testicle may be present; also history of previous attacks or of calculi; the urine may be scanty, suppressed, or bloody.

3. Acute Empyema. *Symptoms*: Fever, sweats, chill, diminished breath sounds and vocal fremitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis.

Diagnosis is made by aspiration, showing the fluid to be pus.

Treatment: Aspiration, drainage, irrigation, resection of ribs (Estlander's operation) or resection of chest wall (Schede's operation).

4. *Osteomyelitis* is inflammation of the bone and marrow; the term is often used now for inflammation of bone.

It is *caused* by infection, the bacteria gaining entrance either through a wound, or by extension from neighboring tissues, or they may be brought by the blood.

Symptoms: Sudden onset; pain, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; septicemia or pyemia may be present.

It is to be *diagnosed* from (1) *Rheumatism*, in which more than one joint is affected and the tenderness is *in* the joint, and not *near* it. (2) *Tubercular arthritis*, in which the onset is slow and the trouble starts in the epiphysis rather than in the diaphysis. (3) *Cellulitis* in which the bone and periosteum are not affected, and in which there is always a wound.

In *osteomyelitis*, the *treatment* consists in relieving the constitutional symptoms and preventing the bone from necrosing. An incision down to the bone is made; if pus is beneath the periosteum, the latter is also incised; a piece of bone is removed by chisel or trephine, pus is removed, the endosteum is hurt as little as possible, the wound is irrigated with hot bichloride solution and packed with gauze; the soft parts are closed and the wound well drained. In case this fails, amputation may be necessary.

5. The *general symptoms of fracture* are: History of injury, disability, pain, swelling, deformity, abnormal mobility, and crepitus.

The cardinal principles in the treatment of fractures are: Reduction, coaptation, immobilization, and suitable measures for promoting the nutrition of the part and for preventing adhesions in the neighboring joints and muscles. Compound fractures, in addition, demand: Asepis, removal of foreign matter or damaged tissues, stopping the hemorrhage, and measures to combat shock.

FRACTURE.	DISLOCATION.
1. Crepitus may be present.	1. Crepitus never present.
2. Preternatural mobility.	2. Rigidity rather than mobility.
3. Easily reduced—but	3. Difficult to reduce—but
4. Deformity more liable to recur after reduction.	4. Deformity less liable to recur after reduction.
5. The head of the bone is in its proper place.	5. The head of the bone is not in its proper place.
6. The socket containing the head of the bone is not empty.	6. The socket which should contain the head of the bone is empty.
7. When rotated the bone does not move as one piece.	7. When rotated the bone moves as one piece.

DISEASES OF WOMEN AND CHILDREN.

1. Gonorrheal Cystitis. *Symptoms*: Frequent micturition; pain; bladder irritability and tenesmus; the urine

is turbid and may contain blood, pus, or mucus; the gonococcus is present; the patient may also experience chills and fever.

Treatment includes: Rest in bed; administration of plenty of cold water or milk, diuretics, bland and mild foods, laxatives, hot sitz baths or vaginal douches, irrigation of the bladder with antiseptic solution, followed by solution of nitrate of silver.

2. The INDICATIONS FOR HYSTERECTOMY are given as follows: *For the abdominal operation*: All solid or cystic tumors of the uterus; cancer; uterine rupture during labor; certain conditions of puerperal sepsis; pregnancy complicated by pelvic deformity, cancer, or other serious obstacle to the passage of the child; uterine prolapse or inversion, and incidentally as a step in the removal of complicated suppurative conditions of the uterine appendages.

For the vaginal operation: Bilateral suppurative conditions of the appendages; prolapse, cancer, pregnancy with cancer before the sixth month; certain septic conditions of the uterus; certain rare conditions which may require the ablation of a small movable uterus.

For the combined operation: Cancer, certain complicated fibroids; failure to secure hemostasis from below.—(From *Reference Handbook of the Medical Sciences.*)

3. LARYNGEAL DIPHTHERIA. *Symptoms*: General malaise, chills, fever, sore throat, stiff neck, congestion of soft palate, whitish patches of membrane are formed. The fever may become very high; the membrane is adherent; reforms if stripped off, and contains the Klebs-Loeffler bacillus. Cough and dyspnea are present.

Diagnosis consists in a microscopical examination of the exudate, when the specific (Klebs-Loeffler) bacillus will be found.

Treatment: The patient should be isolated and put to bed; the atmosphere of the room should be kept moist; the diet must be nutritious and easily digested; diphtheria antitoxin should be administered as soon as possible; alcohol or strychnine are indicated; local applications, either hot or cold, will relieve the pain; mild antiseptic solutions are often used.

4.

	SCARLET FEVER.	MEASLES.	RÖTHELN.
Incubation	Twenty-four hours to four or five days.	Ten to twelve days.	Ten to seventeen days.
Prodromal stage	Twenty-four hours.	Three to four days.	Twenty-four hours.
Prodromal symptoms	Vomiting, sore throat, diarrhea, and headache; pulse very rapid, 140 to 160. The disease has an abrupt onset.	Sneezing, coryza, photophobia, bronchial catarrh, croupy cough, eruption of red points on soft palate, Koplik's spots.	May be absent, but never more than slight poorliness and coryza. The posterior cervical glands may be enlarged and tender. Vomiting is very rare. Pulse slow: rarely over 90.
Throat	Sore throat is pronounced.	Not complained of, as a rule.	Complained of, as a rule, and pain on swallowing may be considerable.
Rash	Is erythematous and punctiform. Face is simply flushed, and the circum-oral ring is pale and uninvaded.	Appears on the fourth or fifth day. Consists of red papules, which become darker in color, and show a marked tendency to coalesce and form patches. Seen first on the face, and groups of papules forming blotches appear on the body and limbs in a few hours.	Appears on the first and is most intense on the second day. Consists of rose-red papules, which are confluent on the face, but usually discrete on the limbs. Often fades from the face before it is fully developed on the body and limbs. In the scarlatinal form it is brighter and more punctiform.
Glands	Submaxillary glands swollen and tender; no swelling of posterior cervical glands. Leucocytosis is present, and may be marked.	Cervical glands not enlarged or tender. No leucocytosis.	Cervical glands considerably swollen and complained of, especially the posterior group. Submaxillary glands not affected. No leucocytosis.
Temperature	Generally reaches 103° F., and may be much higher.	Generally reaches 103° F., and may be higher. Remains elevated until the rash is fully developed.	Rarely above 100° F., and may be normal throughout
Desquamation	Usually free, scaly, and in flakes.	Branny	Absent or very slight.

—(Modified from *Aids to Diseases of Children.*)

DISEASES OF THE NERVOUS SYSTEM.

2. In *neuritis* the pain is continuous, is always worse after use of the nerve, and does not vary in situation; painful points are present; the nerve trunk is tender, and the pain can be increased proportionately with pressure; it is not limited to sensory nerves, and trophic disturbances, wasting, and alterations in the electrical reactions are very apt to appear.

In *neuralgia* the pain is paroxysmal and intermittent; it is independent of the use of the nerve; it may vary in situation; painful points are not often present; the nerve trunk is not particularly tender, and a light pressure along the nerve trunk may cause as much pain as a heavy pressure; neuralgia only affects sensory nerves, and wasting and trophic disturbances only rarely occur.

3. *Aphasia* is the inability to express ideas by either speech or writing. It is caused by lesions of the cortical centers, and is not due to lesions of the peripheral nerves or of the organs concerned in speech or writing.

In *otaxic aphasia* there is loss of speech, owing to lack of coördination of the muscles concerned in voice production. The patient knows what he wants to say, but he cannot utter the words.

In *sensory or amnesic aphasia* there is loss of word memory, which may or may not exist in connection with ataxic aphasia. The chief varieties are: (1) *Visual aphasia*, in which the patient can see, but cannot recognize or understand words written or printed. (2) *Auditory aphasia*, in which the patient hears the sound of spoken words, but they convey no meaning to him.

5. The *patella reflex* is nearly always *present* in health, and denotes a healthy condition of the entire reflex arc (tendon, afferent or sensory nerve, posterior roots and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself). It is *absent* when there is a lesion which affects any part of this reflex arc, such as is the case in locomotor ataxia, poliomyelitis, Landry's paralysis, neuritis, in apoplexy just after the shock, and in epilepsy following the convulsion, etc. It is *exaggerated* in: Hemiplegia, lateral sclerosis, general paresis, transverse myelitis, injuries to the spinal cord, hysteria, neurasthenia, tetanus, and strychnine poisoning.

DISEASES OF THE EYE AND EAR.

3. *Trachoma* is an inflammatory condition of the conjunctiva, accompanied by hypertrophy, granule formation, and subsequent cicatricial changes.

Etiology: It is caused by contagion from another eye, being transferred by means of the secretion.

Treatment "consists in an attempt to reduce the inflammatory symptoms and secretion, and to check and remove hypertrophy of the conjunctiva, thus shortening the duration and diminishing the liability to conjunctival cicatrization and to sequelæ. This is accomplished either by the use of certain irritating applications, or by mechanical (surgical) means.

Irritating applications: Sulphate of copper in the form of a crystal or pencil is the favorite local application. Nitrate of silver (one or two per cent. solution), glycerole

of tannin (five to twenty-five per cent.), and the alum stick are also employed.

Mechanical (surgical) treatment includes expression, grattage, excision, curetting, electrolysis, *x*-rays, and galvano-cautery."—(May's *Diseases of the Eye.*)

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	July 13
Arizona*	Ancil Martin, Phoenix	Phoenix	July 5
Arkansas*	F. T. Murphy, Brinkley	Little Rock	July 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	Aug. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	July 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 13
Delaware	J. H. Wilson, Dover	Dover	June 15
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	July 13
Florida*	J. D. Fernandez, Jacksonville	Tallahassee	
Georgia	E. R. Anthony, Griffin	Atlanta	Oct. 12
Idaho*	W. F. Howard, Pocatello	Boise	Oct. —
Illinois	J. A. Egan, Springfield	Chicago	June 16
Indiana	W. T. Gott, Crawfordsville	Indianapolis	July 13
Iowa	Louis A. Thomas, Des Moines	Des Moines Iowa City	June 22 June 8
Kansas	D. P. Cook, Clay Center	Kansas City	June 7
Kentucky	J. N. McCormick, Bowling Green	Louisville	July 6
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct. 1
Maine	Wm. J. Maybury, Saco	Augusta	July 1
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 15
Massachusetts*	E. B. Harvey, State House, Boston	Boston	July 13
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 12
Minnesota	W. S. Pulleton, St. Paul	St. Paul	Oct. 5
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 12
Missouri	J. A. B. Adcock, Warrensburg	St. Louis	June 7
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 5
Nebraska	E. J. C. Sward, Oakland	Lincoln	Aug. 3
Nevada	S. L. Lee, Carson City	Carson City	Nov. 1
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	June 29
New Jersey	J. W. Bennett, Long Branch	Trenton	June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	July 12
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	June 22
N. Carolina	B. K. Hays, Oxford	Asheville	
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	July 6
Ohio	Geo. H. Matson, Columbus	Columbus	June 9
Oklahoma*	F. P. Davis, Enid	Guthrie	July 13
Oregon*	B. E. Miller, Portland	Portland	July 6
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	June 22
Rhode Island*	G. T. Swarts, Providence	Providence	July 1
S. Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota*	H. E. McNutt, Aberdeen	Watertown	July 14
Tennessee	C. A. Abernathy, Pulaski	Memphis Nashville Knoxville	May, 1910
Texas	C. B. Foscue, Waco	Cleburne	June 22
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	July 5
Vermont	W. Scott Nay, Underhill	Burlington	July 13
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	K. Turner, Seattle	Seattle	July 6
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	July 13
Wisconsin	J. V. Stevens, Jefferson	Madison	July 13
Wyoming	S. B. Miller, Laramie	Laramie	June 23

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Alabama.—After next July a diploma from a reputable medical college will be required of all candidates for the State Board medical examinations. Non-graduates are now admitted only in Arkansas, Massachusetts, Mississippi, and Tennessee.

Glycogen in the Sputum.—Pozzilli has made a study of the amount of glycogen in the sputum in various pulmonary diseases. In pneumonia he found that the glycogen content was only 0.05 to 0.06 per cent.; in early tuberculosis, 0.5 to 0.6 per cent., while in advanced tuberculosis it was increased to as high as 2.60 to 3.75 per cent. In acute and chronic bronchitis, when not of a tuberculous nature, it was entirely absent, while in two cases of post-pneumonic abscess it was only 0.05 per cent. He considers the estimation of the glycogen in the sputum to be of value in the diagnosis and prognosis of pulmonary tuberculosis.—*Gazzetta degli Ospedali.*

Results of Enlarged Tonsils and Adenoids.—W. D. Ludlum tabulates the results of these conditions as follows: (a) Mouth breathing, with poor respiratory development, irregular teeth, and poor nutrition; (b) nasal catarrh, coryza, and bronchitis; (c) otitis media and deafness; (d) liability to severe attacks of scarlet fever, diphtheria, and measles; (e) liability to tonsilitis; (f) liability to rheumatism; (g) liability to tuberculous infection; (h) night and day restlessness, inability to fix attention, and disorders of taste, smell, and speech; (j) recurrent cervical adenitis.—*Pediatrics.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending May 29, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	510	152
Diphtheria	313	45
Measles	1,671	25
Scarlet Fever	273	21
Smallpox	..	..
Varicella	197	..
Typhoid Fever	28	12
Whooping Cough	66	8
Cerebrospinal Meningitis	8	7
Malarial Fever	..	..
Totals	3,066	270

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending May 28, 1909:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Los Angeles	May 1-8	1	..
Sacramento	May 8-15	2	..
San Francisco	May 1-8	1	..
Stockton	Apr. 1-30	1	..
Colorado	Mar. 1-31	81	..
Georgia, Macon	May 9-16	2	..
Illinois, Danville	May 9-16	10	..
Galesburg	May 8-15	1	..
Springfield	May 7-14	1	..
Indiana, Evansville	May 8-15	1	..
Fort Wayne	May 1-8	2	..
South Bend	May 8-15	1	..
Iowa, Council Bluffs	May 9-16	1	..
Davenport	May 2-9	2	..
Kansas, Atchison	Feb. 27-Apr. 17	5	..
Kansas City	May 8-15	11	2 in vicin'y
Wichita	May 8-15	4	..
Kentucky, Lexington	May 8-15	5	..
Newport	May 8-15	1	..
Paducah	May 1-15	12	..
Louisiana, New Orleans	May 8-15	6	..
Maine, Van Buren	May 8-15	1	..
Minnesota, Duluth	May 6-13	9	..
Nebraska, Lincoln	Apr. 1-30	24	..
New Jersey, Perth Amboy	Mar. 4-Apr. 29	30	..
North Charolina, Charlotte	May 7-14	1	..
Ohio, Cincinnati	May 7-14	9	..
Massillon	May 9-16	1	..
Toledo	May 1-8	1	..
Warren	May 1-8	1	..
Tennessee, Knoxville	May 8-15	1	..
Texas, Fort Wayne	Apr. 1-30	15	..
San Antonio	May 1-8	1	..
Waco	May 21	4	Imported
Virginia, Portsmouth	May 11-18	4	..
Washington, Seattle	Apr. 1-30	4	..
West Virginia, Wheeling	May 8-15	1	..
Wisconsin, Milwaukee	May 1-15	5	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Mar. 20-Apr. 10	35	1
SMALLPOX—FOREIGN.			
Algeria, Bona	Apr. 1-30	23	13
Argentina, Buenos Aires	Feb. 1-28	..	2
Brazil, Bahia	Mar. 27-Apr. 17	21	6
Sao Paulo	Mar. 15-21	..	2
Canada, Halifax	May 1-8	5	..
Vancouver	Apr. 1-30	1	..
Chile, Santiago	Apr. 27	..	Epidemic
China, Amoy	Apr. 3-10	..	Present
Egypt, Alexandria	Mar. 1-31	8	4
France, Marseille	Apr. 1-30	..	3
Paris	Apr. 18-May 1	4	..
India, Bombay	Apr. 13-20	..	18
Calcutta	Apr. 3-10	..	197
Madras	Mar. 27-16	..	6
Rangoon	Apr. 3-10	..	11
Indo-China, Saigon	Mar. 27-Apr. 3	7	5
Italy, general	Apr. 25-May 2	12	..
Genoa	Apr. 1-30	3	..
Naples	Apr. 25-May 2	20	1
Java, Batavia	Apr. 3-10	5	1
Mexico, Chihauahua	May 2-9	..	1
Guadalajara	Apr. 22-29	..	2
Monterey	May 2-9	8	..
Puebla	May 10	..	Present
Portugal, Lisbon	May 1-8	12	..
Russia, Moscow	Apr. 17-24	35	8
Odessa	Apr. 17-24	1	2
Riga	May 1-8	2	..
Warsaw	Feb. 27-Mar. 6	..	4
Siam, Bangkok	Mar. 1-31	30	18
Spain, Barcelona	Apr. 27-May 3	..	9
Valencia	Apr. 24-May 1	6	..
Straits Settlements, Singapore	May 27-Apr. 3	..	1
Tripoli, Tripoli	Apr. 10-24	80	16
Turkey, Constantinople	Apr. 18-25	..	4
Smyrna	Apr. 8-15	..	1
YELLOW FEVER.			
Brazil, Bahia	Mar. 27	22	9
Para	Apr. 18-May 1	10	10
Ecuador, Guayaquil	Apr. 3-17	36	10

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Original Articles.

THE INADEQUACY OF THE SANATORIUM TREATMENT OF TUBERCULOSIS.

By MAURICE FISHBERG, M.D.,

NEW YORK.

The main result aimed at by the campaign of education waged during recent years against tuberculosis is the total eradication of the disease. The steady diminution in the number of persons who succumb to the disease in civilized countries may be taken as evidence that the diffusion of information as to the modes of infection and methods of prevention has borne fruits. We can to-day claim credit for having saved in almost every community in which the agitation has been carried as effectively as conditions permitted many lives which, had the people been kept in ignorance as to the causes of tuberculosis, would undoubtedly have succumbed to the scourge. There are to-day but few well-informed people who would deny these elementary facts evident to all who seek information on the subject.

Next in importance to our prophylactic achievements come the services we have rendered to those unfortunates who have been afflicted with the disease. Up to about thirty years ago the diagnosis of tuberculosis carried with it as much of a sentence of death as to-day the diagnosis of cancer. Conditions have changed in this regard. With the diagnosis of tuberculosis we can, in the vast majority of cases, inspire the patient with a hopeful outlook for the future, especially in cases which are recognized in their incipiency; and even in quite a large proportion of cases which are more or less advanced we can assure the patient that under proper treatment he may regain his health and efficiency.

In former years our prognosis in cases of tuberculosis was thus qualified: Provided the patient leaves for a more salutary climate he has good chances of recovery. Under the circumstances, all those unfortunates who could not afford to go to a mountainous region and sustain themselves for several months or years; and all those who were the breadwinners for their wives and children had to consider themselves doomed. Considering that most of the consumptives belong to just the class incapable of raising sufficient funds to sustain themselves far away from home and provide for those dependent on them during their long period of incapacity, the vast majority of consumptives were discouraged, seeing that for the lack of funds, their lives could not be saved. Those who have met with many consumptives know well that hopefulness is one of the most important factors in the promotion of recovery.

But the fetich of climate has recently been dispelled. It has been shown that tuberculosis in the vast majority of cases is just as curable in a lower as in a higher altitude; in a cold as in a warm climate, and there are indications that everything points in favor of the cold climate when compared with the results obtained in warm regions; that the average number of hours of sunshine in a given place is by no means a safe index as to its efficacy in the cure of tuberculosis. Indeed, the results obtained in sanatoria established in various places differing extremely in their geographical position and meterological conditions have been about the same. The proportion of cases discharged as apparently cured, improved, and unimproved are, on the average, about the same. All of this goes far to prove that neither altitude nor climate is essential in the successful cure of the disease. Slowly has this truism been diffused among the masses, and while a considerable proportion of consumptives are to-day clamoring for opportunities to go to a mountainous or southern climate, yet, just as many, perhaps even more, are satisfied that they can be cured in the neighborhood of their homes, provided they can succeed in gaining admission to a sanatorium. The long waiting lists of the state, municipal, and private sanatoria in the eastern and northern States attest to their popularity, which is excellent proof that the results obtained in them are about as good as those attained in the sanatoria in Colorado, Arizona, southern California, etc. Physicians meeting many consumptives will agree that after all the average patient is just as much impressed by the experience of his fellow sufferers as by the opinion of his medical adviser. Often the former has more weight than the latter. When thousands of consumptives are anxious to gain admission to the sanatoria in the near vicinity of the cities in which they live, it means that they have met with many who were in their plight but have been cured in these sanatoria. As a matter of fact, the consumptive fights shy when he is told that the only available place for him is the hospital for advanced cases which is found in almost every city. He balks because he has hardly met with any who have been cured in these institutions.

We have made a considerable step in advance in learning that tuberculosis is curable in every climate habitable by human beings, and by educating the laity that it is not absolutely essential for a consumptive to go far away from home to assure his recovery. I am, however, under the impression that we have not gone as far as the facts warrant in dispelling the commonly accepted, though ill-founded notions about the place in which a consumptive may hope for a cure. I refer to the sanatoria which have of late been considered as the only places where these unfortunates may be cured.* After the average patient is informed by his physician that a definite diagnosis of tuberculosis has been arrived at, he at once inquires as to which sanatorium is

the most suitable for his case. The patient is informed where and how to apply; examined by the admitting physician, and, when found suitable, placed on the list and told to wait for a vacant bed. How long he is likely to wait depends on many conditions. Only rarely his turn comes before the expiration of one month; often he has to wait for from one to three months, and I have known cases waiting for a longer period before the authorities have communicated the information that they are prepared to admit them provided on reexamination they are again found suitable cases.

How many cases which were found at the first examination "suitable," *i. e.* in the incipient stage of the disease, but on re-examination, after waiting for weeks or months, were found to be "too far advanced to be benefitted by a stay in the institution," we have means of knowing. I personally have met with many. Most physicians who see many consumptives have seen more. It is to be remembered that a patient concentrating all his hopes on the benefits to be dervied from the sanatorium treatment when admitted, makes up his mind that at home no salvation is to be expected. As a result, he does not take proper care of himself. Indeed, many sanatoria which theoretically do not admit any but incipient cases and which practically reject at the first examination nearly all who are moderately advanced, hardly get many incipients in the full sense of the word in case they have a long waiting list. The fact of the matter is that in a fair proportion of cases the disease progresses while one is waiting for admission and many have to be admitted for one reason or another. Especially is this the case with patients in whom the disease is active and progressive, characterized by fever, rapid loss of weight, anorexia, etc. But even those cases which do not display any extraordinary rapidity in the course of their malady often lose considerably while waiting for admission to a sanatorium, considering that they believe this the only place where a cure may be expected.

Curability of Tuberculosis Outside of Sanatoria. —It is, however, not true that the only place where a consumptive may expect a cure is a sanatorium. From materials gathered by many careful and reliable pathologists it is evident that many more consumptives are cured at home than in sanatoria. I refer here to the large number of persons who during life have not been known to suffer from tuberculosis but who are found to have tuberculous foci in various parts of the body when they come on the autopsy table. The first to make a special effort to ascertain the proportion of dead persons who present tuberculous foci was Nägeli[1] who in 1900 reported his careful dissections of 500 bodies in the Pathological Institute of Zurich. He found that 71 per cent presented pathological changes due to tuberculosis; and later when he was more careful in his investigation, even 84 per cent were found to have been tuberculous during life. It is interesting and instructive that noteworthy differences were found in this respect between adults and children. Among individuals under 18 years of age only 24 to 25 per cent of the cases dissected were tuberculous, and in nearly all cases the lesions were of a grave character and often led to a fatal termination. On the other hand, in individuals above 18 years of age, the proportion showing tuberculous lesions reached 97 to 98 per cent, and of these only 28 per cent died as a result of tuberculosis, while the rest showed tuberculous lesions which were either slowly progressing or altogether healed. These revelations when first published appeared incredible for two reasons: It was rather frightful to behold that nearly everybody over 20 suffers from tuberculosis during some period of life, and it was difficult to believe that such a large number of persons were affected with this disease and remained either ignorant of its existence or were cured without any special effort on their part. Many other pathologists were not slow to verify these observations. Harbitz[2] performed 558 autopsies in Christiania and found that among adults over 15 years of age, 69.2 per cent showed tuberculous lesions. Victor Scheel,[3] during 2,022 autopsies performed in the Pathological Institute in Copenhagen, found that in 487 (24 per cent) tuberculosis was the cause of death; in 1,092 (54.2 per cent) tuberculous lesions were found of which 55.6 per cent were healed, and among 39.7 per cent of those who succumbed to non-tuberculous diseases, healed lesions were elicited. This author even states that more careful dissection might have revealed more cases of tuberculosis. Burckhardt[4] found during 1,452 autopsies that 38 per cent of the children were tuberculous, of which 50 per cent proved fatal, while of the adults, 91 per cent showed tuberculous foci on the autopsy table. Lubarsch found while performing 792 autopsies that 82 per cent showed tuberculous lesions or evidences of healed tuberculosis; while among the persons over 16 years of age the percentage was 84. In a later communication by the same author, giving results of 1,820 autopsies, he shows that only 60.6 per cent of persons under 16 years of age were tuberculous, while of those above that age 69.1 per cent showed active or healed lesions of this disease. Adami and McCrea reported to the last International Tuberculosis Congress results of 1,000 autopsies made in Canada, showing that in 41.7 per cent evidences of past or present tuberculosis was found; 15.1 per cent were healed cases; 9.3 per cent, latent; 2.2. per cent, active, but slight, etc. In only 8.5 per cent was there active pulmonary phthisis. At the same congress Martha Wollstein reported results of 1,131 autopsies on children under 4 years of age in New York City. One hundred and eighty-five showed tuberculosis, and whereas 78 per cent of the autopsies were on infants less than 1 year old, tuberculosis affected 12 per cent at that age. During the second year of life 33 per cent of all who came to autopsy had tuberculosis, and of those between 2 and 4 years old, 34 per cent had tuberculous lesions.

These autopsy findings were criticised, pointing at the fact that Nägeli, Burckhardt and others have not been careful in their diagnosis of tuberculosis on the autopsy table; that they considered as tuberculous not only those lesions which are considered generally pathognomonic by pathologists, but that they have included all kinds of scars in the apices of the lungs, pleural adhesions, etc., without ascertaining whether the cause of these changes has actually been the tubercle bacillus. In fact, Necker,[5] who carefully investigated the problem in 600 autopsies in the Rudolph Hospital in Vienna, shows that 70.21 per cent had tuberculous foci beyond any doubt, which agrees with the percentage obtained by Lubarsch. But he also shows that 22.34 per cent of the persons who came to autopsy showed doubtful signs of tuberculosis during life. When these doubtful cases are added to the rest we have 92.55 per cent, a figure nearing the high pro-

portion found by Nägeli and Burckhardt is obtained. Moreover, it has been shown by Lubarsch that the healed lesions which consist of chalky nodules when inoculated in guinea pigs was followed by infection of the animals in 75 per cent of cases.[6]

From all these facts it is evident that a very large proportion of humanity had tuberculosis some time during their life. I believe a conclusion that around 70 per cent. of persons coming to autopsy show signs of tuberculosis is conservative. Fifty per cent of these died as a result of this disease, while the other half died from other causes and a large percentage of these latter class give ample evidence that the disease has been healed.

How have these persons been cured without undergoing a course of treatment at sanatoria? This is especially an interesting problem, considering that the vast majority of persons met with on the autopsy table are generally of the lower classes, socially and economically. It has indeed been argued by many that the frightful proportion of tuberculous found on the autopsy table does not hold good for humanity at large; that among those who are on a higher social and economic plane the percentage of tuberculous is much smaller, which may be true. This, of course, goes yet further to confirm our contention that tuberculosis is curable not only in sanatoria, but also in cities, in the homes of the poor, in their usual *milieu*, in poverty and privation. Moreover, while the sanatoria of to-day cure only a comparatively small number of consumptives, considering that there is only a limited number of these institutions available, it is evident that the number cured at home, with or without their knowing it, and with or without medical assistance, is much larger than is generally appreciated. How have these thousands, I may say millions, of people who have healed or inactive tuberculous foci in their bodies attained an arrest of their disease?

Inadequacy of the Available Sanatoria.—The figures given above are instructive when taken in connection with the sanatorium population of some countries. It is then evident that by far more consumptives are cured in their homes than in sanatoria. Germany is the home of the sanatorium. It is there that the institutions for the cure of tuberculosis have been developed and maintained to a much larger extent than in any other country. The state, the municipalities, insurance companies and private enterprise have all combined to establish sanatoria for the treatment of the disease. The latest published report[7] is to the effect that in the spring, 1908, there were 99 sanatoria for adult consumptives, comprising 6,500 beds for male and 4,039 for female patients. In addition to these there were also 36 private sanatoria with 2,175 beds. The total was consequently 12,714 beds for the treatment of adult consumptives. Even if to these be added the 18 institutions devoted to the treatment of tuberculous children which contain 837 beds; and also the 73 institutions in which scrofulous children as well as children predisposed to tuberculosis are cared for and which have available 6,843 beds (among the latter many institutions are only open for a few months during the summer) we have only 20,394 beds for the treatment of tuberculosis in sanatoria.

In the United States the number of available beds in sanatoria and hospitals for consumptives is even smaller in proportion to the population. According to the last Report of the National Association for the Study and Prevention of Tuberculosis[8] there were in August, 1908, 240 hospitals, sanatoria, and day camps in the United States. Altogether these institutions have 14,014 available beds. All those devoted to the cause of the cure and eradication of the disease point to the pitiable lack of provisions for the unfortunate consumptives and keep urging on the State as well as private enterprise and philanthropy the necessity of increasing the number of such institutions. Indeed, one who is convinced that sanatoria are at the present state of our knowledge the only available agents effective in the prevention and cure of this disease, is actually dismayed when contemplating the inadequacy of the provisions made for the hundreds of thousands afflicted with tuberculosis.

It is unfortunate that we do not know the exact number of persons sick with tuberculosis. In some countries the mortality rate is known more or less exactly. In Germany, where the registration of deaths is very rigorously enforced, it is known that around 120,000 persons die annually as a result of tuberculosis. Nobody knows the exact number of deaths in the United States. The registration of deaths, as well as of births, marriages, etc., is in many States not at all carried out in a manner as to give reliable information on the subject; and even in the few States and cities in which an effort in this direction has been made, the vital statistics leave much to be desired. But assuming that there occur annually 20 deaths from tuberculosis per 10,000 population, which is rather a low estimate, it appears that at least 175,000 persons die annually in the United States as a result of tuberculosis.

While all available statistics show conclusively that about one-seventh of humanity die from tuberculosis, it does not necessarily follow that one in seven living persons is afflicted with the active disease. There are good and valid reasons against the assumption of such a frightfully high morbidity, as was shown by Cornet[9] and others. But a safe computation of the morbidity rate may be made by multiplying the number of deaths by the average duration of the disease in an individual. Some authors have computed their cases and given figures which might prove valuable in this regard, if they all agreed. But they differ extremely. Dettweiler, Riebmayr, and others estimate the average duration of life of a consumptive as seven years; Weicker,[10] between five and six years, while some authors believe it to be much shorter, even less than two years. But when we again recall the autopsy findings given above we must concede that all those human beings in whom healed tuberculous foci are found after death must also be included when calculating the average duration of life of the consumptive. This undoubtedly raises the average. It is also a fact that acute miliary tuberculosis as well as galloping consumption which carry off the patient in the course of a few months are comparatively infrequent. We do not know how long it takes for a case of tuberculosis to heal spontaneously, but we can reasonably argue that the period must vary greatly according to the individual and the conditions under which he finds himself. Taking all these factors into consideration, it appears that six to seven years is a conservative estimate as to the average duration of the active stage of the disease.

On this basis there are in Germany over 800,000 and in the United States about 1,225,000 consump-

tives in the active stage of the disease, of which only one-seventh die annually, while the rest live on—cured, improved or unimproved. That the proportion of cured cases must be very high is beyond any question. About 50 per cent. of those showing tuberculous foci on the autopsy table have healed scars. The absolute number of such living persons nobody would venture to estimate beyond saying that it must be very large. And when we compare it with the comparatively small number who are able to receive sanatorium treatment, we are impressed with the fact that many more are cured out of than within sanatoria. It has in fact been said that the available sanatorium accommodations are like a drop of water on a red-hot stove.

A few more figures will not be amiss in this regard: We have shown that there were in Germany in 1898 only 12,714 beds in the sanatoria for the treatment of tuberculosis. The provisions made for children may be discarded because many are only available for a few months during the summer, while others are more devoted to prophylaxis than to the cure of the active disease; they admit cases suffering from conditions allied to tuberculosis, such as scrofula, anemia, children predisposed to tuberculosis, etc. In the United States only 14,014 beds were available during 1908, but then not all of these institutions were for curable or hopeful cases. Many are for advanced and incurable cases, and the day camps are included in the figures. If we estimate that seventy-five per cent. of these beds aspire to admit only incipient and curable cases (which like every ideal is rarely if ever achieved completely), we find that in Germany only about 9,500 and in the United States 10,500 beds are available for cases which, in the opinion of those having experience in sanatorium treatment, have a favorable outlook as regards an ultimate cure. The average stay in a sanatorium is quite short in Germany; four months will be as near the true figure as is possible to estimate from the available figures published in the annual reports of these sanatoria. In the United States it is much longer, about six months on the average. This would indicate that the number of consumptives that can be admitted and treated in the sanatoria in Germany is about 19,000, and in the United States, 21,000 annually. From these must be deducted those who were admitted in the moderately advanced and far advanced stages of the disease, cases admittedly as in the main incurable, and the best that can be expected is that after a prolonged stay in the institution they may be discharged with the "disease arrested," a term which covers a multitude of conditions. The bulk of these cases are, however, discharged as only "improved," "unimproved," while some few are even reported as having died in the sanatoria, after all the efforts of the medical superintendents to persuade those likely to have a fatal termination to leave the place because they are "not suitable cases and cannot expect to derive any benefit from the treatment." The proportion of cases discharged with the disease arrested, improved, unimproved or dead exceeds fifty per cent. in the best sanatoria, and in some institutions it reaches even seventy-five per cent. Even conceding that fifty per cent. of all the patients treated in sanatoria have been benefited to such an extent as to be discharged in the category of the "apparently cured," which is, to be sure, much above the real percentage, it appears that hardly more than 9,500 are cured annually in German and 10,500 in American sanatoria.

Compare these with that vast army of persons who have been cured in their own homes, with or without their knowing that they have ever had the disease, with or without medical dietetic, or climatic treatment, as is evidenced by the large number of persons who have healed tuberculous foci in their bodies. Even if only five per cent. of the population of the United States and Germany have had tuberculosis some time during their life there are over 4,000,000 persons in the United States and 3,000,000 in Germany who have somehow been cured of the disease. How insignificant the small number cured in sanatoria looks when compared with those just mentioned.

The Incipient and Hopeful Cases of Tuberculosis.—Most of the tuberculous lesions found during autopsies consist of small foci in the viscera, especially the lungs, which have undergone fibroid changes; some are quite extensive and show evidences of having undergone calcareous changes. These latter, had they been diagnosed during the life of the individual, while the tuberculous process was active, would have been considered moderately or even far advanced cases of consumption, and if referred to a sanatorium for treatment might have been rejected by the admitting physician after a careful examination as not "hopeful" cases; that the prognosis is very unfavorable and even under the most salutory treatment in sanatoria they cannot expect any good result. On the other hand we see daily many cases admitted to sanatoria in the incipient stage of the disease, kept under treatment for months, occasionally for years and finally discharged as only "improved," or even "unimproved."

It is only the incipient case which is favorably received in sanatoria. As a *conditio sine qua non* they must be cases in which both the physical and rational signs point to but slight local and constitutional involvement; cases in which the lesion is limited to one apex or apices in the form of a small infiltration and especially displaying no constitutional disturbances, such as fever, gastric derangement, rapid loss of weight, albuminuria, etc. It is only with such cases that the sanatoria expect to achieve the highest proportion of cures. That just these cases are the ones that stand good chances of cure without the sanatorium, at a lesser personal and public expense, we will see later. But it must be mentioned that this attempt of selection of incipient cases has often been cerried to extremes. Many cases of anemia and debility, slight catarrhal inflammation of the bronchi in which the expiratory murmur is somewhat prolonged, or showing defective resonance at an apex due to adhesions and retractions of the pleura following a pneumonia or pleurisy in former years, are thus diagnosed as tuberculosis. Some such cases may show these physical signs because of a real tuberculous lesion in former years which has healed, but at the time when referred to the sanatorium they complain of some general debility and their physician on careful examination discovers a prolonged expiratory murmur at the apex, some dullness, etc. Without waiting for developments, without watching the course of the disease, the patient, especially if he happens to be financially well off or has friends willing to help him, is sent in a hurry to a sanatorium where he is cured within a few months. The small number of persons admitted to sanatoria and discharged within a few weeks or months (I know of one case which was kept at a well-known sanatorium for eight months and then discharged as never having

had tuberculosis) as nontuberculous is by no means an index of the extent to which the eagerness for real "incipient" cases for sanatoria has been carried. A yet larger number have not taken their medical advisers seriously. I often meet persons who have been examined by admitting physicians of sanatoria, found to be proper cases and placed on the waiting lists. When after the lapse of a few weeks or months a bed was found for them and they were informed that they might report for admission, they for some reason did not go. They find themselves in excellent health for years later. While in many cases of this kind the diagnosis was probably wrong, but most of them did show tubercle bacilli in their sputum. In the latter class the patients were cured at home in their usual environment. Had the sanatorium not been overcrowded and admitted them immediately after the first examination, the credit of saving their lives would have been due to the sanatoria. To these must be added those cases which on the first examination by the admitting physician are considered as "incipients," but on subsequent examinations, after the lapse of a few weeks or months are not found to be showing any positive signs of the disease. I recall another experience some years ago while looking up for the Health Department of this city cases of tuberculosis reported some three or more years before. A very large proportion of cases could not be found at all owing to the frequency with which the tenement population moves about. But the most remarkable among those found were many who stated that they were perfectly well, excepting for a slight "cold" a few years ago, when their physician sent their sputum to the Health Department laboratory for a microscopical examination. It appears that tubercle bacilli were found in their sputum and they were registered as cases of tuberculosis. These cases did not go to sanatoria, still they recovered at home. Every physician of experience knows of such cases. These cases are to be considered in connection with the fairly large number of incipient cases of tuberculosis in which the constitutional and objective signs and symptoms are not very definite and no tubercle bacilli are discovered in the sputum, which are admitted to sanatoria, and there, after repeated examinations, no bacilli can be found. When such cases are finally discharged as cured we may logically suspect that some of them never suffered from tuberculosis, while some others could have been cured at home just as well.

Many sanatoria admit also moderately advanced cases of tuberculosis and, unwilling as most are to admit far advanced cases, still it appears from their reports that nearly all have them in larger or smaller proportions. The results they obtain in these cases are noteworthy. Of course several factors are to be considered. In the first place most of those who show any signs of progressive disease after admission go back home seeing that they can expect no relief in the institution. Many of those who leave within the first two months after admission are of this class. Those who show no inclination to leave of their own violition are persuaded by the medical superintendent to do so, inasmuch as they can expect no relief, they are told that they are not suitable cases for the climate, etc. But the majority of those who remain for a full course of treatment are finally discharged as improved, and some even as apparently cured. This is to be expected considering the rigid process of selection which has been carried out; the strict elimination of all active and progressive cases which I just mentioned. I see daily moderately and even far advanced cases of tuberculosis in the tenement houses of New York City who show tendencies to keep alive in spite of the vicious surroundings in which they find themselves. I often meet with cases showing positive signs of cavities in the lungs which keep on working in sweatshops. They often report that they feel much better, that their cough has ameliorated, their strength and vitality much improved, and they insist on keeping on at work. I have met with cases which were sent home from sanatoria because the disease was rather progressive and a speedy fatal termination could be expected, but which improved at home after returning to their overcrowded tenements. Of course they are exceptional cases, but they go far to demonstrate that tuberculosis is curable under all circumstances.

A moderately advanced case is considered one in which the local lesion is moderate in extent, showing no evidence of destruction of tissue or disseminated fibroid deposits, and having no serious complications such as emaciation due to rapid loss of weight, fever, gastric disturbances, albuminuria, etc. These are just the cases that stand good chances of improvement at home, especially if they take good care of themselves; and this improvement is procurable at home at a much lower cost to themselves and the community as we shall soon see. It must be borne in mind that according to our present knowledge of the course of this disease it is not necessarily the duration of the disease, nor the severity of the symptoms manifesting themselves at a given time, that is of prime importance in formulating the prognosis of tuberculosis. The ultimate issue of the average case depends much more on the specific protective powers of the individual. These protective forces of the body are as yet but little understood, but we do know that the tubercle bacilli when implanted in some individuals they get the upper hand in a comparatively short time, as is the case with miliary tuberculosis. In such cases the resisting powers are at a minimum and no treatment at home or in the sanatorium is of any avail. In other cases in which these forces are abundant and effective, the bacilli are sooner or later destroyed, the tissues which they succeeded to disintegrate are repaired by either fibrosis or calcification and the body recuperates not much the worse for the experience. In such individuals the specific protective forces are at their highest potentiality. Midway between these two extremes there are individuals in whom the resisting powers are equal to the occasion, meeting the enemy as he comes, but unable to completely annihilate him. These are the chronic cases which run a slow, variable course; often passing periods in which the disease has the upper hand, followed by periods when the patient is apparently or actually improving both as regards his general condition as well as regards the local pathological process. It is from this class of cases that the majority of the discharges from sanatoria are recruited with the labels "diseased arrested," "improved," etc., implying that the constitutional symptoms have abated or have entirely disappeared, the cough and expectoration, with or without bacilli may or may not be present, the physical signs are stationary, unchanged, or retrogressive, etc. Even the "apparently cured" cases are mostly of this class—the only difference being that

these ameliorations have been observed for a period of three or more months and bacilli are not found in the sputum. Hardly 20 per cent. of all admissions to the best conducted sanatoria are discharged as apparently cured, while between 60 and 75 per cent. are only improved, or with the disease arrested after undergoing a course of treatment in these institutions. That the prognosis of these cases after they leave the sanatoria is not excellent we shall soon see.

The Results Attained in Sanatoria.—From the strictly medical standpoint we can consider a favorable result in a given case of tuberculosis when the cure consists in the disappearance of all the subjective symptoms, as well as the objective physical signs of the local pathological process; the latter, of course, to be replaced by signs of fibrosis or calcification of the tubercular lesion. Owing, however, to the recent conception of tuberculosis as a social disease, which is just considering the great havoc it works in our social and economic structure by removing hundreds of thousands of persons in the prime of life, and incapacitating many more, the sanatoria often look favorably at results even when they can by no means be considered cures in the strict medical sense of the word. Thus we have to-day two views concerning what constitutes a cure of tuberculosis, the medical, and the social. To the former nothing short of a complete disappearance of the clinical symptoms, both subjective and objective can be accepted as a cure; while the latter is satisfied with an amelioration of the clinical picture, with regaining for the patient of sufficient strength so that he can again perform his social functions, supporting himself and those dependent on him by resuming his work. Most of the German popular sanatoria have this aim in view, considering that they have been subsidized and supported by the compulsory workingmen's insurance and invalidity funds. Most of the cases of tuberculosis are given three months' treatment in these institutions and then sent back to their homes with the expectation that they will be able to resume work. A consumptive who, after a course of treatment is able to earn one-third of the standard wage at his trade is considered a success, and if this capacity to earn one-third of the standard wage keeps on for more than two years, it is put down as a lasting success ("Dauererfolg"). It appears from statistics published by these sanatoria that between 33 and 40 per cent. of all those who have been treated in these institutions, most of which were incipient cases, have shown the success was lasting, and continued at work two years after discharge. The rest, 60 to 67 per cent., either died or suffered relapse of the disease. The most recent statistics published treat of 16,489 cases of tuberculosis treated in German sanatoria during 1902. An investigation at the end of 1906, *i. e.* five years after discharge, revealed the following results: [11]On the whole 42 per cent. were found to be in condition to work and earn at least one-third the standard wage; 20 per cent. were either dead or, when alive, were invalids; and 15 per cent. were again under treatment. It must, however, be mentioned in this connection that the fate of only 9,713 patients was thus ascertained. What became of the other 6,776 is not stated. What picture the ultimate results would have shown had we the exact statistics of all the cases, I do not venture to suggest. It is reasonable to presume that it is harder to trace the later history of a dead man than that of a living one.

But it must be emphasized that nearly all these cases were in the incipient stage when admitted to the sanatoria, a selected class, each of which had a more or less favorable prognosis; that such cases often recover under any kind of treatment often even in spite of the lack of any kind of treatment as was already shown. Then it must be recalled that the natural life of a consumptive has been ascertained to be between six and seven years. Of incipient cases showing no tendency to present acute symptoms, the average duration of life must be even longer. Moreover, the favorable ultimate results are not given in these statistics from the medical standpoint, *i. e.* success does not necessarily imply that the local lesion has been healed. It only means that the individual is able to earn at least one-third of the standard wage. We all know that the term "able to work" is at best very elastic and can be stretched to cover a multitude of conditions. It may mean that the patient is anxious to keep on working irrespective whether his physical condition warrants it or not: inability to work may mean unwillingness due to inherent laziness or to habits acquired during the sojourn in the sanatorium. Physicians coming in contact with many consumptives know how difficult it is often to convince a cured patient that he may resume work, while others cannot be convinced that it is absolutely imperative for them to abstain from any physical exertion. Whether these two classes are of about equal frequency so as to offset each other in statistical material covering 10,000 cases, it is impossible to state. It is also important to know the kind of work the patient is capable of accomplishing after a cure has been attained. Does he resume work at his trade, or is he compelled to change his vocation owing to physical incapacity, or for fear of relapse of the disease? The vast majority of workers at dangerous trades, such as stone cutters, cigar makers, printers, furriers, tailors, etc., should not resume work at their former trades if they want to make sure of keeping well. Such persons must try to make themselves useful in some other occupation after their discharge from sanatoria. On the other hand, persons skilled in less dangerous trades may resume work with impunity. Until we have statistics which take all these factors into consideration we are not in a position to properly estimate the value of any method of treatment from the social and economic standpoint.

There are hardly any statistics available treating of the results of investigations of later histories of consumptives after they have left sanatoria, taking as a criterion of lasting success the condition of their lungs, the objective evidence of health or disease. The few papers that appeared on the subject treat of very few cases and cannot be considered conclusive of anything. The best and most thorough study of the duration of life of patients discharged from sanatoria has been made by Lawrason Brown, of the Adirondack Cottage Sanatorium at Saranac Lake.[12] With indefatigable zeal Dr. Brown has followed up the cases discharged from that institution during the years 1885 to 1906, sending letters of inquiry to them since 1902. He thus succeeded to reach a fairly large proportion of former patients. In his last publication Brown assumes that the ultimate test of the economic value of sanatorium treatment of pulmonary tuberculosis is to be found in a comparison of the death rates of patients treated with that of the general population. He finds that those who were discharged

"apparently cured" have a death rate at first twice, later about three times that of the general population, but this rate is somewhat reduced after eight or ten years. In 47 cases the cause of death was ascertained and in 33 of these, or 70 per cent., it was due to tuberculosis, confirming that the cure was only "apparent." The death rate of those who were discharged with the disease arrested was much higher than that of the preceding class: It was four times that of the general population at the end of the first year, and ten times at the end of the third year. A slight decrease in the mortality was observed during the subsequent years, which is undoubtedly due to the severe process of elimination during the first five years. This is confirmed by the mortality rates of those who were discharged with the disease active, among whom it is very high, forty times that of the general population during the first year, thirty times during the second year, and twenty times during the third and fourth years; it then begins to fall and becomes about the same as the mortality among the patients in whom the disease has been arrested during the stay in the sanatorium—at the end of eight or ten years, evidently as a result of the fact that most of those in whom the resisting forces have been at a minimum have previously succumbed.

These statistics are the best that have been published on the subject. They are the most carefully collected and compiled and are of peculiar value because they deal with quite a large number of patients treated in one institution, uniformly observed, classified by one standard and followed up, as far as possible for over twenty years; peculiarities which are unique and not available in any other report on ultimate results of sanatorium treatment. But here, just as was the case with the German statistics quoted above, the comparison with the general population is not at all satisfactory. We could not expect anything but a higher rate of mortality among those who have had consumption and were cured or had the disease arrested. It by no means gives us an estimate of the value of sanatorium treatment as compared with other methods of treatment. Such a study could only be made by comparing a number of tuberculous persons, divided into similar groups, incipient, moderately, and far advanced. One half the number of patients to be treated in sanatoria and the other by any other method. Consumptives can no more be compared with the general population as regards death rates than with typhoid fever cases. Such a study is as yet not available, excepting that soon to be mentioned. That many are cured outside of sanatoria has already been shown by the autopsy findings of Nägeli, Buckhardt, Adami, and others above mentioned. That many active and far advances cases survive for long periods of years, we all know. I know patients with large tuberculous cavities in their lungs holding on to life for more than ten years, and I have met with many who keep on working in sweatshops in New York City. They have periods of complete disability, followed by periods of comparative well being. Dr. Brown's statistics confirm this. Some of the advanced cases discharged from the sanatorium with the disease still active were traced alive eighteen years later.

It must also be borne in mind that the majority of the patients of the Adirondack Cottage Sanatorium belong to the so-called middle class, persons who use their brains rather than their muscles to earn their living. In this class of people the prognosis of tuberculosis is more favorable than in the working class, because after their discharge from the sanatoria they may engage in some occupation which does not favor a relapse of the disease, which is not often the case among the less favored working class. Thus among 2,000 cases treated, according to a personal communication from Dr. Brown, I find that only 25 were before admission dressmakers, 8 printers, 3 tailors, 7 machinists, etc. The bulk was made up of clerks, students, teachers, merchants, and professional persons generally. It is questionable whether the results shown in the favorable death rate after discharge would have been the same in case the bulk of the patients had been workers at trades which are considered dangerous. Moreover, it is a question whether society is *economically* the gainer by the prolongation of life of consumptive artizans or laborers who after an expensive stay in the institutions are discharged with the disease arrested or apparently cured and especially when only improved and are warned that they must not again engage in their previous occupations for fear of a relapse of the disease. He returns an invalid after discharge, as is often the case, to his friends and relatives who are not only burdened with his support, but are also exposed to infection. When we bear in mind that such results are attained only at a considerable cost, as will soon be evident, the question of the economic gain by society stands out more prominently, and it has been stated that sanatoria for the poor, who make up the majority of the patients in the civilized world, are not economically a success for just this reason.

The Economics of Sanatoria.—The economic problem presented by tuberculosis is important mainly because it is a disease of the masses, of that large mass of artizans and laborers who depend on their muscles for a living. A case of consumption in the breadwinner of a family means that all those dependent on him are left without resources for support; a case of this disease in his wife or child taxes his limited income to an unbearable degree. While the comparatively few rich and well-to-do consumptives can take care of themselves, the poor and a larger proportion of the middle class must be cared for by the community in case they are infected by this disease. They have a just claim on society which is responsible for permitting conditions favoring the spread of a disease which is known to be contagious but preventable. It is therefore important to inquire whether the community can undertake to provide places in sanatoria for all the consumptives who are in need of treatment.

As has already been shown we do not know the exact number of consumptives in any country. It would, to be sure, be incorrect to assume that from seventy to ninety per cent. of the people over twenty years of age are tuberculous and must be under treatment because autopsies have shown that such a percentage have tuberculous foci in their bodies. In a very large proportion of these the lesions have been more or less perfectly healed and they are none the worse as regards their physical capacity to work for a living, nor are they a menace to those around them because they do not scatter the seeds of the disease as do the active cases. But even taking the lowest estimate of the probable morbidity from tuberculosis, that about seven times the annual number of deaths due to this disease, we find that there are about 1,225,000 cases of active tuberculosis in the United States. Assuming that all

these ought to be taken care of in sanatoria, what would be the expense to the States, municipalities, and philanthropists to provide places for them in institutions?

It has been the experience of the existing sanatoria that it is required an initial outlay of about $1,000 for each bed when an institution of this kind is built and equipped. In Germany the outlay is not much smaller. This would imply that an investment of $1,225,000,000 would be necessary to provide for the 1,225,000 consumptives in this country. That this is not the maximum number of beds will be realized when we consider that once we undertake to keep the patients there till cured, the number to be cared for will not diminish, but increase, because many are not cured in a year and will have to be kept longer, thus swelling the number of cases annually, unless such a wholesale segregation shall ultimately reduce the number of new cases. After this initial outlay there would be necessary funds for maintenance, including food, salaries, repairs, and replacements, interest on investment, etc. The experience of existing institutions shows that this amounts to about one dollar per day per patient. The expenditure for maintenance would thus amount to about $450,000,000 annually. Knowing the difficulties encountered while attempts are being made to raise money for a good cause, it is questionable whether such an amount of money can be raised in this country and then repeated annually.

Judging from present results hardly 30 per cent. of the hopeful, *i. e.* incipient cases are discharged apparently cured after a prolonged sojourn in the sanatoria. The rest would have to be kept for years in the institutions in an improved or even aggravated condition or discharged as invalids, not to speak of those who will die. It is thus evident that only about 367,000 would be apparently cured annually at an expense of $450,000,000, or of over $1,200 per case on the average. That this is a conservative estimate will be realized when we recall that the experience of modern sanatoria is only based on hopeful and incipient cases which constitute the majority of their favored clientèle. But if provisions were made for all the active cases of consumption the percentage of incipient cases would undoubtedly be smaller among those admitted during the first few years, and the percentage of cures correspondingly smaller, much lower than 30 per cent., and the cost per patient cured much higher on the average.

Of course from the standpoint of humanity and charity nothing ought to be too much or too expensive when the problem is the saving of human life, the regeneration of the invalid and bring him back to a condition capable of self support. No one will deny this primary principle of humanity. But it must also be borne in mind that all available facts tend to show that similar results can also be obtained at a much lower cost by non-institutional treatment. In addition to the facts detailed above showing that many more tuberculous persons are being cured in their homes than in sanatoria I can quote some statistics proving that the results obtained in the treatment of tuberculosis in dispensaries were not much different than those obtained in sanatoria. Hammer[13] finds that against the 74 per cent. of patients treated successfully (from the social and economic standpoint, *i. e.* ability to work), 69 per cent. of those treated at home showed similar salutary results, a very slight difference in favor of the sanatoria. Complete success (from the medical standpoint) was obtained in 35 per cent. of sanatorium patients and 52 per cent. of the patients otherwise treated; while a medium success was evident in 38.6 per cent. of sanatorium and 16.6 per cent. of the other patients. In other words, those treated at home gave on the whole better economic and lasting results. Even the length of time these patients were able to work after the treatment was longer than those treated at home. Hammer's conclusion of his study is to the effect that sanatoria show no results worth mentioning. Ambrosins[14] arrives to a similar conclusion.

In a recent paper on the subject Karl Croissant[15] also compares results obtained in the treatment of 407 cases in the sanatorium and 166 cases treated in the poliklinik of Heidelberg. As is usual in Germany he lays more stress on social and economic results than on medical success. In general he finds that 77.3 per cent. of those treated in sanatoria for more than six weeks showed a lasting success, as against only 53 per cent. of those treated in the poliklinik. But it must be borne in mind that the former were nearly all incipient cases, displaying no tendency to run a rapid and progressive course; while among the latter there was a large proportion of advanced cases which no sanatorium would admit. It appears also that if the incipient cases alone are considered, those who were treated in the poliklinik fared much better than those who underwent a course of sanatorium treatment. The capacity for work was better and of longer duration among those treated at the dispensary than those treated in sanatoria. This Croissant explains as due to the care and anxiety with which the former sanatoria inmates take note of all insignificant disturbances in their health, and more often consult a physician, or stop working, for trivial reasons. It is interesting that of the cases in the first stage of the disease 89.6 per cent. of the sanatoria patients and 82.5 per cent. of those treated at home were able to work, although the former class were, on the whole, in better physical condition—78 out of 244 were not at all disabled before admission to the institution. Even the mortality rate of the dispensary patients was lower than of those who underwent a course of institutional treatment. On the whole, Croissant shows that as regards lasting results there is no difference between the sanatorium patients and the others.

While figures like those just quoted go far to show that dispensaries give quite good results, perhaps as good as those obtained in sanatoria, yet it must be agreed that they are not conclusive because they are based on very small numbers of observations. It is a deplorable fact that we lack data on the results of home treatment of tuberculosis. If such data were collected and published they might prove quite instructive and perhaps revolutionize our present views on the treatment of this disease. Let us hope that the large number of tuberculosis dispensaries which have of late been organized will in the near future give us their experiences. Meanwhile the average physician and with him his patients believe that the only place where a consumptive may expect a cure is an institution. But provisions for all those in need of treatment has not been made, nor is it likely to be done within the next generation or two considering the heavy initial outlay as well as the enormous sums necessary for their maintenance, and the great difficulties en-

countered while attempting to raise money for the purpose. That they are not economically an investment which society can consider excellent has been shown when speaking of the small percentage of cases that are actually cured in these institutions. Even Cornet,[16] one of the first who championed the cause of sanatoria, has this to say: "The literature of the subject (of sanatoria) is often careless in its statistics. One author calculates that 13 per cent. of recoveries means a saving of more than 100,000 lives; another widely read author is satisfied with 80,000. Such data are without foundation, and as the future proves them false they can only injure the cause." In the United States we have recently been treated to greater exaggerations as to the fabulous sums to be gained by the State through the saving of certain number of lives and restoring many more to self support by the provision of a sufficient number of sanatoria for consumptives. But "the establishment of these institutions is only a half-measure," says Cornet, "the enormous outlay of money useless, the success only apparent, if we do not also give heed to the immediate future of the patient, if we do not improve the conditions of the home, do not relieve him of a part of his responsibility toward his family, and supply him for some time with a less injurious occupation and keep him busy, if possible in the open air—requirements it is easier to enumerate than to fulfil."

Indeed, all those interested in the problem of the prevention and cure of tuberculosis are to-day so much taken up with the problem of sanatoria that everything else that may do much toward this end is more or less neglected. It is noteworthy that while those admitted to a sanatorium cost the community on the average seven dollars weekly, the thousands who receive treatment in dispensaries are expected to be cured by imbibing all the nasty mixtures that can be forced on them. No serious effort has been made to give dispensary patients sick with tuberculosis sufficient food, better and more sanitary homes, etc. This could be done at a much lower cost than in sanatoria, and everything points to as much success as in institutional treatment. At any rate a serious effort in this direction ought to be made and the results carefully studied and recorded.

Many consumptives are able to do more or less work for their support. To be sure those who have fever, rapid loss of weight, debility, anorexia, etc., cannot work. But these are just the cases in which the sanatoria do not expect any brilliant results. But a large proportion of cases run a slow, chronic course, rarely have fever, excepting for some intercurrent disturbance, and maintain their physique in a fairly good condition. Such patients, if their vocation is not of a dangerous character, may continue at work and earn their living. In fact in many of the better sanatoria the patients are made to work, especially the last two or three months of their sojourn in the institution. I personally know of many consumptives who have kept on working for years while their disease was in a quiescent stage, and the work did not aggravate their condition. It is my conviction, based on close observation, that in most of these cases a breakdown manifests itself only through some intercurrent affection, mainly influenza, pneumonia, etc. But if these individuals are taken to sanatoria they become a burden on the community, and those dependent on them are also thrown on charitable societies for support. Moreover many of these cases are practically incurable from the medical standpoint. They are just the class that supplies most of those who are discharged in the category of "improved," or at most "disease arrested," and this can be attained at home in the majority of cases at a much lower cost. Of course those who pursue occupations involving work in close and dusty mills and factories cannot under any circumstances remain at their trades. But the sanatorium is hardly a remedy—after their discharge they must not reenter their workshop. They must change their occupation no matter where and how treated.

In the large American commercial and industrial centers the municipal and State sanatoria are impracticable for another important reason: The cosmopolitan character of the population is by no means conducive to the promotion of friendly intercourse between the patients. Many intelligent patients have told me that, while they liked the treatment accorded them by the authorities, they could not bear some of their fellow patients of other nationalities, and they had to leave the institution before their time expired and against the advice of the medical superintendent.

There are reasons why even sanatoria having a homogeneous class of patients should often lose their patients prematurely. Institutional life is at best distasteful to the average American who is not used to submit to a system of regimentation and bureaucracy essential for discipline. In addition to this is often added the care, worry, and anxiety about the poverty and misery of those left at home without a breadwinner, who are not slow in communicating their troubles to the patient. A little improvement in the condition of the patient is sufficient for him to decide that he has regained enough strength to resume work and provide for his family. I often meet with such cases. It is true they soon discover that they were mistaken, but it is often too late.

These and many other reasons are responsible for the fact that between 15 and 30 per cent. of the patients of sanatoria leave the institution within three months after admission. The result is that between 15 and 30 per cent. of the money invested in the attempts to cure these patients has actually been wasted.

The Preventive Function of the Sanatoria.—Many who agree that the ultimate success of sanatorium treatment has been overestimated, and is at best rather expensive considering that lasting results are obtainable in only quite a small proportion of cases, still insist that they are the best available prophylactic measure we possess. Because the isolation of a number of consumptives, who otherwise might prove a source of infection to their fellow men, prevents them from spreading the disease, the sanatoria are worth all the labor and money invested in them. Moreover, some have shown that since the establishment of sanatoria in some countries the death rate from tuberculosis has decreased, which is not the case in countries where these institutions are scarce or altogether lacking.

Statisticians have shown that it is often dangerous to draw parallel illustration when studying vital phenomena. By the use of concomitants many absurd propositions may easily be proved. It can, for instance, be satisfactorily demonstrated and substantiated by facts and figures that crime increases in every community in which the religious and moral forces increase; that during the past fifty years the number of negroes has increased in Boston and as

a result the birth rate of the native white population of that city has decreased; that during the last twenty years, since horse cars have been disappearing from the streets of the cities there was a notable increase in the number of cases operated upon for appendicitis; and many other absurdities. Persons not adept in the art of avoiding irrelevant evidence are apt to take for granted conclusions based on reasoning from concomitants whose reciprocal influence is nil. Similarly it has often been shown that the mortality from tuberculosis has been decreasing within recent years, and concomitantly the number of sanatoria has increased. The relation of cause and effect was apparently evident, especially since isolation has been such a great factor in the prevention of other contagious diseases. In a recent paper by one of the best English demographers analogies are drawn between tuberculosis and other contagious diseases showing that leprosy, the plague, typhus, typhoid, and yellow fever, etc., have been banished from civilized countries only by rigid isolation of all those afflicted with the disease.[17] The inference is evident: The only sure method to pursue in our attempts to rid humanity of tuberculosis is to build more sanatoria for incipient cases and hospitals for advanced cases, and to forcibly segregate all those unfortunates in whom traces of the disease is discovered.

Here is not the place to test the statement that all the contagious and infectious diseases have been banished by isolation. We all know to-day that leprosy is not as contagious as was once thought. In many hospitals in the United States lepers are permitted to mingle with other patients, still there is hardly a record of a case of disease acquired in this country. The plague disappeared from Medieval Europe not because those affected were rigidly isolated; in fact, there was hardly anything of the kind attempted on a large scale in those days. Prayers could be proven to have been more effective than isolation because they were more often used in the attempts to banish the plague. It is true that to-day the plague is kept out of Europe and America by isolation of any stray cases that happen to be imported, but it must be emphasized that it is an acute disease and only rarely is a case introduced into a civilized country. In the case of acute contagious diseases which are common among us, such as measles, scarlet fever, diphtheria, etc., isolation alone proves ineffective in our attempts to completely eradicate the disease. We see this with diseases which only attack men—measles and scarlet fever are not known in the lower animals. But tuberculosis is widespread in the animal kingdom, and isolation of those human beings that are affected by the tubercle bacillus will yet leave this parasite in the lower animals, from which infection may spread.

As a matter of fact, the tuberculosis mortality began to decline in Germany years before introduction of sanatoria, and in France, where sanatoria are scarce even to-day, yet earlier. In that country the decline in the tuberculosis mortality manifested itself as far back as the sixth decade of the nineteenth century and, with the exception of war periods, the decrease has been quite regular and steady. That the decrease in England cannot be attributed solely to the few hospitals for consumptives opened many years ago will be agreed by every one who knows that a few isolated cases of a contagious disease are insignificant when tens of thousands of cases are permitted to mingle with the people generally. In a recent report by the medical department of the British Local Government Board on "Sanatoria for Consumptives and Certain Other Aspects of the Tuberculosis Question," by Dr. Timbrell Bulstrode, it is shown that sanatoria in England and Wales have not produced any perceptible affect upon the rate of decline of the tuberculosis mortality. The same is true of any other country. The recent diminution in the tuberculosis mortality may not be due to the diminution in the rates of morbidity. Indeed, it has not been proven that the rates of morbidity have decreased in recent years. A higher rate of recovery of those affected with the disease may be the cause of the lower mortality. Which of these two factors was predominant in this regard is impossible to say as long as we do not know the rates of morbidity, past and present. One thing is certain: Tuberculosis finds its victims mostly among those who live in close, overcrowded homes, work in factories and mills in which the air is laden with organic and inorganic dust and cannot maintain their general nutrition in proper shape owing to poverty. Within the last fifty years the economic condition of the western workmen has been greatly ameliorated; their homes have been improved, wages increased, hours of work diminished, and they can afford to live on better kind of nourishment than the workmen of the first half of the nineteenth century. In addition to this must also be mentioned the sanitary reforms in the modern cities which have been inaugurated within the last fifty years; State factory inspection which is quite rigid in Western Europe, and the abolition of child labor, etc. It cannot be denied that these were great factors in reducing the spread of tuberculosis, minimizing the chances of infection and increasing the power of resistance of the average individual. Those attacked by the tubercle bacillus stand more chances of recovery than formerly when hygienic and sanitary surroundings were primitive.

That the sanatoria are not very efficient in reducing the spread of tuberculosis is also evident from the following facts: Considering how widespread this disease is, the small number isolated in institutions is rather small to be effective in the checking its spread. We may just imagine that among a thousand cases of plague twenty-five are isolated and the rest permitted to mingle with the general population. Moreover, sanatoria do not isolate the most dangerous cases, the far advanced, with cavities in the lungs expectorating profusely secretions containing millions of virulent bacilli. These are just the class which are invariably refused admission to sanatoria, and are permitted to remain in their homes, boarding, and lodging houses, hotels, railway sleepers, public buildings, etc., and to thus spread the disease broadcast, even if they are careful about the fate of their fellow man, which is not always the case. The incipient, mostly of so-called closed cases, which are the least dangerous are the class isolated in sanatoria.

It has been pointed as one social service rendered by sanatoria which is undoubtedly important. I refer here to hygienic drill which the patients in these institutions are subjected. It is said that no amount of police prohibition of indiscriminate expectoration, even when enforced rigorously; no popular lectures and tracts on the prevention of tuberculosis can be expected to achieve such salutary results as the regular hygienic drill to which patients in sanatoria are subjected for months, will achieve. But we all know how evenescent these acquired habits are often. Just fancy the differ-

ences between the sanatorium and the home of the average artizan and laborer; the differences in the accommodations and opportunities of personal cleanliness are of such magnitude as to obliterate any desire to lead a hygienic life. Many an intelligent, though poor, consumptive told me that he finds it impossible to continue at home all the sanitary habits he practised in the sanatorium. And I agreed with him, knowing that he has no bath, no douche, no room for himself, no window in his sleeping room; in fact he is compelled to share his room with one or more persons of different ages; that he must work in a dusty factory or mill, etc. The extreme difference in the environment of the sanatorium with its extravagant buildings, equipment and service, as compared with the accommodations which the average artizan or laborer finds in his home in the tenement house only emphasize the futility of attempting to maintain that standard of hygiene in which he was drilled in the sanatorium. Under the circumstances the patient discharged from a sanatorium and instructed to follow certain rules of healthy life, whether willing or unwilling, is compelled to abandon sooner or later these personal habits which lead to the maintenance of health and prevention of the spread of disease. Physicians practising among the poorer portions of the population, from which the majority of the consumptives are recruited, see these cases often.

When we consider the investment made by the community in such cases, we realize that there was an extravagant waste of labor and money. A patient remaining about four months in a sanatorium at an average cost of one dollar per day and discharged with the disease arrested or even apparently cured is in danger of relapse as soon as he returns to his home. The just mentioned sum by no means gives the exact sum invested in the arrest or apparent cure of the case. To this must be added the value of the initial investment, averaging about $1,000 per bed, as well as the money invested on maintenance of patients who have, for one reason or another, left within three months after admission, and those who have been kept for many months and yet discharged as with the disease unimproved, or dead.

Would not the same amount invested in the building of better dwellings for those of limited means bring better results? It has been demonstrated that sanitary tenements, built with a view of maintaining health and preventing the spread of disease, can be erected with an investment not higher than that invested in a sanatorium, and the cost of maintainance can be derived from the rents. In fact fair returns may be had on the capital invested. Tuberculous people living in good homes can be treated in dispensaries and the ultimate results could be about the same as those obtained in sanatoria, as is evident from the reports of Hammer, Croissant, and others detailed above. The advantages of this sort of treatment can be realized when it is considered that all the hygienic and sanitary instruction given by the physician to his patient can be followed when the patient lives in a room for himself and must not share his bed with another person; when he has a bath tub which he can use at any time; when he has sufficient light, fresh air in his home equal to that available in sanatoria. Moreover, those who are in a condition to work, and who do work in the better sort of sanatoria, could work and support themselves and their families.

Summary and Conclusion.—It is a deplorable fact that the average consumptive and often his medical adviser look upon the sanatorium as the only place where he may be cured of his disease. Those patients who for some reason cannot gain admission to sanatoria consider themselves doomed, lose courage, and often fail to make any attempt to submit to treatment at home. The available sanatoria are overcrowded and patients have to wait for months before accommodations can be found for them in existing institution. Considering the large number of living consumptives and the enoromous sum of money necessary to invest for the equipment and maintenance of sanatoria, it is hardly to be hoped that in the near future the number of beds will be increased to such an extent as to accommodate all those who are in need of institutional treatment.

It is well known that many more consumptives are being cured at home than in sanatoria. Autopsy findings show that about 70 per cent. of humanity have had tuberculosis sometime during their lives. It is also established that the majority of these have been cured of the disease. Even conceding that the well-to-do, who only rarely come to autopsy, would not show such a large proportion of tuberculous, it argues in favor of the curability of consumption among the poor in their homes, in their usual *milieu*.

The sanatoria admit only incipient cases, which display no constitutional symptoms, such as fever, rapid loss of weight, etc. These are just the cases that are under proper care getting along well at home, at a much lower cost to the patient and the community. Acute cases, as well as active cases with fever, emaciation anorexia, albuminuria, etc., are not doing well in either place. The low mortality rates in sanatoria is in a measure due to the fact that all unfavorable cases are persuaded to leave for home.

The ultimate results of sanatorium treatment are not as good as some authors would lead us to believe. The German sanatoria show results that about forty per cent. of all the cases are able to work and earn at least one-third of the standard wage at the expiration of five years after discharge. Considering that the average duration of life of the consumptive is about seven years and that the sanatoria admit only incipient cases, it is a question whether forty per cent. of a given number of incipient cases treated at home would not show similar results. According to Hammer and Croissant the results obtained in the treatment of consumptives in dispensaries are about the same, and from the standpoint of the duration of the favorable results, even better. The excellent results obtained by Trudeau and reported by Brown are not conclusive. They by no means prove that the mortality of the sanatorium patients is lower than that of the patients who are cared for at home. It is not fair to compare the death rates of consumptives with those of the general population when testing one method of treatment with another. The only conclusive method of comparing results of treatment is to elicit the mortality of sanatorium patients as compared with results obtained in home treatment, but such a study has not yet been made on a large scale.

Economically sanatoria are expensive. The initial outlay for building and equipment, which amounts to about $1,000 per bed, and maintenance which amounts to about one dollar per day per pa-

tient, precludes at present the hope of building and maintaining a sufficient number of sanatoria to provide for all consumptives in any country. The fact that there are indications that the results obtained in dispensaries are not below those obtained in institutions, and at a much lower rate of expense, urges that we must turn our attention to the home treatment of tuberculosis.

The prophylactic results of sanatoria are of negligible value, considering that they admit the incipients and refuse the most dangerous, the advanced cases.

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THE TREATMENT OF SYPHILIS AND PARASYPHILIS OF THE NERVOUS SYSTEM.

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The relation of syphilis to the occurrence of nervous disease has ever given rise to extensive and intensive study. To ponder all its vast and various aspects would mean to commit one's self to a task truly herculean, and fitting neither the title nor the purpose of these remarks. One may be pardoned, however, focusing the attention, by way of introduction, upon a few bare yet basic facts, which, when categorically discussed, may assist to an intelligent conception of the therapy in syphilitic and parasyphilitic affections of the nervous system. The first of these to require reemphasis is that syphilis of the nervous system is never, or hardly ever, syphilis of nerve tissue. The specific lesion of the nervous system, be it understood, is presumably microbic in origin, essentially neoplastic in type, attacking primarily the vascular and interstitial structures, and only secondarily encroaching upon the nerve cell and fiber, disturbing its function and eventually destroying it, through local tissue death. By the term "neoplastic" it is not intended to convey the idea, erroneously held by many, that all or nearly all the specific lesions are veritable tumor masses, gummata, syphilomata, of more than appreciable size. On the contrary, the term includes, or, better said, implies, simple inflammations, cellular infiltrates, exudates, and the smallest of nodular or gummy excrescences. An allusion to cerebral syphilis, for instance, should not conjure up the sole image of a large, solitary tumor, except when other factors in the variant pathology of lues have been dismissed as untenable or improbable. The artery that supplies nerve tissue proper, the neuroglia that supports it, the membrane that shields it, play rôles not to be despised in the causation of nerve cell necrosis. Stating it somewhat differently:—The morbid processes underlying the polymorphous symptomatology of syphilis of the nervous system in order of their importance and frequency are: (1) Syphilitic arteritis; (2) syphilitic meningitis (inclusive of cranial nerves); (3) gummata. Syphilis of the nerves may be said to occur, but it is rare—very rare, indeed. Just what determines that the nervous system should become involved, and which part of it, we have no way of knowing, but in view of its protozoan etiology the explanation is at hand that (1) the spirochete elaborates a virus of variable toxicity, this virus having a special affinity for nerve structures, or (2) the nerve tissues of certain individuals have a lessened resistance for certain neurotoxins in the virus.

Of all the organic systems, the nervous system pays the heaviest tribute to the "tertiary" period of syphilis, and this assertion brings me to the point of referring briefly to the misconception by not a few of the word "tertiary." Be it observed that the word "tertiary" bears no relation to the time interval between the acquisition of chancre and the later manifestations of the disease; it merely emphasizes the kind of lesion. Those lesions of syphilis which are local, and as such destructive of tissue, are properly called tertiary. It matters not at all whether syphilis of the brain or cord follows the chancre as early as eight weeks, or as late as twenty years—it yet remains a "tertiary" phase of the disease. It is quite true that clinical experience has taught neurologists to believe that a majority of the cases of nervous syphilis are destined to occur within three to five years from the date of primary infection, with the incidence steadily decreasing after that, but such a chronological criterion need not render a diagnosis doubtful when made at even a much later period.

These relations clear, it may be said in summary that, when disease of the nervous system has its origin in syphilis, is in its pathology of the nature of syphilis, amenable and responsive to the therapy of syphilis, then we are justified in postulating syphilis of the nervous system.

And what constitutes parasyphilis? When nerve elements proper—that is, cells and fibers—undergo degeneration *ab initio*, a considerable period of time after syphilitic infection has occurred, as is indeed the case, we are disposed to regard that process as parasyphilitic.

The parasyphilitic diseases, so designated by Fournier, chief of which are tabes, general paresis, and a combination of the two, tabo-paresis, are in all probability induced in some manner by syphilis, but reveal a pathology unlike that of nerve syphilis, and are not prone to succumb to specific therapy in the sense that does syphilis. I do not, however, share in the belief that the pathology is totally dissimilar to that of syphilis, or that specific treatment is wholly contraindicated, for I am familiar with the occurrence of tertiary lesions in frank tabes and paresis, and have in certain cases, particularly of the former, noted the good effect of specific treatment—but of this I shall say more presently.

In the light of recent investigations and contributions to the syphilis problem, there is good cause to predict that the etiological and therapeutic position of the disease will be greatly strengthened by the discovery of the *Spirochæta pallida* by Schaudinn and Hoffmann, and the serodiagnostic reaction of Wassermann. The well-nigh constant demonstration of the former in the lesions of syphilis and the invariable positive reaction of the latter in individuals acknowledging to earlier infection would seem to have placed these newer criteria well beyond the sphere of speculation and doubt. That the *Spirochæta pallida* appears not only in the virus of the primary sore papule and gumma, but has been demonstrated by Hoffmann on the inner wall of a cerebral vessel showing syphilitic arteritis is a point worthy of note, not without its direct bearing upon treatment.

Because of its field of application in syphlis of the nervous system, merely a word in passing about the Wassermann test, which aims to ascertain the solubility or insolubility of suspect blood when admixed in a test tube with an already prepared serum formula. If the suspect blood is soluble, it means that syphilis of reaction is absent; if the blood remain insoluble, it means that syphilis of reaction is present; in other words, solubility means a negative and insolubility a positive test.

In some of the cases of nerve syphilis and parasyphilis recently under my care, and in others observed by my colleagues, this test was made, and with the laboratory kept in ignorance of the clinical diagnosis and patients' confession of syphilis, it in every instance returned a verdict of "positive." From the literature recording to date a vast number of cases in which the test has been used to confirm antecedent syphilis, one gains the impression that we may be called upon to revise again our present notions of syphilis toxins and parasyphilis. The fact that the Wassermann test has been positive in 70 per cent. of tabes cases and 90 per cent. of general paresis lends force to the argument presented some time ago by Lesser, Bose, and others, that the late manifestations of degeneration of the nervous system caused by the virus of syphilis may rightfully be construed as a fourth stage of syphilis. Many of the results with antisyphilitic remedies would seem to negative this contention, but, on the other hand, some of the experiences with mercury and iodides in checking the progress of these diseases would tend to support the view.

The test is surely full of promise where it is desirable, and even imperative, to make the early diagnosis in a doubtful case and institute prompt treatment.

Nowhere are we more in need of this direction than in cases of latent or denied syphilis presenting symptoms suggestive of brain tumor or brain syphilis. The therapeutic test for so long applied with watchful expectancy to make the diagnosis in these cases will then fall into disuse.

Treatment.—In the matter of treating nerve syphilis and parasyphilis we encounter a diversity of opinion that is but the natural sequence of a lack of fuller information all along the line of etiology and pathology. It may be well first to allude to some well established facts concerning several methods of treatment, obtrude some personal experiences, and conclude with a résumé that is in consonance with the best and latest knowledge we have acquired.

If, for the purpose of completeness, I refer to a positive prophylaxis against syphilis of the nervous system, I must of necessity mean the accomplishment of an ideal prophylaxis against the primary sore, with the aid in one form or another of an antisyphilitic vaccine. Whereas this seems far from realization, yet the experiments of Metchnikoff and Roux are indicative of a scientific preoccupation in this direction. Mention of their work seems in place here also, because of the calomel ointment (calomel, one part, to lanolin, three parts), which they advocate as a lubricant prophylactic to be applied to the genitalia immediately or within an hour after suspicious intercourse. The authors remark that in their experiments this remedy has afforded immunity against primary infection, and accordingly it has been issued to the army by the Secretary of War in France as a prophylactic measure against venereal disease.

The initial lesion once acquired, nothing short of a prompt, efficient, and sufficiently long continued course of mercury and iodides is indicated; when well accomplished, such a course of specific treatment will in the majority of cases be of avail in preventing the dire tertiary consequences to the nervous system. This, I think, none may doubt, since it has been estimated from very large and convincing statistics that when *properly* treated perhaps 90 per cent. of the cases get well and remain so. A retrospect of the cases which the neurologist is privileged to see forces the conclusion, however, that the cases have been treated either imperfectly, improperly, or not at all.

What constitutes, from the neurological viewpoint, the best treatment in these cases?

Extremely urgent instances aside, I think it is the consensus of opinion among neurologists that the inunction method, the *Schmierkur* of the Germans, has on the whole given the best satisfaction in nerve syphilis. It may be inferior to the oral, hypodermic, or intravenous method in point of rapidity and cleanliness, but it fulfills most of the demands made upon it in most of the cases, is simple of application, less prone to produce salivation, and obviates gastrointestinal distress. I believe that to have the unguentum hydrargyri dispensed in an exact dosage in wax papers, with written instructions to the patient for its use, contributes greatly toward the efficiency of the method. It has been my custom to prescribe unguentum hydrargyri, ℥ss to ℥i, to be rubbed nightly by the patients themselves when they are able; and the specifications call for one thorough rubbing on a different non-hairy,

flexor surface each night for five nights, this to be followed by a warm, cleansing bath on the sixth, a rest on the seventh, and then a fresh series of five rubbings on successive nights, with interruptions of bath and rest as before. The number of such series required is variable, four having sufficed in some of my cases, and eight in others. In private practice I have found most of the patients very ill at ease over the denial of daily baths, and after making concessions have come to believe that a short cleansing bath in the morning is no serious infraction upon the technique. In two of the considerable number of cases in my records I met with nonabsorbing skins, which no amount of rubbing could affect, and, after a brief trial, resort was had to deep injections. What I have said of the official unguentum hydrargyri applies to the vasogen preparations containing from 25 to 33 per cent. of mercury. Occasionally one meets with circumstances where it is desirable to suppress the real facts surrounding a case of lues, as in the congenital types of the disease, and here antispecifics in agreeable disguise may be given in the form of colloid calomel, used as calemelol salve or unguentum Heyden, which contains an additional 2 per cent. of free mercury (Abt).

When resorption from skin surfaces has proven slow, I suggest that the site of inunction be previously prepared by cleansing with soap and warm water, then alcohol or ether, and complete this toilet by the application of a tight flannel bandage over the part rubbed.

With these qualifications the endermic administration of mercury has given me most gratifying results. The symptoms of brain syphilis will appear less ominous, I think, if we appreciate that mercury in large enough doses constitutes the remedy *par excellence*. It is mercury that annihilates the *Spirochæta pallida*, and if, as has been demonstrated, this protozoan may reside in the cerebral vessel-walls of the syphilitic, then it is the mercurials that are cardinally indicated and iodides become but the essential adjuncts in the therapeutic scheme. So much depends upon the pathology in each case that generalizations as to the degree of recovery are quite difficult to formulate. The area of softening in the brain resulting from the complete occlusion of a cerebral terminal artery is not likely to be irrigated back to life, nor will the brain cells compressed in a patch of scar tissue, reminiscent of a destructive gumma, derive sustenance and potentiality from all the mercury and iodides that can be safely borne.

Small wonder then that our disappointments are not few. The lesson to be learned from this class of cases is that treatment should not only be adequate, but timely. There are types of brain syphilis which carry a patient to dissolution in spite of the most ideal therapeutic premises, but happily they are rare. In cerebral lesions the results of treatment are sometimes marvellous, but more or less complete failures are quite more numerous than cures. In spinal syphilis the proportion of failures is far greater than the successes.

When it seems necessary to get quick and complete control of a syphilitic lesion, initiated, for instance, by a single convulsive (epileptiform) seizure, the inunction treatment may well be waived in behalf of the more rapid administration of mercury by the deep intramuscular injection. I have no hesitancy in stating a preference for this method at *critical* periods in the disease. When it is intended to establish reservoirs of mercury in the deep muscular tissues from which slow resorption takes place, the insoluble preparations, such as calomel and the salicylate of mercury suspended in sterile oil or lanolin are used. It is maintained by Gottheil, who is the most ardent advocate of insoluble mercurials in this country, that they are free from danger, painless, and of greater convenience to the patient because of longer periods intervening between injections. The controversy that has been waged in dermatological circles concerning the advantages or disadvantages of the soluble *versus* the insoluble mercurials need not receive extended mention here, but I have found that the injection of insoluble mercurials in several cases caused quite as much pain as is experienced with the soluble corrosive sublimate. The dangers arising from the depots of mercury located in the deep tissues seem to me very real ones, and for this reason I have been content to use exclusively hypodermics of corrosive sublimate in doses varying from 1/12 to 1/4 grain injected every second or third day. Soreness in the gluteal muscle masses is quite sure to follow, but at its worst it is transitory. The danger of thrombosis or embolism by penetrating a vessel is not great in these regions, but the remote possibility of so serious an accident should lead to great precaution in the technique, which it is needless to add includes rigid asepsis.

The vast majority of syphilitic cases in this country are subjected to the oral administration of mercurials, perhaps because it is convenient and favors concealment of the patient's disease. This method, with its tendency to produce gastrointestinal disturbance, stomatitis, and diarrhea, is not free from serious objections, and in neurological practice is the least dependable and therefore the least favored of all the accepted methods. If, for a particular reason, it seems indicated, the protiodide, gr. 1/8 to 1/3, or the hydrargyrum tannicum oxydulatum (Lustgarten), grs. 2 to 4 in pill form, may be given after meals.

Of recent years intravenous injections of mercury have been suggested, and one can understand how, in these severer, rampant, and fulminating types of the disease, they would act with great promptness and certainty, but the risk of thrombophlebitis and embolism, in my opinion, outweighs all considerations in their favor. I concede their place in therapy, but have not as yet availed myself of their use.

In the ambition to check and control nerve syphilis, mercury in any of its forms will surely do harm if given injudiciously, meaning in doses either too large or too long continued. The dangers of chronic mercurialism require no emphasis here, but I have so frequently seen flagrant neglect of the teeth, gums, and mouth, that it seems pertinent to reiterate the necessity of mouth washes, tooth powders, and gargles three times daily after eating, to preserve oral cleanliness and prevent stomatitis.

In treating syphilis of the nervous system, it has been customary to administer the iodides conjointly with mercury, but the neurologist with experience will, I think, ascribe his good results to the use of mercury and not iodides. This, however, is not equivalent to saying that the iodides do no good, for in truth they are of inestimable value, and the best evidence of this fact is the disposition on the part of American neurologists to give massive doses, from two hundred to four hundred grains daily. On the Continent small doses of from thirty to

sixty grains daily are advocated, but it has always seemed ridiculous to me to be prejudiced by the size of a dose alone. It has been my principle to give enough, plenty, and then some more if that did not suffice. There has been a good deal of fastidiousness in the matter of iodide administration, in which, at one time or another, we all have been guilty of participation. I have noted the best results with the saturated solution of potassium iodine in ascending doses from fifteen to as high as one hundred drops, three times daily, given after meals, well diluted in water, Vichy or Seltzer, or milk. Sodium iodide has found favor in nerve syphilis, and is said to contain more iodide, be less irritating to the stomach, and less prone to produce iodism. Iodism, except in idiosyncratic individuals, is best prevented by large dilutions of the drug in milk or aërated water; and especially where three to four hundred grains constitute the daily dose, it is well to dissolve the entire amount in a quart or more, to be taken in divided doses during the twenty-four hours, thus avoiding gastric distress and other ill-effects. Iodonucleoid, a preparation containing 23 per cent. iodine, is a pharmaceutical refinement of iodide possessed of great merit, and may at any time be given in a dosage of from five, twenty, and even sixty grains, three times daily, for a long period of time without giving rise, except in very rare instances, to gastric distress or other familiar signs of iodism. I have given it repeatedly in doses of sixty to one hundred grains, three and four times daily, without apparent ill-effect, whereas ten drop doses of the saturated solution for the same patient were not at all well tolerated. Iodalbin in similar doses is very readily assimilated, and tends to act with good effect. It is advisable to reduce an excessively large dosage after a month, and then continue for eight to ten weeks with fifteen grains two or three times daily, as the condition may demand. Warm baths, copious water-drinking, and free catharsis will keep the elimination at the point necessary to prevent iodism. When the first energetic treatment has done all that could be expected of it, patients should be encouraged to take a course of iodide and mercury every six months for five years, and some specific treatment is indicated for a short period every year for the rest of their lives. It is a mistake to think that the exhibition of antispecifics in syphilis puts an end to the medical obligations toward a case, for we not infrequently encounter states of malnutrition, even cachexia, and profound anemias which require the most careful and judicious employment of rest, diet, hydrotherapy, fresh air, and alterative tonic treatment. In the past few years the French have treated cases of both primary syphilis and syphilis of the nervous system with atoxyl, an arsenical preparation used subcutaneously in doses of about one-half to two grains, two and three times daily. There is a great diversity of opinion as to the utility of this alterative remedy. I have resorted to its use in cases of anemia, neurasthenia, and in a few instances of nerve syphilis, but am not at all convinced of its superiority to other arsenical preparations, such as sodium cacodylate or the liquor arsenicalis.

Germane to any discussion of parasyphilis, and in keeping with the limits of this paper, I think it well to outline only a few of the essentials in the treatment of the two affections, tabes dorsalis and general paresis. In a prefatory way I might say that the very slow progress and tendency to spontaneous remission in tabes dorsalis makes it impractical and well-nigh impossible to suggest a therapy for certain "stages," such as the preataxic, ataxic, paralytic, and so forth, which are merely convenient and now obsolete descriptive terms. It should be appreciated that from the very first this disease is incurable, progressive, often remaining stationary for a long time in the benign and milder forms, and yet capable of marked improvement following the exhibition of diverse reasonable therapeutic measures employed singly or in such combination as to meet the requirements of each case. There should be no hesitancy, however, in acknowledging that, on the whole, only a minority of the cases are influenced in their course or arrested in their development.

Recognizing tabes as a late sequel of syphilis, it is only natural and logical to ask, Will the prompt and energetic treatment of the antecedent syphilis diminish the liability to tabes? Only the most extensive and exhaustive inquiry can establish the precedent for opinion on this point. Two quotations are worthy of mention. Neisser (*Deutsche med. Woch.*, 1902) has tabulated 445 cases of tabes; 254 (57 per cent.) had received no primary antiluetic treatment; 18 (¼ per cent.) were adequately treated, and 173 (39 per cent.) inadequately. Schuster (*Deutsche med. Woch.*, Dec., 1907), in a critical analysis of his own cases and those of others, arrives at quite opposite conclusions, maintaining that (1) the clinical average of tabes and paresis is identical, whether antecedent syphilis has been treated with mercury or not; (2) the metasyphilitic nerve sequelæ do not appear later in the patients treated with mercury than in those untreated; (3) the beneficial influence of antispecific therapy for the prevention of parasyphilitic nerve lesions is thus far not convincingly proven.

In our present state of knowledge extreme pro and con views will continue to enliven the pages of our literature on this subject, but from such sources as Erb, Fournier, Neisser, and Lerdde, I borrow the confirmation to my own observations of more than one hundred tabetics, and venture the opinion, firstly, that adequate antisyphilitic therapy does greatly diminish the liability to greater tabes; and, secondly, that all forms of syphilis, especially the milder ones, those treated either indifferently or not at all, should and must be held in higher therapeutic regard.

The diagnosis of tabes once established, neurologists are again confronted with the question as to the propriety of antispecific treatment, and again are reminded of an ardent controversy that has been carried on for many years and is still *sub judice*.

Many neurologists of experience accept as valuable the administration of mercury and iodides in tabes; by some they are liberally discounted, and by others again absolutely discredited. I recall cases, and they were nearly always the ones in which the interval between lues and tabes was short (at or under five years), that showed marked improvement shortly after and even during the exhibition of mercurials. Ataxia was greatly benefited, incontinence checked, pains controlled, vision improved, optic atrophy retarded, and the charted fields of vision restored to near normal. A second group of cases has been wholly unresponsive, and a third I have thought were made distinctly worse by specifics. For this therapeutic variability there is, so far as I know, no adequate explanation, but it prompts a belief not inconsistent with pathological facts, that the early cases presented tissue changes

of nerve syphilis together with those of tabes, and these were favorably influenced by therapy. The cases in which treatment was badly borne and wholly without benefit were those well advanced, of long standing, associated with emaciation, cachexia, or grave anemia. From out the increasing mass of contentions, I derive some comfort from the following attitude: In tabes (1) antispecifics should be resorted to in the early cases and early in these cases, for then they are capable of doing good; (2) antispecifics are inert in many cases and positively harmful in others; (3) the plan of specific treatment is much the same as that heretofore mentioned, and contemplates the use of both mercury and iodides.

Mindful of the undue length of this paper, I shall, with your permission, not touch upon the care of the bladder, the control of lancinating pains, the crises, and so forth, but pass on to a moment's reflection of ataxia. This most important and distressing symptom of tabes has for years received careful consideration and study, chiefly from Fraenkel, of Heiden, who finally was able to formulate a plan of treatment for the incoördination now known as Fraenkel's reeducation method, which postulates the "necessity of learning by systematic practice coördinated and proper movements in place of ataxic ones." A perfect system of graduated exercises, first simple and later more complicated, is performed every day for five minutes, with a rest period of five minutes following. Patients are directed to intelligently and perseveringly practice certain movements and steps in many directions until they can do them correctly and with satisfaction and comfort to themselves. For the bed-ridden patients exercises of flexion, extension, abduction and adduction should be performed in the prone position, with deliberation and exactness. Such practice results in a most gratifying improvement of gait and station in patients who for several years may have been utterly helpless. I have had occasion to observe the most astonishing feats of locomotion even after a few months of these exercises, but the conviction has grown upon me that strict adherence by the patient to the highly complicated plan of Fraenkel is not essential, for I have seen most marked improvement follow my simpler suggestion that exercises be done in a hop-scotch, chalked out on the bedroom floor. A pattern parquet floor will suffice, and the seams in the carpet or cracks in the sidewalk will answer the purpose, provided the maneuvers are planned to meet the requirements of each case, and the proper patience is observed in their execution. The inference to be drawn, then, is that the principle of the Fraenkel treatment is an excellent one, but unvarying obedience to a single formulated plan or system of exercises is not necessary for the attainment of good coördination.

A factor contributing not a little to ataxia of the lower extremities is hypotonia, which, when present in the musculature of the foot, tends to destroy its long arch and give rise to pronation. A correction of the faulty mechanism of the foot by a shoe modified to meet the individual requirements has in three of my cases, together with the Fraenkel exercises, offered the most favorable treatment for marked incoördination. Before leaving this topic, I desire to emphasize that in cases presenting ataxia of very acute onset and rapid progress, attended with great weakness and debility—the so-called acute tabes—it would be most reprehensible to suggest anything but absolutely bed-rest and quiet.

It is sometimes very difficult to decide whether or not a patient should know his true condition, and be apprised of it in terms of locomotor ataxia or tabes. In being too blunt in letting a patient know the truth of his plight, the physician sometimes commits a grievous error. Much will depend upon the temperament of the patient, but in any event he may be told that he has some chronic spinal disorder, capable of control and relief by judicious and careful treatment. Unpleasant psychic shocks are more than most tabetics can gracefully bear. It is indicated in this, as in all severe chronic conditions, to practice a mental therapy by virtue of which the patient may remain hopeful, encouraged, and stimulated to activity and obedience in the matter of taking proper care of self. This is no idle play of words, but an attempt to admonish the therapeutist in a matter of which he is either wilfully neglectful or wofully ill-advised. I know of tabes cases in which a swift and sudden decline could be attributed to no other cause half so readily as to psychotherapeutic indifference and disregard, and I know of others again whose every advance and gain was merely the reflection of a well-thought-out plan of mental support and suggestion. A patient should be made to change his occupation, if that were necessary or desirable, and should not want for the constant direction and supervision of his working and resting hours. The psychic side of the tabetic must never be lost sight of.

The certainty with which the prediction of dissolution can be made in general paresis would seem to make any references to the effect or non-effect of treatment quite superfluous, but the causal relation to syphilis again brings to mind a few points of the controversial order worthy of passing comment. More difficult even than in tabes is it to say that this or that case of paresis has improved under treatment for syphilis. But the same reason that prompts my use of mercury and iodides in the early stages of tabes in the hope of influencing pathological changes of active syphilis inclines me to their administration in the incipient stage of paresis. I think that all alienists can record a few instances of long remissions in paresis which at first thought are ascribed to specifics, but in not a few marked improvement is the result of all measures except those of specifics. The tendency to discountenance the importance of syphilis in subsequently developing paresis is best seen in the efforts of the Scottish school (and in this country by the researches of O'Brien) to identify a diphtheroid bacillus and mixed toxic infection as the cause, and then raise the question of serum treatment. The investigations thus far presented are interesting, but, in my opinion, far from convincing.

I think I need not dwell upon the necessity for isolation, institutional régime with its approved methods of nursing, hydrotherapy, exercise, and feeding. Those who have seen the mental, moral, and physical degeneration of the paretic progress steadily to the point of total oblivion will unhesitatingly acknowledge the rôle of the sanitarium and asylum in the life of these unfortunates.

In having brought this topic of perennial interest to your notice, I have sought to do little more than assemble in the light of latter-day research, the larger facts and broader opinions, and thus make them the targets for discussion. To epitomize: (1) Syphilis and parasyphilis of the nervous system continue to stand in direct and indirect causal relation to primary syphilis, although their nasological position is very likely to undergo revision of the

Schaudinn discovery and serodiagnostic values of to-day stand the test of time and further development; (2) the therapeutic position, it is hoped, will also share in this signal advance, but in the expectant interval it is well to insist that neither a routine nor a haphazard administration of antispecifics is commendable; (3) treatment to be intelligent must meet the requirements of each case with due regard for the many collateral, chiefly supportive measures; (4) antispecifics, when indicated in these conditions, mean mercury and iodides; (5) in the vast majority of the cases occurring in neurological practice, mercury by inunction is the method of choice; (6) the Fraenkel exercise treatment for the ataxia of tabes loses none of its efficiency if a departure is taken from the original complex plan to a simpler one.

CONCEALED APPENDIX.

By AUGUSTIN H. GOELET, M.D.,

NEW YORK.

It has occurred in two cases where I have opened the abdomen for interval appendectomy to find the appendix apparently absent, the head of the colon being as smooth as the palm of the hand and no visible evidence of there ever having been an appendix. Such a condition is very puzzling to the surgeon when encountered in a patient that has never been submitted to operation before, and had it not been for the experience of the first case I should never have found the appendix in the second.

By "concealed appendix" I do not mean those cases where the appendix is bound down by adhesions as ordinarily encountered, but in the two cases referred to there was positively no evidence of adhesions or visible thickening of the wall of the gut. The only way the appendix was eventually detected was by palpation of the wall of the gut between the thumb and finger, which revealed a slightly increased thickness at one point. The appendix was then dissected out of the wall of the gut in which it was imbedded. It was apparently causing no trouble, but when examined after removal it was found to be in a state of chronic inflammation.

I can best illustrate this somewhat unusual condition by briefly relating the two cases referred to:

Case I. Mr. B., æt. 25 years, had his first attack of appendicitis some three or four years before the operation. He was laid up in bed for a week and had recovered sufficiently for his physician to permit him to return to business. At the end of his first day at business he had a chill followed by considerable rise of temperature and renewed tenderness over the appendix. I was asked to see him. I arranged to have him moved to a suitable place for operation, but the following day the temperature and other symptoms subsided and the operation was postponed. I did not see him again for three or four years after when, becoming nervous over the death of a friend who died from a neglected appendicitis, he again consulted me. He stated at this time that he repeatedly had reminders of his previous trouble by pain in the region of the appendix caused particularly by exertion, as upon going up several flights of stairs, or running. The pain thus induced would continue sometimes for a considerable time after.

Operation was advised and readily consented to. The head of the colon was perfectly smooth and there was no appendix visible, nor were there any adhesions in the vicinity. But by picking up the wall of the caput coli and rolling it between the fingers it was found to be thicker at one point, though the surface was perfectly smooth there as elsewhere. Careful dissection succeeded in isolating the appendix from the wall of the gut and it was removed. The raw surface thus exposed was covered over by approximating the peritoneal margins of the gut and turning it in.

The appendix was shrunken in size and the lumen of the distal end was obliterated, while the proximal end showed inflammatory changes. The patient made a good recovery and has had no further trouble.

Case II. Miss J., æt. seventeen, while traveling in Spain with her mother, had a severe attack of appendicitis, but her mother would not consent to operation there in a strange country by strange surgeons in whom she had no confidence. She recovered and was brought home, her mother intending to have an interval operation done as soon as convenient. But the young lady regained her health rapidly and the appendix was causing no trouble, so operation was postponed on this account and on account of her studies.

However, during August of last year, three years after the attack, she was seized suddenly with sharp pain in the region of the appendix, accompanied by some tenderness, but there was no rise of temperature. She admitted having had pain in the same location from time to time during the past year, but was afraid to mention it because she dreaded the operation. Operation was then decided upon and was done August 4, 1908.

Upon exposing the caput coli there was no evidence of an appendix, the surface was perfectly smooth everywhere and there were no adhesions. Careful examination of the wall of the gut, however, by rolling it between the thumb and finger, detected slight thickening at one point. This was the appendix imbedded in the wall of the gut, the surface above and around it being as smooth as every other part of the gut wall, apparently covered completely by peritoneum.

The appendix was enucleated by dissection and removed, the raw surface being covered over as in the other case by approximation of the peritoneal margins over it.

The appendix was small and contracted, but showed evidence of chronic inflammatory changes. The patient made a good recovery and has had no trouble since.

SOME CORONER'S CASES.

By PHILIP F. O'HANLON, M.D.,

NEW YORK

To resume, as it were, the cases that can be classed as very interesting to the profession, cases that the general practitioner or even the hospital interne seldom see, let me give the history of one occurring at the New York Hospital on my tour of duty in the week of April 4, 1909:

Case I. Francis Devine, a lad of eighteen years, was playing with an umbrella, such as one sees on the big city watering carts in the summer season. In some manner not definite the rib of the umbrella entered his mouth, cut the base of his tongue on the left side, and lacerated the left internal carotid artery. He began to bleed. An ambulance was called for, but when the doctor arrived at the scene the boy had stopped bleeding. The patient was taken to the hospital, however, as he had a

large swelling over the clavicle extending up into the neck. An operation for the injury was begun. A most remarkable state of affairs was at once displayed, viz., a plugging of the distal and approximal end of the artery by a thrombus. The carotid was tied, and the patient put to bed, where, after a few hours, he died. At autopsy it was found that the thrombotic condition was manifest in the Sylvian artery and that the center of the temporal lobe had undergone softening all within a period of a few hours.

Case II. An old man was crossing on the avenue of one of the busy parts of the city. He stepped out from behind a wagon and in doing so got right in front of an oncoming automobile, which hit him. He was taken to the Roosevelt Hospital and soon after died. The autopsy of the body of the man showed no evidence of any violence whatever, no scalp wound, no swelling even of the scalp, yet, when the top of the skull was removed, it was found that he had sustained no less than ten distinct fractures of the base.

Case III. A man was taken ill on the Bowery, near Grand street. He fell to the pavement, an ambulance was sent for, and the surgeon pronounced him dead of heart trouble. No one claiming the body, it was sent to the Morgue, and autopsy showed that the real cause of death was carbolic acid. The peculiar thing about this, outside of the diagnosis, was the lack of any external signs of the burn or stain of the acid. I afterward learned that the man had taken the acid in a glass of beer only a few moments before he fell on the street.

Case IV. I had a most peculiar case of attempted abortion. A young girl, one of the chorus of a Broadway production, called in a "doctor," to whom she confided the fact that she could not well become a mother in the busy season of the year, and that she would need relief. The operation was most astounding in that the "operator" curetted the entire placenta away, and the girl died of a profuse hemorrhage. The case being reported to the Coroner's office, I was assigned to it and the autopsy showed that the placenta had been removed, but a five-months baby was found *in utero*. How the man did it was, and is to this day, to me a puzzle. The medical men on the jury, and it was made up of some very good citizens, turned the prisoner out on the ground, so one of them said to me afterward, that the "operator was too ignorant to have been guilty of a criminal intent."

Case V. A man working in a stable was kicked in the stomach by a horse. He was carried home and a doctor was sent for, who on arriving put a plaster over the seat of violence. In three days the man died. The autopsy showed that he had sustained a rupture of the intestines. This case is interesting in that it shows the unreliability of plasters when the hoof of a horse strikes the human abdomen, and also the uselessness of calling on any old kind of a doctor.

One of the few causes of sudden death recorded at the Board of Health by others than Coroner's physicians is edema of the larynx, and this is by no means an unusual terminating factor. In many cases of "police arrests for alcoholism" and where men are found dead in the cells the autopsy reveals the almost entire closure of the glottis. We also come in contact with a condition which we call "postural asphyxia." This is one oftentimes encountered in men who are found seated in chairs in the back rooms of saloons with the head bent forward on the chest and the collar pressing on the larynx, which slowly but surely causes asphyxia.

121 West Ninety-fifth Street.

REPORT OF A CASE OF HYDROPHOBIA.

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T. B., colored, male, age 11, residence Alexandria, Va. Bitten on August 1, 1908, on the web of hand and foot; both bites were very slight and healed rapidly without treatment. The dog was a family pet and was noticed to be not well for a short time before biting the boy and died in less than a week afterward. After biting the boy the dog bit a neighbor's dog, and the latter died about three weeks later. Both dogs were buried without any examination having been made for rabies.

The boy was taken sick on Monday morning, October 12, or sixty-two days after being bitten, and rapidly developed the characteristic symptoms of hydrophobia. The first symptom noted by himself and family was sore throat, for which he was treated by the family doctor. This symptom rapidly increased and by the next morning there was marked spasm of the muscles of the pharynx and neck, attended with profuse salivation.

The attending physician, Dr. Penn, made a diagnosis of hydrophobia and requested us to see the case with him. When seen by us the patient was in a partial stupor, but could easily be aroused and could answer questions. There was a very free flow of a frothy saliva, which he expelled with a peculiar sound. He had, at rather short intervals, convulsions with some opisthotonos and marked respiratory spasm. We confirmed the diagnosis of hydrophobia.

The boy's condition rapidly grew worse and he died on the third day after the onset of illness. We were unable to obtain an autopsy.

Noninfectious Disease of the Adnexa.—H. Roulland states that noninfectious disease of the adnexa is deserving of greater attention than is usually given to it. We have under this head active and passive congestions, adhesions, hemorrhages, cysts, scleroses, and painful conditions that cause great suffering. The causes of these conditions are found by the author in the periodic congestions to which these organs are subjected, the displacements of which the uterus is susceptible, and the metritis and salpingitis that occur aside from infectious inflammatory conditions.—*La Gynécologie.*

Undialyzable Constituents of the Urine in Pregnant Women in Normal and Pathological Conditions.—M. Savare has examined the undialyzable residue of the urine, which is in considerable quantity in normal and pathological conditions in pregnant women, and has injected the residue into animals to ascertain whether it has toxic properties. He finds that there are contained in the urine of women who are in a pathological condition while pregnant, especially when attacked by eclampsia, elements that are markedly toxic to the experiment animals, causing them to have stupor and convulsions, and killing two out of ten animals injected. The relation to the causation of eclampsia of these toxic elements is not as yet clearly defined, but should be further studied, since it may prove a fruitful field of observation.—*Annali di Ostetricia e Ginecologia.*

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VENEREAL DISEASES IN INFANCY.

THERE are probably no patients who receive so little human sympathy from the average physician as do those suffering from the various ailments classed as venereal diseases. When the patient is an unmarried male adult there is a general feeling that he is having a punishment that fits his crime, and when married, if he has contracted the disease from other than his legal life mate, sympathy is usually entirely lacking to the sufferer and is extended to the innocent person who may become a victim of his loss of self-control. When, however, the patient is a young child, especially a girl, the situation is changed, and one feels most sincere sympathy for the little patient. Venereal infection among young girls, especially girl babies, has until recent years been considered rather as a medical curiosity. That it is in reality a common disease of infancy is shown by the large literature which has appeared in recent years on gonococcus vaginitis in the infant.

The mode of infection in these cases has been a source of much worry to pediatrists, especially to the house staffs of the children's hospitals in which, with every possible precaution, the admission of one infected infant will ofttimes cause an epidemic involving every girl baby in a ward. The source of infection outside of the hospital is more easily explained and can often be traced directly to a urethritis in the father, or a vaginitis in the mother or sister, or to the attendance at school or a day nursery in which the infection may be spread by the common use of bedding, towels, or clothes. Besides these accidental modes of infection, however, there are at times cases in which even young infants acquire the disease from a diseased man in a manner similar to the common mode of infection among adults. That this may be much more commonly the case than is usually supposed is suggested by Flora Pollack in an article in the *Johns Hopkins Hospital Bulletin* for May, 1909. In this paper she reports one hundred and eighty-seven cases in children below the age of sixteen treated in the woman's venereal department of the Johns Hopkins Hospital Dispensary, and states her belief that the infection in these cases is never accidental. The writer draws attention to the characteristic lesions of the infant hymen after rupture, and points out that carunculæ are never formed, these being merely serrations on the free border with little or no bleeding. The ruptured hymen in the young child, she says, is characteristic, and when it has once been seen will always thereafter be recognized. It is on the strength of this testimony that she bases her conviction regarding the mode of infection in young girls.

The infecting individuals, the author believes, should be divided into two classes, the sadists, or sexual perverts, and the "infectionists." This second class has its origin in the very common superstition that a person infected with either syphilis or gonorrhea may get rid of it by infecting another, and preferably an untouched virgin. Such a superstition may well account for the otherwise inexplicable brutality of certain of the cases which come to one's notice in pediatric clinics and appear in the juvenile courts, cases which two years ago aroused such a fury in the East Side of New York that a man offering a child a piece of candy in the street did so at the risk of his life. If this false belief is the source of the infection in any considerable number of the cases active steps should be taken to prevent it. For the perverts, who indulge in the act in moments of excitement and as a result of a disordered brain, the State hospitals would seem to be the proper abode. As to dealing with the "infectionists," those who in cold blood willfully infect a young child in order to relieve their own ills, long terms in the penitentiary would seem to be indicated. However, the incarceration of the criminal, who is rarely apprehended, is but a poor method of protecting the child, and if such a superstition prevails among the lower classes, as Pollack suggests, a campaign of education should be taken up to eradicate this dangerous belief. It might be well to make it a routine practice in the genitourinary clinics to inquire of each patient whether he had ever been indoctrinated with this villainous superstition and to emphasize that the putting of its teachings into practice would not cure but aggravate his own disease.

How widespread such a belief may be we are unable to say, or what proportion of cases of venereal infection among infants is caused by the sadists and the "infectionists" we do not know. Valuable however as is Pollack's paper, we are sure that she is in error in believing that all, or even the majority, of cases of vaginitis in infants are due to direct infection from a man in the natural way. Those who have worked much in children's clinics continually see cases of vaginitis in young girls in which the condition of the hymen precludes positively any sexual act. Then again the frequency of the spread of the disease in hospitals and its common occurrence in the day nurseries suggest that gonococcus vaginitis is transmitted not only by direct contact, but indirectly as well. However, if only a small proportion of the cases belong to the classes of which Pollack speaks, the frequency of the disease in the large cities (the author estimates that there are 800 children under fifteen years of age infected annually in Baltimore alone) makes her communication one of exceptional interest and value.

TYPHOID BACILLURIA.

There are two great factors in the prevention of the spread of such an infectious disease as typhoid fever—one dealing with the sanitary and hygienic measures to be devised for the protection of our food and water supply from the organisms causing the disease, the other concerned with the cure and such management of the individual patient as to make of him a source of least possible danger to others. The latter factor used to be considered from the standpoint of isolation during the actual disease alone, but recently the discovery of the fact that the convalescent or cured patient may harbor and distribute virulent organisms for a long time after his sickness has compelled a reconsideration of the whole matter. One phase of the danger existing in many convalescent or cured patients, namely, typhoid bacilluria, is very instructively discussed by Karl Connell in the *American Journal of the Medical Sciences* for May, 1909. The author's studies have shown that typhoid bacilli are present in the urine in about one-quarter of all typhoid patients, occurring in enormous numbers about the time the temperature falls to normal and continuing for several weeks after this time. This phenomenon is in most cases unaccompanied by any subjective symptoms, the appearance of the bacilli being simply a part of the process of elimination of the organisms from the body for which they are no longer virulent. This very absence of symptoms makes the presence of the bacilli dangerous for others, for many precautions against the spread of the disease are sure to be related during convalescence or after the patient has quite recovered.

There is no doubt, however, that these bacilli are virulent for other persons and it seems imperative to treat the bacilluria in order to limit the spread of the disease. Connell reviews the numerous methods proposed with this purpose in view, and concludes that the best treatment is the use of hexamethylenamine. Ten to thirty grains a day of this drug for the week preceding and the two weeks following the fall to normal temperature seems quite sufficient to control the bacilluria in most cases. Often, however, the bladder itself is infected and the resulting lesion is best treated by daily irrigations with weak silver nitrate solutions or with other antiseptics. In rare cases chronic ulcerative inflammation of the bladder cystotomy and drainage may be required. Hexamethylenamine has proved to be quite a safe drug, though vesical tenesmus and pain over the kidneys with the appearance of blood in the urine may be produced by using large doses. Smaller doses, however, may be safely continued for a very long time until the desired effect on the urine has been obtained.

DELAYED CHLOROFORM POISONING.

It is well known that administration of chloroform as an anesthetic carries with it certain dangers involving parenchymatous changes in the liver. In a number of fatalities on the operative table, subsequent autopsy has shown hepatic degeneration simulating acute yellow atrophy. The possibility of such an outcome has deterred many surgeons from allowing the use of chloroform in their operative work although no other contraindication presented itself. Writing in the *Archiv für Gynäkologie*, Vol. 68, No. 1, A. Sippel, under caption of "A Typical Clinical Picture of Tardy Death from Chloroform," reports a case of his own, and reviews the forty articles he has found in the literature. He notes that in nearly all reported cases marked interference with the systemic blood current was brought about by the surgical procedure, and believes that certain toxins were thus produced which had a special injurious action on the hepatic parenchyma.

Sippel's case was that of a young woman, seemingly healthy, save for some tendency to chlorosis, who inhaled about sixty grams of chloroform given by a skilled anesthetist. No other anesthetic was combined with the chloroform. All went well until the following day when the patient became restless, vomited, and showed the evidences of circulatory disturbance by a soft rapid pulse. The abdomen was flat and not sensitive, save in the liver region where some tenderness was elicited. The eyes were slightly jaundiced. There was much albumin in the urine, and the patient manifested the stupor of eclampsia. Vomiting, jaundice, and failing heart became more pronounced and the woman died within sixty-eight hours after the abdominal section. Autopsy showed marked fatty degeneration of the liver without peritonitis or other evidences of inflammation or of infection at the site of operation.

It seems important in all cases in which chloroform is about to be administered to make not only the ordinary uranalysis for albumin, sugar, and casts, but also to determine the amount of urea, and to make an estimation of the proper glycogenic capacity of the liver, inasmuch as glycogen is such an important factor in burning up fat. To this end, Sippel holds, carbohydrates should be supplied long enough before the surgical attack to insure ample production of glycogen when most needed, that is to say when the liver is trying to throw off the excess of chloroform plus any toxic agent present in the blood as the result of the lesion. Rosenfeld's brilliant researches on the glycogenic function of the liver and its importance to the life and health of the individual are of great practical value and should always be kept in mind in general surgical work which is not of the acute emergency type.

Marriage by the Subjects of Cardiac Disease.

The question of the legal regulation of marriage in cases of hereditary disease, of insanity, or other form of disability is one of the live questions of the day. It would seem that an intelligent public would be trusted to handle such a matter, since it is a question of the health of their descendants. Unfortunately, the public is neither well-informed on the subject of heredity nor willing to be so informed by the family physician, when it becomes a question of the selection of a life partner. The contracting parties are much more interested in matters of the heart concerning themselves than

in the health of their offspring. They have a blind confidence that fate will not mete out to them the ills that have come to others, and that a gracious Providence will make an exception of their particular descendants, and they feel much concern when the very evils that the family physician could have predicted befall their children. Louis Rénon, in the *Gazette des Hôpitaux*, for March 18, 1909, takes up the question of whether persons who have cardiac disease should be prohibited from marrying. He says that the question differs with the sex of the person. There is practically no danger to the man in most forms of cardiac disease, since the regulation of his life by marriage is rather of benefit to his heart condition. The question of the probable inheritance by the children of his disease depends on the form of disease, cardiac sclerosis, interstitial nephritis, and aortic disease being frequently inherited. Cardiac valvular troubles are probably not inherited. The mother is the parent whose cardiac condition is subjected to extra strain by pregnancy, labor, the puerperal state, and lactation. There is danger that the fetus will die during pregnancy or labor, or survive with a cardiac difficulty. The dangers to the mother are of two kinds: cardiac insufficiency, and acute pulmonary edema. Cardiac insufficiency is manifested toward the end of the first half of pregnancy by dyspnea, violent palpitation, and repeated hemoptysis. Acute pulmonary edema occurs toward the end of pregnancy or during labor, is accompanied by asystole, and ends in death before delivery. In severe cases of heart disease and in young subjects marriage should be forbidden. Changes in arterial tension give an important indication, hypertension or hypotension both being unfavorable conditions if continuous. In all other cases the woman may go on to a successful end of pregnancy. A cardiac should not marry another cardiac, nor a near relative. The social position of the woman is important, since if she is able to lead an easy life the prognosis is better than in a working woman. Precautions should be taken in case of such marriages during pregnancy to protect the mother against extra strain. Her nutrition and the kidney condition should be carefully watched, and from the end of the fourth month of pregnancy the patient should have rest and avoid all fatigue. A slow labor should be hastened by version or forceps. Thus, Rénon says, we may hope to conduct the pregnancy to a successful issue.

Dangers of the Bier Treatment.

Since the first publication by Bier of his method of treating acute and chronic inflammation by passive hyperemia this therapeutic agent has received many adherents. As frequently happens, however, in other cases, the results obtained by the author of the method and those specially trained by him are not always equaled by others who attempt the procedure without sufficient practical experience. In an article in the *Deutsche medizinische Wochenschrift* for May 13, 1909, Arthur Schaefer shows that there may be danger in artificial hyperemia even when it is properly induced. The author has had extensive experience with the method, and his early scepticism due to failures was replaced by enthusiastic support after a visit to the Bonn clinic, where he learned to use the apparatus properly. He however reports a case as an example of one of the dangers of the method. The case was that of a man who, following an injury, had a severe phlegmon of the arm. The application of the bandage was followed by immediate relief of pain and fall of temperature. However, the marked edema caused by the pressure concealed for several days the presence of a periosteal abscess which was thus allowed to advance much farther than it otherwise would have done. After incision and continued hyperemia the wound slowly healed, but a radial paralysis developed. The author, thinking that the pressure of the bandage might be causing this, removed it, but a sudden exacerbation of pain compelled him to apply it again in a few days. The paralysis progressing, an exploratory incision was made over the radial nerve. It was found that the paralysis was not due to pressure but to a neuritis and the firm adhesion of the nerve to the site of the old periostitis. The author believes that if he had removed the compression at the first signs of paralysis, and had not been led astray by the relief of pain, he might have prevented, or at least arrested, the progress of the trouble. This case shows that artificial hyperemia is not the panacea which some seem to consider it. Bier himself urges great care in diagnosis and selection of cases for treatment, and this cannot be too strongly insisted upon. The treatment is certainly of value and can be applied in a private office or in an out-patient department as well as in the hospital wards, factors which make it of great practical use. Enthusiasm, however, should not be allowed to carry one to the extent of carelessness. Passive hyperemia is an important and valuable therapeutic aid, but, like every other good thing, it is capable of much harm if improperly used.

News of the Week.

New York Death Rate.—For the week ending May 29, there were 1,333 deaths in New York, two less than in the corresponding week of last year, the rate being 15.23 per 1,000, as against 15.75 for 1908. There was a slight decrease in the mortality among infants, and in the deaths from pneumonia and pulmonary tuberculosis. For the week ending June 5, the showing was less favorable, there being an increase of 183 deaths for the week, as compared with the corresponding week a year ago. The total of deaths for the week was 1,405, with a death rate per thousand of 16.06. The diseases showing increases are measles, diphtheria, heart disease, pneumonia, and tuberculosis.

Cholera in St. Petersburg.—On June 5, twelve positive and five suspected cases of cholera were reported in St. Petersburg. The outbreak is ascribed to carelessness in drinking water from the River Neva without first boiling it.

Investigating Plague.—Dr. Grubbs of the American Quarantine Service at Porto Rico, and Assistant Surgeon W. H. Kellogg of the U. S. Public Health and Marine Hospital Service have gone to La Guayra to investigate the bubonic plague conditions in Venezuela.

Pollution of New York Bay.—The Government of the United States has petitioned the Supreme Court for a perpetual injunction restraining the Bronx River Sewage Commission of New York from permitting the discharge of the sewage from the district comprising the valley of the Bronx River into the Hudson River. The petition recites that the Bronx Valley sewer as at present planned will allow the discharge of the sewage of a region, which

in a short time is expected to have a population of 850,000, into the Hudson River, "untreated, and without screening, clarification, or sedimentation." The plan has been opposed by a number of associations interested in the protection of the waters of New York, and is condemned by the State Commissioner of Health. A similar petition was filed a short time ago by the State of New York against the State of New Jersey in the case of the disposal of the sewage from the Passaic Valley.

New Tuberculosis Hospital.—The Central Federation of Labor of Brooklyn has made application to the State Commissioner of Health for permission to construct and operate a hospital for the treatment of cases of tuberculosis in Suffolk County. The Commission held a public hearing on June 11, the local health officers and the Board of Supervisors of the county being in attendance.

Philadelphia Hospital for Contagious Diseases.—The new Philadelphia Hospital for Contagious Diseases, erected on the outskirts of the city, on a 58-acre plot of ground, at a cost of $1,583,800, was opened on June 1. It consists of an administration building, storehouse, nurses' home, exit building, refectory building, building for private patients, four public ward buildings, receiving and observation ward building, all connected by an open corridor. These buildings, exclusive of the administration and storehouse buildings, are intended for the accommodation of scarlet fever patients. It is contemplated in the near future to erect a further group of buildings on the same general plan for the accommodation of diphtheria patients. There are besides six buildings intended for isolation, and it is contemplated building six more of the same kind in connection with the diphtheria group. There is now also a building intended for smallpox patients, but for the present it will be devoted to diphtheria patients. When the buildings for the latter are erected, this building will be used for measles patients. There is in addition a power plant, laundry, employees' kitchen and dining-room buildings, garage, and stables.

Farm at Bellevue.—A garden plot has been opened on the grounds of Bellevue Hospital for the tuberculosis patients who spend their days on the old ferryboat Southfield, anchored in the East River. The patients are to be allowed to raise vegetables of various sorts. Twenty smaller plots will also give the children an opportunity to raise flowers.

Gifts to Charities.—The will of the late Mrs. Margaret J. P. Graves, who during her lifetime had made generous gifts to the hospitals of New York, bequeaths to St. Vincent's Hospital, $25,000; to the New York and Mt. Sinai Hospitals, $10,000 each; to the Presbyterian Hospital, $10,000 for general purposes and $10,000 for the maintenance of an emergency ward; to the New York Infirmary for Women and Children, $10,000; to St. Luke's Hospital, $20,000 to be used for work under the direction of the medical board, and $10,000 for the care and treatment of crippled children; to the Society for the Relief of the Ruptured and Crippled, $10,000. Mrs. Graves was the donor of the Margaret J. Plant Pavilion for private patients at St. Luke's Hospital.

A number of institutions benefit under the will of the late Mr. F. J. Walgering of New York. $5,000 each being left to St. Francis' Hospital, St. Joseph's Hospital for Consumptives, St. Vincent's Hospital, Presbyterian Hospital, German Hospital, St. Catherine's Hospital, Brooklyn, and St. Gabriel's Sanitarium at Paul Smith's.

The will of the late Sebastian Lawrence of New London, Conn., sets aside $100,000 for the erection of a free hospital in that city, and $400,000 as an endowment fund for its support.

By the will of the late John G. Brill of Philadelphia, the sum of $5,000 is bequeathed to the White Haven Sanatorium for Tuberculosis Patients.

By the will of the late Lizzie D. Chidester of Philadelphia, the sum of $3,000 is bequeathed to the Wills Eye Hospital.

Vital Statistics in France.—During 1908 there were in France 46,441 more births than deaths. These figures are in marked contrast to the statistics for 1907, when the excess of deaths over births was 19,892, a result which caused the most pessimistic predictions as to the future of the French race. In 1908, as compared to 1907, there was a decrease in deaths amounting to 48,266, while births increased 18,067.

The Rockefeller Institute for Medical Research.—At a meeting of the board of directors of this institute, held on May 29, the following promotions and appointments were made: *Associate,* Paul A. Lewis (Pathology); *Assistant,* F. Peyton Rous (Pathology); *Scholar,* Angelia M. Courtney (Chemistry).

Columbia Bestows Degrees.—The commencement exercises of Columbia University were held on June 2, in the gymnasium, over eleven hundred students receiving degrees. The College of Physicians and Surgeons graduated eighty students, to whom the Hippocratic oath was administered by Prof. John G. Curtis. The Alumni Association Fellowship in Anatomy was awarded to Dr. Herman von W. Schulte, and that in Physiology to Dr. Daniel R. Lucas. The Alonzo Clark Scholarship was awarded to Dr. Augustus B. Wadsworth of the Department of Bacteriology, the Proudfit Fellowship to Dr. Edwards A. Park, and the Cartwright Prize of the Alumni Association to Dr. Samuel O. Mast.

New York University.—Seventy-four students were graduated from the University and Bellevue Hospital Medical College, the medical department of New York University, on June 2. The University also conferred the honorary degree of Doctor of Laws on Dr. Hermann M. Biggs, Professor of Clinical Medicine in the University and General Medical Officer of the Board of Health of the City of New York.

Graduation of Nurses.—The graduating exercises of the Provident Hospital and Training School for Nurses was held June 3. Seven nurses received diplomas. President George H. Webster delivered an address on the work of the year.

The Chicago College of Physicians and Surgeons Alumni Association held its annual meeting June 4, at which the following officers were elected: *President,* Dr. C. E. Humiston; *First Vice-president,* Dr. C. W. Harrison; *Second Vice-President,* Dr. Jeffrey Fleming; *Secretary,* Dr. P. H. Holmes.

Hospital Schools.—The Department of War will maintain three hospital schools during the coming summer, one at Sparta, Wis., from July 15 to 23, another at Antietam, Md., and a third at San Francisco.

The International Congress of Applied Chemistry which has been in session in London has

accepted the invitation presented by Ambassador Reid to hold its next convention in Washington. The date will be May, 1912.

American Gastroenterological Association.—At the twelfth annual meeting of this society, held at Atlantic City, June 7 and 8, 1909, the following officers were elected for the ensuing year: *President,* Dr. Julius Friedenwald, Baltimore; *First Vice-President,* Dr. W. B. Cannon, Boston; *Second Vice-President,* Dr. John A. Lichty, Pittsburg; *Secretary and Treasurer,* Dr. Charles D. Aaron, Detroit.

American Dermatological Association.—At the thirty-third annual meeting of this society, held in Philadelphia on June 3 to 5, 1909, the following officers were elected for the ensuing year: *President,* Dr. William Allen Pusey, Chicago; *Vice-President,* Dr. Grover William Wende, Buffalo; *Secretary and Treasurer,* Dr. James M. Winfield, Brooklyn. The next meeting of the Association is to be held in Washington, D. C., in May, 1910.

The Connecticut State Medical Association concluded its 117th annual meeting at Hartford on May 26 and 27, by the election of the following officers: *President,* Dr. Samuel D. Gilbert, New Haven; *Vice Presidents,* Dr. Decodore R. Parker, Williamantic; Dr. William J. Tracey, Norwalk; *Secretary,* Dr. Walter R. Steiner, Hartford; *Treasurer,* Dr. Joseph H. Townsend, New Haven; *Committee on Scientific Work,* Dr. George Blumer, New Haven; Dr. F. W. Wright, Bridgeport, and Dr. Walter R. Steiner, Hartford.

The American Pediatric Society, at its twenty-first annual meeting in Lenox, Mass., on May 28, elected the following officers: *President,* Dr. D. L. Edsall of Philadelphia; *First Vice-President,* Dr. E. W. Saunders of St. Louis; *Second Vice-President,* Dr. D. J. Milton Miller of Atlantic City; *Secretary,* Dr. Samuel S. Adams of Washington, D. C.; *Treasurer,* Dr. Charles H. Dunn of Boston; *Editor,* Dr. L. E. La Fétra of New York.

The Kansas State Medical Society held its forty-third annual meeting at Wilson during the third week of May. Topeka was selected as the place of meeting for next year, and officers were elected as follows: *President,* Dr. O. J. Furst, Peabody; *First Vice-President,* Dr. T. F. Foncanon, Emporia; *Second Vice-President,* Dr. Walthall, Parsons; *Third Vice-President,* Dr. J. P. Kaster, Topeka; *Treasurer,* Dr. L. H. Munn, Topeka; *Secretary,* Dr. C. S. Huffman, Columbus.

The Nebraska Homeopathic Medical Society, at its annual meeting in Omaha, on May 20, elected the following officers: *President,* Dr. F. A. Marsh of Seward; *First Vice-President,* Dr. F. F. Teal of Omaha; *Second Vice-President,* Dr. W. K. Foote of Omaha; *Corresponding Secretary,* Dr. F. S. Whitman of Omaha; *Recording Secretary,* Dr. R. C. Bowie of Table Rock; *Treasurer,* Dr. O. S. Wood of Omaha.

The Tennessee Medical and Surgical Association closed its annual meeting at Jackson on May 21. The elections for the ensuing year resulted as follows: *President,* Dr. Frank Jones of Memphis; *Vice-President,* Dr. S. A. Walker of Trenton; *Secretary,* Dr. I. A. McSwain of Paris.

The Portland (Ore.) City and County Medical Society, at its meeting on May 19, elected the following officers for the ensuing year: *President,* Dr. Alan Welch Smith; *Vice-President,* Dr. A. E. Rockey; *Secretary,* Dr. George S. Whiteside; *Treasurer,* Dr. S. H. Sheldon; *Board of Councillors,* Dr. J. A. Pettit, Dr. Ben Norden, and Dr. L. H. Hamilton.

The Davison County (S. D.) Medical Society, at its annual meeting at Michell, on May 25, elected Dr. C. A. Howard of Ethan, *President,* and Dr. E. F. Reamer of Michell *Secretary and Treasurer.*

Jefferson Medical College Alumni.—The New England Association of the graduates of this college held their fourth annual meeting and banquet in Hartford, Conn., on May 26, and elected the following officers: *President,* Dr. A. S. McKnight of Fall River, Mass; *Vice-President,* Dr. John T. Farrell of Providence, R. I.; *Secretary,* Dr. A. MacOdrum of Cambridge, Mass.; *Treasurer,* Dr. W. N. Thompson of Hartford.

Sir Charles Wyndham, the English actor who is playing a brief engagement in New York at the present time, was graduated as a physician, and served, it is said, as assistant surgeon in the Federal Army during the Civil War.

Mrs. Anna Eliza Hubbard, a widely known nurse during the Civil War, died recently at her home in Chicago, aged eighty-five years. Mrs. Hubbard was appointed a special agent to inspect hospitals, by the New York State government, and served throughout the war.

Obituary Notes.—Dr. Henry C. Keenan of Brooklyn, N. Y., died on June 1, in the Cumberland Street Hospital from the effect of injuries received by being thrown from his carriage. While on his way to make a professional call the horse which he was driving became frightened at a passing automobile and overturned the carriage. Dr. Keenan, who was thirty-six years old, was graduated from the College of Physicians and Surgeons, New York, in 1895. He was a member of the Brooklyn Gynecological Society, the Brooklyn Pathological Society, the Brooklyn Medical Society, the Alumni of St. Mary's Hospital, and the State and county societies. Dr. Keenan was also assistant gynecologist to St. Mary's Hospital and to St. Mary's Female Hospital.

Dr. Durell Shepard of West Haven, Conn., died on May 17, at his home, aged seventy-seven years. Dr. Shepard was graduated from Yale Medical School in 1864, and had practiced in West Haven for forty-three years. He was a veteran of the Civil War, and a member of the American Medical Association and the State and County Medical societies.

Dr. Arthur B. Smith of Chelsea, Vt., died after a brief illness at his home on May 17, aged fifty-seven years. Dr. Smith was graduated from Dartmouth Medical College in 1874, and had practised in Vermont since that time.

Dr. Floriman J. Taylor of Pittsfield, Me., died after a short illness on May 24, aged fifty-four years. Dr. Taylor was graduated from the Rush Medical College of Chicago in 1881, and was for some time on the Board of United States Pension Examining Surgeons for Somerset County.

Dr. Charles Ellery Stedman of Brookline, Mass., died at his home on May 24, aged seventy-eight years. Dr. Stedman was graduated from the Harvard Medical School in 1855, and from 1861 to 1865 served as assistant surgeon in the United States Navy. He was a member of the Massachusetts Medical Society, the Dorchester Medical Club, and the Boston Obstetrical Society.

Correspondence.

CHLOROFORM ANESTHESIA.

To the Editor of the Medical Record:

Sir:—I have read with much interest the "Administration of Anesthetics," by Dr. H. J. Boldt, in your issue of May 29. It is one of the most practical and satisfactory papers that I have ever read on that subsubject, which certainly is one of vast importance to the patient and to those who operate. He says: The "detail of the methods of administering, etc., is, I believe, understood, at least in theory, by every physician." This may correct as to theory, but it is certainly not as to practice, as regards chloroform. The best way to give chloroform is beyond question the drop method, if this method is understood. I have never seen it practised properly, as I view it, and during my professional life I have seen many good operators, at home and abroad. It requires more than an Esmarch's inhaler and a drop bottle to properly use the "drop method." The inhaler must be placed and held properly and the anesthetic dropped properly.

Text books advise the operator to pour the anesthetic on the inhaler, and then gradually approach this to the face, or, the inhaler being on the face, to pour a number of drops on the mask, then stop awhile, and resume again, and so on irregularly. Thus given, the dose is irregular, the amount of vapor inhaled is irregular and uncertain, consequently the effects produced must be irregular and uncertain.

How can the dose be regulated, and the amount of vapor inhaled be regulated, and the amount of air always be sufficient and regular? By covering an Esmarch inhaler with two to four thicknesses of gauze and putting it well down over the nose and mouth, in a fixed position, and keeping it there. It will be found that normal breathing is easy, for air is sufficient. That is first. Now we want to fill that sufficient amount of air with enough anesthetic vapor to anesthetize the patient. This is done by dropping, slowly at first, regularly and rhythmically, drop by drop, the anesthetic on the place where the bars of the inhaler cross, and nowhere else on the inhaler, because this will give a fixed point from which evaporation takes place to mix with the inspired air. The amount of vapor the patient receives is thus regulated by the slowness or rapidity of the dropping, and the dropping is slow or fast, as the effect on the patient is produced, which can be gauged nicely if carefully and cautiously watched and dropped, for we know how much we drop and can be reasonably sure of how much the patient inhales; for the source of air supply is sufficient and fixed, the source of vapor supply is always from the same point, and the dosage is regulated by the drops that are given. If there is reason for suspending the anesthesia, remove the mask entirely, and to resume it begin again as at first. To do this requires the constant, continuous and undivided attention of the anesthetist.

I have always used chloroform, and think it the best of all anesthetics, and this opinion is based on the experience that a fairly active surgical practice in a village has brought me. I have never had any accidents. They may come.

My environment has made necessary many different anesthetists. All anesthetics are dangerous. Every anesthesia is accompanied with danger. It is always a source of anxiety. In college I was taught to give a hypodermic of ¼ gr. morphine before many anesthesias, and after the operation, if a major one. I have nearly always followed this practice. Of late I have added to the morphine 1-100 hyoscine hydrobromate (never more than one dose) half an hour before the operation, and I have thought with benefit in helping to a quieter anesthesia and requiring less of the anesthetic.

T. M. McIntosh, M.D.

Thomasville, Ga.

To the Editor of the Medical Record:

Sir:—In Dr. H. J. Boldt's paper on the administration of anesthetics in the Medical Record for May 29, he mentions several deaths occurring on the table where preliminary morphine and scopalamine anesthesia was used. Where chloroform is used, morphine is dangerous, as it renders the respiratory center less irritable, and chloroform kills by respiratory failure. Previous to ether, morphine is not dangerous; in fact, gives a smoother narcosis, with less ether. Dr. Boldt's remarks on leaving the cornea alone, that the anesthetist should tend strictly to his business and not watch the operation, and that alcohol is too near a relative of ether to be used as a stimulant in too deep ether narcosis, should be emphasized.

If the anesthetic, whether it be ether, chloroform, the A.C.E. mixture, or what not, that is most suited to each case is used, the danger will be much less, for there can be no routine choice for every case.

Thomas G. Sloan, M.D.

South Manchester, Conn.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RADIUM AT THE ROYAL SOCIETY OF MEDICINE—QUESTIONS AS TO UTERINE CANCER—MEDICAL SOCIETY OF LONDON, ANNUAL MEETING—ST. BARTHOLOMEW'S PATHOLOGICAL LABORATORIES—OBITUARY.

London, May 21, 1909.

There was a crowded meeting last evening at the Royal Society of Medicine to hear Dr. Louis Wickham, of the Paris Radium Institute, deliver an address on the treatment of cancer and other diseases by means of radium. The Lord Mayor was present as a visitor and Dr. Radcliffe Crocker occupied the chair. Dr. Wickham said that mostly when the curative property of radium was mentioned there arose in the mind of inquirers the idea of cauterization or burning with inflammatory reaction and destruction of tissues. He had found these effects were followed by repair; hence radium was a very valuable therapeutic agent. From this standpoint it had a far greater sphere of usefulness than many supposed. Dr. Wickham showed on lantern slides the results of some experiments in Paris hospitals. One pictured the four stages of treatment in a case of cancer on the face, which was cured in thirty-five days. Respecting mammary cancer, he submitted an epitome of results obtained by his co-workers and himself.

In replying to a cordial vote of thanks, the lecturer said it was very pleasant to think that the advance made in the study of radium was in a larger measure due to the interest shown and the support given by England's great King.

On Friday last there was a good exhibition, including some radium cases, in the Clinical Section of the society. Dr. T. S. Wilson showed three colored projection drawings of the brain, illustrating the relation of its internal structures to the convolutions. They had been prepared by photographing serial sections, cut through a hardened brain and afterward drawing them to scale. The design was to assist surgeons in cerebral operations, the idea being to show the parts as if the brain were transparent.

Dr. Finzi showed a case of inoperable scirrhus cancer of the breast under treatment by radium. The growth appeared eight years ago and three years ago the breast was removed, but the tumor recurred. It was improved by x-rays, but then neglected, with the result of rapid growth. Radium (bromide) was begun March 10; the tube method for 53 hours, the position of the tube being altered once. On March 12 it was used in the axilla for 41 hours. April 2 the tumor had almost disappeared; but one nodule remained, and the treatment was resumed on April 29 for 26 hours.

Dr. Finzi also showed a case of epithelioma of the lower lip, which started as a pimple fifteen or sixteen years ago. The last eight or ten months growth increased. There were enlarged glands under the jaw, larger on left side. Radium was begun March 21. Epilation was noticed on April 29 about the neck, and on the left side of upper lip on May 5. There is now improvement both in the growth and the glands. Dr. Watson testified that this growth had got smaller, as proved by careful measurements, and that operation would now cause less mutilation than would have been the case when the patient was admitted to the hospital. Mr. Godlee asked whether the tube plan was better than the applications spread out. Dr. A. H. Pirie said radium lost power if spread out too much. Mr. Pearce Gould said both cases were chronic and the severity in the second seemed greater than the exhibitor supposed. There seemed no actual cicatrization of the ulcer. Dr. Shaw said under the microscope there was no change in the cancer cells, but an in-

crease in the round-celled exudation, and no true scar formation on the surface. Mr. W. G. Spencer hoped epithelioma of the tongue would not be subjected to radium. He had seen a case in Paris which developed large cystic glands, encapsulated by malignant growth, and in his opinion so made much worse. Dr. Finzi, replying to the remarks reported above, said the tube was necessary for deep structures, but not for cutaneous cases. Decrease in the growth was certain and could not be due to less blood supply, as the opposite state was present. True cicatrization was not produced by radium, but a film was formed and under that healing took place.

Questions connected with uterine cancer have for a long time been anxiously discussed by gynecologists and obstetricians, as well as by the societies devoted to these subjects. At the 1907 meeting at Exeter the Section of the British Medical Association proposed a committee to consider the best means of promoting the earlier recognition of the disease, and the suggestion was further approved at last year's meeting at Sheffield. In anticipation of the approaching meeting a report of the committee has been prepared, which takes the form of an appeal to practitioners and another to midwives and nurses, and these appeals have been widely distrubted. The latter is naturally the more simple and may possibly be the more effectual, though it will have to meet much prejudice, especially among the more ignorant women. It starts by telling them with the emphasis of italics that cancer of the womb can be cured by operation when recognized early and reminds them that they often hear of some ailment before the doctor. It adds that cancer may occur at any age, in a woman who looks quite well and who may have no pain, discharge, or bleeding. At the same time it urges any nurse or midwife who is told of any irregular bleeding or discharge, slight or abundant, at any age, should insist on the doctor being informed without any delay, so that he may make an examination betimes and perhaps a valuable life be consequently saved.

The address to medical practitioners is a much more elaborate document and emphasizes their duties in a positive—not to say dogmatic—manner. But as the recommendations express the views of acknowledged experts, they are sure to be received with the consideration due to the importance of the subject. The curability of uterine cancer by operation in the early stage is the first point and the possibility of success in cases formerly thought inoperable has been shown since the adoption of the abdominal route. It is hoped that the number of cases seeking advice too late will be less and less as the knowledge of surgical resources becomes wider spread. The document asserts that the disease is at first local and often curable; that operation is the only satisfactory treatment and the earlier done the better the prospect and the risk is slight; that it is a grave error to omit physical examination in a case of suspicion and unjustifiable to delay or to treat by medicine in order to observe, as a diagnosis can be and ought to be cleared up in a few days. The symptomatology, types, position, mode of examination, and microscopical investigation are laid down. If the conclusion should be favorable, the patient will be reassured. Otherwise operation should be urged, its details being left to the operator. To sum up, the distinct duty of the practitioner is in every suspicious case to inform the patient of the necessity of examination, to make a definite diagnosis without any delay and if cancer be present to urge immediate operation.

The Conversazione of the Medical Society of London on Monday evening was very successful, as it usually is, and there was a large gathering of eminent men. Mr. C. B. Lockwood received the guests at the society's rooms in this, the 136th, session of the old institution. After the reception the annual oration was delivered by Dr. H. D. Rolleston of St. George's Hospital. He discussed pretty fully the branches of medical practice and intimated that the time was come for a somewhat different division of work. At present the physician, when he had formed a diagnosis, in many cases had to transfer the patient to a surgeon to treat him. It could very well be argued that this was absurd. On the other hand, it might be said that this was the natural development toward specialism. Be that as it may, the orator held that specialism would be more marked in the future and urged the importance of a thorough education in all departments before confining oneself to a specialty.

The orator also had something to say [illegible] more clinical kind. He spoke of diseases due to treatment, instancing the dermatitis of *x*-rays and its analogy to sunburn, Kaposi's disease, and squamous-celled carcinomata. The pathological effects of horse serum were equally interesting, for though they were usually trivial they are in rare cases serious, and have in fact been fatal in eighteen or nineteen recorded cases. Hypersensitiveness in connection with the injections of various vaccines was also cited and regarded as an important factor underlying the reaction of the several tuberculin tests. The idiosyncrasies displayed by some persons in regard to diet might be related to these manifestations.

St. Bartholomew's Hospital is passing through something like a financial crisis. This you may say is too often the case with hospitals. Barts, however, has a special claim on the city—from its position and also from its history—a claim which the city magnates have never been slow to admit. So again on Friday last the Lord Mayor laid before them the needs of their hospital and read a letter from the Prince of Wales, who as president had written to express his anxiety that some step should be taken in the matter. The debt stands at present at about £170,000 and the expenditure exceeds the income by some £12,000. The Convalescent Home costs only about £3,000 a year, so that its closure would not restore the balance. The Masters and Wardens of the city companies who had responded to the Lord Mayor's invitation to be present promised to put the case before their several courts. The Mercer's company had already promised £500.

Just a week previously the Lord Mayor opened the new Pathological Building, six stories high, which is equipped with all that is necessary to all branches of pathological investigation. The funds for this have been chiefly supplied by the friends of the school, but some supporters of the hospital have also assisted. Besides the accommodation for research, provision is made to facilitate the work of coroners and juries and the visits of friends of the deceased, as well as a mortuary for preserving the bodies, and of course a complete post-mortem department. There is also a communication with the museum, library, school, and out-patient department. A pathological clerk is appointed for each member of the hospital staff and every one of these clerks is provided with accommodation for his work separately from his colleagues, so that the clinical work for the staff will always be available and other investigations can be carried out without interruption. The provision for tutorial instruction is also complete.

Dr. Percy Boulton died on the 15th inst after a long illness, in his sixty-eighth year. He was M.D. Edin. 1862 and practised for a time in the provinces, but came to London in 1865. In 1878 he joined the College of Physicians. He was physician to the Samaritan Hospital for about thirty years and on resignation was elected consulting physician. He was an active member of the Obstetrical Society and for six or seven years editor of their Transactions. He was vice-president 1890-92. His contributions were mostly to the society, but he also edited an edition of Tanner's Index.

The death is announced at Las Palmas of Dr. Edward George Whittle, aged fifty-nine, who practised many years at Brighton and was president of the Medical Society there and surgeon to the Alexandra Hospital for Children. He was M.D. London and F.R.C.S. Eng.

Lieutenant-Colonel James Wilson, of the R.A.M.C. (retired) died on the 15th inst in his seventy-fourth year.

OUR LETTER FROM THE PHILIPPINES

(From Our Regular Correspondent.)

THE SANITATION OF MANILA—LEPER SEGREGATION—SMALLPOX—FILIPINA NURSES—NEW LEGISLATION—THE PLAGUE.

Manila, P. I., April 10, 1909.

THE conclusions of the Manila Merchants' Association, based upon evidence which they collected, that the unsanitary conditions which the local health officials have repeatedly brought to the attention of the Municipal Board for the purpose of having them corrected, were largely responsible for much of the cholera that has been present in Manila during the past few

years, had a most decided effect upon public opinion, and no doubt induced the Governor-General of the Islands to appoint a committee for the purpose of studying and making recommendations upon the following points:

1. The location and extent of residence districts of the city of Manila which are swampy in character or overflowed during the rainy season.

2. The cost of draining such districts, or if that be impracticable, the cost of raising them to a level which will make them sanitary and fit for residence purposes.

3. The location and extent of areas which are so unsanitary as to make it inadvisable that they should continue to be occupied for residence purposes until they are drained or filled in.

4. The cutting of streets and alleys through congested unsanitary areas, and providing sanitary sites for nipa shack dwellers forced out of the strong material districts; and

5. Whether the expense of the draining or the filling in of swampy, overflowed, or low-lying districts or areas should be paid for by the property owners or by the municipal government. In case the expense is to be paid by the municipal government, can this expense be met out of current revenues, or will it be necessary to impose a special tax for that purpose?

This committee has now commenced to hold regular sessions, and although sufficient time has not yet elapsed to complete the main part of its work, yet its influence upon local sanitary conditions is already quite noticeable and many sanitary reforms are receiving the attention of the Municipal Board which have remained unnoticed in the past. Large tracts of ground have been set aside by private individuals, the Catholic Church and the Government, which are rented free for the first six months, and only a nominal rental to be charged thereafter. To these sites more than 700 houses, in which over 3,000 persons resided, have been removed from low, unsanitary sites. The new sections are traversed by wide streets and alleys, and have drainage and water systems. They are therefore accessible to the sanitary carts, so that garbage and rubbish can be readily removed and proper toilets installed. The houses on the sites which were abandoned were not built on street lines; in fact, they often consisted of nothing more than a closely built collection of houses which were only reached through a single narrow passageway. They were inaccessible to the fire department apparatus, often formed harboring places for criminals, and it was shown that the death rates in such sections were often much higher than in other places in the city. The ground was flooded at high tide, and the effective disposal of human excreta under such circumstances was practically impossible. The opportunities which such conditions gave flies, insects, and even the hands of the people to convey cholera organisms, especially where many human "cholera carriers" existed, can be readily understood. As a whole, the residents of these sections have removed their houses without much opposition. Some have refused to obey the orders issued and the cases have reached the court of first instance. The court, however, rendered its decision in favor of the Bureau of Health, that it has the right to declare premises unsanitary and to order the occupants to vacate. At the present rate great improvements may be expected in Manila during the next few years and a still lower death rate confidently hoped for.

Leper Segregation.—The work of collecting lepers still goes on. All islands except Mindanao and the provinces of Cagayan, Isabella, and Nueva Vizcaya have been gone over at least once. Of a total estimate of 3,500 lepers it is believed that there are yet about 600 lepers to segregate.

In making trips for the collection of lepers many cases of extensive ulcerations which result in atrophy of the feet and hands and often of the entire limbs are encountered. The contractions produced by the scar tissue often cause severe deformities. Heretofore, a tentative diagnosis of syphilis has been made in these cases on account of the fact that many of them respond to the therapeutic test and spirochæte are found in the lesions. Recently, however, it has been observed that many of these cases show the scars of yaws, from which it would appear possible that the above described individuals may be afflicted with a tertiary form of yaws. A study of this question is proposed in the near future.

Smallpox has made its appearance in a number of places throughout the islands, but it is very rarely that a person who shows evidence of vaccination contracts the disease and no death has come to the notice of the Bureau of Health in which a good vaccination scar could be found.

Some time must necessarily elapse before the complete elimination of smallpox from the islands can be expected, owing to the deleterious influence which the climate has on vaccine and the difficulty which is encountered in getting the vaccine to remote places in potent condition.

Filipina Nurses.—The training school for Filipina nurses which is being jointly conducted by the Bureau of Education and the Bureau of Health has now reached its third year, and from all appearances the Filipina women at the end of their four years' course will be as competent as their American sisters. It is now proposed to send a number of the Filipina nurses to the United States to be trained as instructors of nurses, in order that they may return here and conduct schools for their own people.

New Legislation.—The bill placing the Director of Health on the Municipal Board has already passed the Commission and is now before the Assembly.

Plague.—Plague has made its reappearance in Hongkong, about six cases being reported for the week ending April 3, which is a very much smaller number than usually occurs during this period of the year. Plague has also made its reappearance in Amoy, and the Public Health and Marine Hospital Service has imposed a quarantine against Amoy of seven days on all steerage passengers or persons who ordinarily travel as such. Lately the United States has stationed a medical officer at Amoy.

Negotiations are now under way for the construction of a steam disinfecting plant by the steamship companies that do business in Amoy, the same to be under the general supervision of the medical officer of the United States. This will make another outpost of sanitation which the United States is establishing throughout the world in order to protect it against the invasions of dangerous, communicable diseases.

Progress of Medical Science.

Boston Medical and Surgical Journal May 27, 1909.

Cancer of the Cervix Complicating Pregnancy.—After a comprehensive though brief reference to the literature of this subject, J. T. Williams reports seven cases. He gives some interesting figures as to the frequency of cervical cancer complicating pregnancy. Thus in 100,000 pregnancies cancer of the cervix occurred 57 times. He has found 605 cases reported, 446 of these being since 1886. The frequency of the reverse condition, viz. pregnancy complicating cervical cancer, he estimates as 64 pregnancies in 4,062 cancers. He adds an elaborate bibliography, and concludes as follows: (1) Cancer of the cervix does not prevent conception, and in a large percentage of cases antedates the pregnancy. (2) Cancer of the cervix, as a rule, grows with great rapidity during pregnancy and the puerperium. (3) While the prognosis of cancer of the cervix is more grave during pregnancy, it is not hopeless. (4) When an operable cancer of the cervix is discovered during pregnancy, no matter at what period, immediate operation is indicated. (5) Up to the present time statistics favor the Wertheim operation, preceded by cesarean section if the child is viable. (6) In inoperable cancer with a living child at term, conservative cesarean section is the method of choice. If the child is dead or premature a suprapubic delivery will give the best result.

The Classification of the Malarial Plasmodia.—C. F. Craig, of the U. S. Army Service, reviews the work previously done and gives a classification based on our current accepted knowledge. He believes that the estivo-autumnal fevers are due to two distinct parasites and as (to his knowledge) the quotidian plasmodium has never received a distinct name, he suggests for it *Plasmodium falciparum quotidianum* regarding it as a sub-species of *P. falciparum*. His classification in full is as follows: Division, *Protozoa;* class, *Sporozoa;* order *Hæmosporidia;* genus, *Plasmodium;* species, (1) *P. malariæ*, Marchia et Celli, quartan malarial plasmodium; (2) *P. vivax*, Grassi et Feletti, tertian malarial plasmodium; (3) *P. falciparum*, Blanchard, Estivo-autumnal plasmodium, tertian type; sub-species (4) *P. falciparum quotidianum*, Craig, 1909, quotidian estivo-autumnal plasmodium.

New York Medical Journal, May 29, 1909.

Indications for Operations on the Stomach.—J. J. Gilbride says that the most common condition of the stomach for which an operation is performed is stenosis of the pylorus, and the onset of symptoms of stenosis at this point with or without previous stomach disturbance in persons over 35 years of age should receive prompt surgical attention. Cancer of the stomach is strictly a surgical disease when it is recognized sufficiently to permit of an operation. As this disease appears most frequently at the pylorus the initial symptoms may be those of stenosis, at or after the thirty-fifth year. In certain cases of extreme cancerous involvement of the stomach a jejunostomy may be advised to prevent death from starvation. So also a gastrostomy may be advised in carcinoma of the cardia. The frequency of the occurrence of cancer on the basis of gastric ulcer calls for more aggressive treatment of chronic ulcer of the stomach. The treatment of acute gastric ulcer is medical unless some accident such as perforation should occur or some other complication should develop. Continued bleeding in ulcer, even if of small amounts, and repeated hemorrhages demand surgical treatment. A single large hemorrhage is best treated medically. In chronic ulcer when the patient fails to get well after a reasonable time under proper medical treatment, or when there are relapses of symptoms, the patient should be operated on. Duodenal ulcer which occurs most commonly in the first few inches of the bowel always calls for operation. It is often difficult to distinguish it from gastric ulcer. The great majority of cases of gastroptosis can be treated by mechanical dietetic and medicinal measures. An operation is necessary only in those instances in which there is an obstruction due to a kink or other cause. Gastroenterostomy has been done in a few refractory cases of hyperchloridia. A few cases of atonic dilatation of the stomach have been reported in which gastropletion was done with beneficial results. Adhesions which cripple the functions of the stomach call for operation. Benign tumors call for operation. So also operative intervention may be required in instances of acute dilatation of the stomach not relieved by lavage and in hernia through the linea alba interfering with gastric mobility.

Dacrocystitis.—A general description of this condition is given by A. T. Herzig. In the catarrhal form or blenorrhea of the lacrymal sac we should relieve any intranasal obstruction of the duct, have the patient express the secretion frequently and use astringents and at the office express all secretions from the duct and then with a small lacrymal syringe, clean the sac out first with some cleansing solution, such as sterile water, or a very much diluted Thiersch's solution, following this by an injection of a one per cent. silver nitrate solution. In the acute form, if we are unable to prevent the formation of an abscess we should bring the latter to a speedy termination by making an artificial opening. The author makes a large incision, curettes the abscess cavity, and then drains it with sterile iodoform gauze. He touches the inside of the sac with a ten per cent. solution of silver nitrate, this being done daily at first, later at less frequent intervals. Otherwise, the abscess is treated the same as any other phlegmon. It is bad to incise the abscess before fluctuation has taken place. Later on, the duct should be catheterized to relieve any stricture that may be present. In the chronic form, the medical treatment consists of gradually dilating any strictures that may be present and syringing the sac first with a cleansing solution and then with a one per cent. solution of silver nitrate daily, and later on at less frequent intervals. The home treatment for these cases consists in giving the patient an astringent eyewash and having the patient express the secretion from the duct as fast as it accumulates. If this does not result in an improvement within a reasonable time, that is to say twenty treatments, which extend over a period of two or three months, the author advises complete enucleation of the sac. It is wrong to advise enucleation at first, as there are a great many of these chronic cases that can be cured by this treatment.

The Otitic Significance of Tonsillectomy with Reference to Digital Enucleation.—H. B. Blackwell describes his method of digital tonsillectomy, nothing essentially new being presented. He regards the operation as curative and prophylactic in both acute and chronic suppurative and non-suppurative inflammation of the middle ear.

Journal of the American Medical Association, May 29, 1909.

Resistance to Cancer.—H. Gideon Wells notes the still unsatisfactory results in the surgery of cancer, and asks if we have any right to expect enough better results to preclude the desire to find some other means than surgery for its relief. He admits that there seem to be at present some facts in the biology of tumor growth that indicate a possibility of success in this search. To obtain a specific therapy for an infectious disease two methods are available. We may either stumble on a cure empirically or we may study the way the body defends itself and endeavor to assist or intensify this natural method. Perhaps we may consider Ehrlich's method of therapeutics, by more or less empiric methods obtaining something that has a favorable influence on an infection, and then enhancing this influence by adding various and sundry radicles to the original more or less hopeful appearing substance. The most logical method at present, Wells thinks, is to learn how the body cures itself when natural recovery takes place and then, if possible, to enhance this attempt. We may start with the assumption that no malignant growth ever succeeds in growing to the extent to which its natural proliferative power entitles it. One of the commonest occurrences in malignant tumors is necrosis or less extreme degenerative processes, and such tumors are influenced by the state of health or vigor of their host. Their progress is generally much less rapid in the old than in the young. The fact that the rate of growth of cancer is in direct proportion to the nourishment and vitality of the patient, quite the opposite from what occurs in infectious diseases, would seem to make for the non-parasitic nature of such growths. Of greater interest to us are the instances in which malignant tumors show healing changes, independent of such conditions, which may appear as retardation of growth or recurrence after removal, retrogressions of secondary growths after removal of the primary tumor, of disappearance of portions of tumor tissue after an incomplete palliative operation or even spontaneous healing of a primary tumor without operative intervention. Total healing without operation and without recurrence is practically unknown, but this does not necessarily mean that it may not occasionally occur. Two cases are referred to which suggest that when cancer follows chronic trauma the defensive mechanism of the body may be able, in the early stages, to overcome the cancerous proliferation if only the original irritant is removed. A number of other cases are reported, from various authorities, of spontaneous healing of cancer, but the evidence concerning the healing of portions of carcinomas left after operations is far better than of cases in which healing has occurred when no operation has been done. A large part of the paper is taken up with references to cases of these forms of healing, and he reproduces the notes of Dr. Alexander Harvey of a case which he has had a chance to study, in which the secondary growths disappeared after the removal of the primary one and the autopsy revealed the scars. The patient died, with symptoms resembling uremic coma, very probably from a cerebral lesion, after eighteen months of apparent health succeeding the operation. The examination of the head itself was not permitted. Other similar or somewhat similar cases of other surgeons are also referred to. Just how the removal of the primary growth thus influences the metastases is hard to say, but Wells suggests, as possible, a sort of autoimmunization from cancer substance forced into the circulation by the operative procedure. As supporting this view he adduces a suggestive case described by Mackey. The conditions under which metastases are formed is also another source of evidence of the resistance of the body to cancer. The least resistant organs are the ones that are affected. Just now our chief hope lies in experimental work with transplanted tumors in animals, in which, besides a natural congenital immunity to some extent, there is sometimes produced a varying degree of acquired immunity, both active and passive, the first more successfully than the last. There is, however, some evidence that the blood of animals spontaneously recovering from tumors may render animals more or less resistant and even cause healing of tumors in inoculated animals. All these accumulated observations during the few recent years of cancer research give much hope that eventually we may do something for the cancer patient besides radical operation.

Blood Transfusion.—R. T. Frank and G. Baehr publish the results of further experiments with the use of a vascular bridge or link composed of a fresh animal blood-vessel, first described by them some months ago. They mention the difficulties of other methods and enumerate as the advantages afforded by the use of the bridge: (1) A sufficient length of vessel is ob-

tained without extensive dissection of the artery of the donor or the vein of the recipient; (2) the link as now prepared by them has lost some of its elasticity and is well-stretched, so as to afford an unobstructed lumen within the cannulæ, and a technique familiar to every surgeon (from its similarity to that used in intravenous infusion). The links are prepared by cuffing dogs' carotids at both ends over Crile's tubes, stretching them on a wire frame and fixing them for twenty-four hours in a 2 per cent. solution of formalin. The formalin is removed by two changes of sterile salt solution (thirty to sixty minutes each), and the prepared pieces, or links, as they are called, are permanently preserved in paraffin oil. Full details of the method of preparing these links are given, also of the technique, which closely resembles that so familiar in intravenous saline infusion, the infusion cannula being represented by the cuffed link. Tests were also made of the sterility, some of them rather severe, but no growth, even when infected with *Bacillus anthracoides*, occurred after the tubes had been immersed in 2 per cent. formalin over ten hours. Out of twenty-six experimental transfusions performed by means of these prepared links, but one failed, and this was due to the kinking of the vessel during its preservation. These cases are tabulated. The authors say that, as far as can be predicted, the use of these links affords a simpler and easier method of transfusion than those hitherto described, and they hope that it may soon be tried on the human subject.

Angina Pectoris.—W. W. Kerr reports five cases of fatal painless angina which illustrate the frequency with which this condition may occur in connection with disease of the right side of the heart. He does not maintain that it is limited to cases in which the right ventricle alone is affected, since it may occur when both ventricles are diseased, but the presence of the symptom signifies that the right ventricle is seriously diseased as well as the left. In all the cases reported three features were noted especially: (1) There were changes in the wall of the right ventricle; (2) during the attack the pulse was small and feeble; (3) after the attack was over and in the intervals the radial pulse was of good quality. These he uses to explain this condition. The muscle being already deficient in power, any sudden or unusual call on it might produce the symptom. When the right ventricle only is affected we can easily understand why the radial pulse improves so rapidly when the seizure is over, but when the cardiac oppression and respiratory distress is simply intercurrent on the symptoms of general cardiac disturbance such improvement is not to be expected. According to Kerr, painless angina is more common than one would suppose from the infrequency with which it is reported, but probably it is not always recognized and the patient's symptoms are attributed to hysteria or some reflex disturbance. When they occur with a dilated right heart or distinctly atheromatous changes, the diagnosis is easy. But when physical signs are absent it is often difficult to give a positive opinion. If between the attacks the patient has a constant feeling of weight or destress over the precordia and has a tendency to take occasional deep inspirations, there is a strong probability that the right ventricle is affected and this is made certain if the symptoms are invariably produced or aggravated by exertion. This form of angina is altogether different from the painful type and in many cases requires entirely different treatment. In all probability it is due to some local obstruction in the coronary circulation, which may be organic, spasmodic, or a combination of both. The fact that the radial pulse varies in different cases, the tension being sometimes high, sometimes low, indicates that the attacks cannot be invariably attributed to increased resistance in the peripheral circulation and they cannot be explained, moreover, solely by the condition of the cardiac muscle itself. The causes of the obstruction are not the same in every case, and local vasomotor spasm is nothing new in medicine; spasmodic contraction may occur in the finger, in the body surface, or even in the vessels of the brain, and it is perfectly possible that there might be local obstruction from a minute embolus or sclerosis of a coronary branch. The changes in peripheral blood-vessels are, as Kerr believes, more coincidences than causes, and degeneration of the cardiac muscle may be the consequence of the impaired coronary supply, but not the cause of the seizures. The treatment of the two forms of angina will be entirely different during the seizures, but as a rule identical in the intervals. Since cardiac asthma is due to failure of the right ventricle, rapidly acting stimulants, such as caffeine, camphor, or strophanthus, will be indicated for the attack; while angina pectoris on account of the spasm will call for vasodilators such as amyl nitrite or nitroglycerine. It is not infrequent for the subject of coronary spasm to suffer also from a weak heart and then a combination of heart stimulant and antispasmodic is demanded. Between the attacks, the treatment is the same as that recommended in cases of chronic myocarditis and arteriosclerosis. A well-regulated diet is of the utmost importance; avoidance of mental and physical strain, and exercise, carefully adapted to the individual, are also advised. Arsenic and the prolonged use of iodides in small doses will often be found to have a beneficial effect on both cardiac muscle and the blood-vessels. Lastly, we should not neglect the elimination of toxic substances resulting from physiological activity or food metabolism.

The Lancet, May 22, 1909.

Normal Menstruation, with Absence of the Uterine Body.—A. Brown relates the history of a woman of fine physique whose menses had commenced at 13 and had continued regularly till she came under observation at the age of 28 for the treatment of sterility. The periods were normal as to amount and duration. The patient was an affectionate wife and fond of children, but sexually cold. She had been married three years. Under examination per vaginum and bimanually no uterine body could be made out. The cervix was of normal size and shape and the blood on the examining finger evidently came from the external os. Under general anesthesia another examination confirmed the previous findings. The author admits that a direct examination of the pelvic contents might have demonstrated the existence developmentally of a uterine body. No doubt the vaginal cervix supplied the monthly loss of blood.

Disappearance of a Tumor (Sarcoma?) Following Injections of Coley's Fluid.—The patient of W. C. Ashdowne was a woman of 45 years whose right arm had for seven weeks presented a swelling. Her only symptoms had been swelling and weakness on using the arm. Examination showed a hard, well-defined fusiform enlargement in connection with the lower part of the right humerus. The superficial veins were a little enlarged, elbow joint was normal in movement, arm was painful on use or on application of firm pressure, and there was an enlarged gland in the right axilla. There was no history of injury or syphilis. Antisyphilitic treatment was given for ten days, but the swelling steadily increased. She was advised to have an exploratory incision made, followed, if necessary, by amputation. This was declined and the use of Coley's fluid selected as an alternative. The author began with half-minim doses and increased them by quarter, half and one minim until a maximum of nine minims was given. The first injections were made in the arm outside the growth limits, but the later were made directly into it, twenty-three being given in all. They were followed by pain and swelling at the site of injection, with general malaise, headache, nausea and vomiting, with pains in the limbs and joints, followed by subcutaneous hemorrhages resembling bruises, but with only slight rise of temperature and increase of pulse rate. This treatment was continued for some time and finally the swelling had almost disappeared and the structure and outline of the bone had resumed the normal appearance.

The Cause of Death After Operation in Acute Appendicitis.—C. A. Morton notes that in many children who go through the operation well, unfavorable symptoms arise twelve hours or more later, such as pulse failure, vomiting, restlessness, drowsiness, delirium, coma and jaundice. There is little, if any, rise of temperature, no abdominal pain, rigidity or tenderness, yet the patient dies. What are these symptoms due to, asks the author, and what is their relation to the operation? They are probably a manifestation of toxemia. Perhaps sponging the peritoneum however gently may so damage it as to allow of absorption of inflammatory and poisonous material. In some cases the terminal symptoms suggest delayed chloroform poisoning. Lumbar puncture anesthesia might be employed in those cases. If we were convinced that the symptoms were due to absorption from the raw surface of the wound, we might take measures to destroy its absorbing surface by applying a solution of zinc or pure carbolic acid and packing between the drainage tube and the raw surface with iodoforin gauze. Even though absorption from the raw surface is quite a doubtful cause, it might be well, especially in children, to apply a little carbolic to the raw surface around the drainage tube, and to pack iodoform

gauze around the drainage tube, thus separating it from the raw surface. A suction drainage apparatus might be employed until the wound was granulating so as to drain the pus right away, or we might irrigate (if the peritoneal cavity is well shut off from the abscess sac) frequently or even continuously with salines so as to wash out in a very dilute form all toxins. Abstracted histories are given of twelve cases.

Therapeutic Effect of Radium Emanations in Some Diseases of the Skin.—H. Radcliffe Crocker relates his experience in a series of cases. In one a thin gelatine jelly had the solution of the emanations diffused through it and was applied to the fingers for eczema, and the results were very satisfactory. They were duplicated in a case of psoriasis of the knees. Again the radium emanation was dissolved in 2 c.c. of distilled water and injected subcutaneously in the interscapular region. Two cases of mycosis fungoides were thus treated with great benefit, though not with entire success. In a third case of a general chronic scaly eruption the results from injection were practically negative. The author says that the results are in their entirety distinctly encouraging and justify a further use of the emanation therapy. Radium is, he says, like a milch cow: able to give a daily supply for a considerable period, though, again like that useful animal, requiring intervals of rest also. We are not yet able to differentiate between the relative effects of the alpha, beta, and gamma rays. Ramsay estimates that in the gelatin method such as described, we lose 50 per cent. of the alpha rays, while all the beta and gamma rays remain available. On the other hand, by a simple solution in water of all the emanations, subcutaneously injected, we secure the entire ray strength. In the author's case the injections caused several times painful swellings, and this is one limitation of the method.

British Medical Journal, May 22, 1909.

Lactic Acid Bacilli in Melancholia.—Commenting on the fact that melancholia often arises from intestinal autointoxication, H. J. Norman reports one case of hypochondriacal melancholia, the patient being a male, jaundiced, with sallow complexion, and an obstinate constipation. He was placed on a diet of soured milk and lactic bacilli tablets, and the results were immediately apparent. The bowels moved easily and the author thinks that the ordinary aperient treatment would have produced the marked changes noted in the general condition. Mentally, the patient became much brighter and began to enjoy the ordinary occurrences of life.

Partial Thyroidectomy.—T. P. Dunhill considers this question with special reference to exophthalmic goitre and makes observations on 113 cases operated on under local anesthesia. Various phases of the question are: difference in type of the growth, response to operative treatment, when to operate, anesthesia, how much of the gland should be removed, and the crushing of the gland substance. Of his own operations, 2 were for malignant goitre, 88 for exophthalmic with 1 death, and 23 for parenchymatous or adenomatous with no death. Of the exophthalmic cases, 52 were typical cases with classical symptoms; 15 of these 52 had part of the second lobe subsequently removed. Of this class, in every case in which the removal of the larger lobe has not effected a cure, the removal of part of the second lobe has done so (always excepting the one case which died). In many of the latter cases one and a half lobes were removed at one operation. Eight cases had irregular heart beats and pronounced edema. Of these, 4 had part of the second lobe subsequently removed. The author had a third operation because the upper pole left after the second operation was unsightly. The original goiter had been of immense size. Every one of these stood the operation well. All are still alive but one. She had made a splendid recovery, and three months later went to her country home, engaged in a round of festivities for a week in a climate with the temperature of over 100° in the shade most of the time, and died very suddenly at the end of it. This case, before operation, had edema of the legs, body, and arms. There were striæ around the elbows like those on the abdomen of a multiparous woman, and the evening before operation fluid was drawn off from both pleural cavities. After the operation she passed immense quantities of urine each day. Every trace of edema disappeared until the week in which she died. All the others are very much improved. Two cases had irregular pulse, had intense tachycardia, but no glands enlarged and no exophthalmos. Of these, in one case the author subsequently removed a small piece of the lower pole of the left lobe. This represented the only failure of the series. Five cases of secondary exophthalmic goiter are reported. In this class cure is rapid and complete. Seven only of the cases of exophthalmic goiter among these students by the author occurred in males, which shows strikingly the great preponderance of females among the subjects of this disease.

The Surgery of Lingual Thyroids.—W. Stuart-Low comments on the anatomy of thyroid deposits in this situation and says that as excision of these lingual deposits has been followed by myxedema the surgeon should always consider carefully the question whether or not in these cases the normal thyroid in the neck is sufficiently developed to carry on itself the thyroid function in the body. In case of absence or small size of the cervical thyroid, one would hesitate to operate except when the size of the lingual deposit should prove dangerous to life. Enough of the lingual deposit should be left to carry on the thyroid function (in case of cervical absence) even at the risk of subsequent recurrence. Low advises the splitting of the tongue from tip to base, thus permitting thorough eradication. He prefers this method to that of subhyoid pharyngotomy, for while the latter is admirably adapted for the removal of growths at the entrance to the larynx, it has for the removal of growths at the base of the tongue the great disadvantage of opening a communication between the septic cavity and the large cervical wound. Moreover, if the transverse incision is carried any distance beyond the hyoid bone, the superior nerve may be cut, and the larynx is rendered insensitive, permitting food and discharge to enter the cavity and expose the patient to the danger of foreign body pneumonia. The procedure to be followed after exposure of the growth depends on its size. Incision with curetting and cauterization may suffice in some instances, but the author contends that it is a very much better plan to extend the operation to an excision of the capsule which, he says, consists of the dilated remains of the thyrolingual duct.

Deutsche medizinische Wochenschrift, May 6, 1909.

The Etiology of Puerperal Fever.—Ahlfeld devotes a long article to a review of the opinions held by the different schools of gynecologists in reference to the origin of puerperal infection. Menge and Krönig were the first to make a complete bacteriological study of puerperal fever and of the female genital passage, coming to the conclusion that the healthy vagina is free from pathogenic organisms, especially streptococci. In opposition to this claim Ahlfeld cites the numerous instances of septic endometritis following prolonged and ineffectual labor, in many of which no examination whatever has been made, and therefore no germs introduced from the outside. However, Krönig's views were accepted, the entrance of bacteria in cases of labor being explained by supposed impossibility of disinfecting perfectly the examining hand of the physician. Gradually, however, Ahlfeld's teachings concerning the constant presence of pathogenic bacteria in the female genital canal have become accepted. His claim that a complete disinfection of the hand is a possible and quite easily attained result has also been verified. The real light upon the origin of puerperal fever is thrown by the fact that every woman bears in her genital canal potential excitants of puerperal infection. The occurrence of the latter depends in great measure upon the existence of circumstances predisposing to autoinfection.

Lymphatism and Scrofula.—Moro says that lymphatic constitution and scrofula are clinically so similar as to be practically indistinguishable. As it has been abundantly proved that scrofula is a symptom complex accompanying a certain type of infection with tubercle bacilli, it was thought that lymphatic diathesis is also an expression of a similar infection. The application of the cutaneous test for tuberculosis shows that this view is not correct. Scrofulous children give a positive reaction; lymphatic children often fail to do so. Moro considers that lymphatic diathesis simply forms a very favorable ground for infection with the tubercle bacilli, without being due to such an infection. The history of most scrofulous children contains data showing that a lymphatic diathesis was present in them in the first years of life. The earmark of a lymphatic tendency is seen in the proneness of the tissues to suffer very prolonged and low-grade inflammations, during which the lymphatic tissues are primarily or secondarily affected. Moro has been able to corroborate his view of the relation of scrofula and lymphatism by observing the development of a positive cutaneous reaction in infants who did not give such reaction in the beginning of their illness. The author believes that the appearance of the reaction was due in such cases in all probability to the implantation of an infection with tubercle bacilli upon a previously simple lymphatic organism.

Book Reviews.

Operative Midwifery. By J. M. Munro Kerr, M.B., C.M. (Glas.), Fellow of the Faculty of Physicians and Surgeons, Glasgow; Obstetric Physician, Glasgow Maternity Hospital; Gynecologist, Western Infirmary; President of the Glasgow Obstetrical and Gynecological Society; Late Assistant to the Regius Professor of Midwifery, Glasgow University. With 294 illustrations in the text. New York: William Wood & Company, 1908.

This book is very much on the lines of Barnes' "Lectures on Obstetric Operations," which was published forty years ago, and the last edition of which is now twenty-three years old. As the author reminds us: "At that time antisepsis and asepsis in midwifery were only beginning to be discussed; abdominal palpation for the diagnosis of presentations and positions of the fetus was practised by only a few; the revival of symphyseotomy had newly begun; the modern operation of cesarean section had been described by Sänger only a year or two previously; while operations upon the pregnant or parturient woman for abdominal and pelvic tumors were had recourse to only in the most desperate circumstances." The present work contains more than is implied in its title; and besides Operative Midwifery as generally understood, chapters are included on abortion, uterine hemorrhages, and accidents that can happen to mother or child. The contents of the volume will fall neatly into five divisions: the first, dealing with dystocia the result of faults in the forces; the second, with dystocia the result of abnormalities affecting the fetus; the third, with dystocia the result of abnormalities affecting the parturient canal; the fourth, with obstetrical operations on mother and child; and the fifth, with uterine hemorrhages and the various accidents that can happen to mother and child. All the chief difficulties that are liable to be encountered in obstetrical practice are discussed in this volume, and the reader is shown what is believed to be the best way of overcoming these difficulties. The author generally gives the various views and opinions that have been held by different authorities, and at the same time makes clear his own preference; at times he is in the minority, but he can always give a reason for what he recommends. Among the best chapters in the book is the one on Rupture of the Uterus, in which, by the way, occurs one of the very few misprints which we have found, the author giving 67 per cent. as his mortality in hysterectomy for ruptured uterus, whereas the figures indicate a mortality of only 33 per cent. A few names are misspelled, and (in the preface) Professor Edgar is said to be "of Philadelphia." The book is well illustrated, and most of the illustrations are original. The literature of the subject is very fully given, the views of others are adequately presented, and the author's own opinions, based upon an extensive experience, are clearly stated. Altogether this is a work of sterling merit, and will prove invaluable as a companion to the ordinary textbooks on obstetrics.

Self Help for Nervous Women. Familiar Talks on Economy in Nervous Expenditure. By John K. Mitchell, M.D., Fellow of the College of Physicians of Philadelphia; Attending Physician to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases. Philadelphia: J. B. Lippincott Company, 1909.

This little book was written chiefly for nervous women, but male sufferers from functional nervous disorders, and the families and friends of the nervous, may all find in its pages much good advice. The author speaks of the terrible damage which may follow the use of such instruments as are employed in the Emmanuel method, in the hands of men moved only by enthusiasm without knowledge.

Instinct and Health. By Woods Hutchinson, A.M., M.D. New York: Dodd, Mead & Company, 1908.

This is a practical and thoroughly readable volume dealing with the general subjects of health, exercise, and diet, so much in the public eye during the past two or three years. The author takes in general a sane and wholesome view of these problems, and if he is not always convincing in his arguments he does succeed in making them entertaining by his originality and broad sense of humor. The book is written largely from the ethnological viewpoint, the author seeming to hold the opinion that in most respects we need to go "back to nature" and to the simple ways of our ancestors if we would enjoy life and health to the full. Dr. Hutchinson has little patience with faddists of whatever kind, and he succeeds remarkably well in showing up their foibles before the strong light of reason and scientific judgment. The titles of various chapters, such as The Ancestry of Health, Diet Delusions, Sleep and Its Significance, Baths and Bathers, and Clothes and the Woman, show how fully the general daily activities of the individual are touched upon and amplified. A chapter on The Sins of the Shoemaker will appeal to the orthopedists, who have been trying so hard of late to teach their patients the importance of correctly clothing the feet in order to prevent deformities and ungainly gait. People in middle life will find much in the final chapter on The Health of the Middle-Aged Man that will help them to a wholesome philosophy of living. In Dr. Hutchinson's words, "It is pure selfishness to wish to live longer than is best for the following generation. Our life is not for ourselves, but for the race, and if we have set that the tiniest notch higher upon its upward course, it is enough."

Die rationelle Behandlung der Zuckerkrankheit. Von Dr. A. Lorand, Brunnenarzt in Karlsbad. Second edition. Berlin, 1909: August Hirschwald.

The second edition of this monograph has been enlarged by the introduction of the results of recent work on the metabolism of diabetes, especially those researches leading to the theory of a relationship between the thyroid gland and diabetes. The writer discusses very fully the practical side of the dietetic treatment of diabetes and commends the use of natural mineral waters.

Lectures on the Pathology of Cancer. By Charles Powell White, M.A., M.D., F.R.C.S. Pilkington Cancer Research Fellow. Manchester: University Press, 1908.

Dr. White has presented in a very attractive form his lectures on cancer delivered in the University of Manchester in June and July, 1908. They present not the whole pathology of cancer, but rather a general outline of the subject dealt with in an original manner. Dr. White follows the practice of many other recent writers in classing all malignant tumors under the term "cancer;" he defines such a tumor as mass of organs, cells, or tissues, atypically arranged, growing at the expense of the organism, without subserving any useful function therein. He then gives a somewhat complex classification of tumors, which is designed rather to correspond to the appearances observed with the microscope than to fit into any theory of the origin of tumors from the different embryological layers. An interesting discussion of the differences between malignant and benign growths follows: Dr. White pictures very impressively the difficulties in differentiating the two varieties of tumor and insists upon the necessity of informing the pathologist of the clinical aspect of the case in addition to furnishing him with a good specimen, including, if possible, some of the surrounding tissue. The third part of the book is devoted to a discussion of the etiology of cancer, Dr. White showing himself a strong opponent of the parasitic theory. This part, of course, contains little original thought, but presents a fair outline of the subject. The last part of the book considers the treatment of cancer, the facts learned from the consideration of the pathology of malignant disease being utilized for many valuable hints in this important division of the subject. The book is illustrated by a number of plates, some of them giving the appearances obtained by the use of polarized light.

Clinical Diagnosis and Treatment of Disorders of the Bladder with Technique of Cystoscopy. By Follen Cabot, M.D., Professor of Genitourinary Diseases, Post-Graduate Medical School; Attending Genitourinary Surgeon, City and Post-Graduate Hospitals, New York. Illustrated. New York: E. B. Treat & Company, 1909.

In this little book of 224 pages the author often sacrifices literary elegance to presentation of much material. In the latter regard he more than complies with the promises made in the preface, wherein he frankly says he does not "attempt to cover the whole subject under discussion." The monograph will especially appeal to the author's pupils and to those who are at least somewhat advanced in genitourinary work. While the author's "chief object is to teach general practitioners the principal methods of diagnosing and treating disorders of the urinary bladder," he often goes afield therefrom and does so instructively. Thus in his chapter on Case Recording, he presents a most excellent scheme for the establishment of a bureau through which the public is to be instructed in the ravages produced by venereal diseases. He minutely works out the duties of such an educational bureau and reproduces in full the three leaflets he uses in his clinics and hospital services, namely, (1) Instructions to those having gonorrhea, (2) Instructions to those suffering from syphilis, and (3) Some Axioms of Health. In the same chapter the author emphasizes that "if the cost to the world in suffering and lives could be estimated, it would be found far greater than that caused by tuberculosis." The publishers have most excellently contributed to the book with superb illustrations, clear type, and very good paper.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixtieth Annual Meeting, Held at Atlantic City June 8, 9, 10, and 11, 1909.

(Special Report to the MEDICAL RECORD.)

HOUSE OF DELEGATES.

First Day, Monday, June 7.

THE FIRST VICE PRESIDENT, DR. T. J. MURRAY, OF BUTTE, MONT., IN THE CHAIR.

President's Address.—Dr. HERBERT L. BURRELL of Boston presented this address, which was read by the first vice-president, Dr. T. J. Murray, and which consisted of a few suggestions and recommendations. The growth of the American Medical Association, the extension of its work, and the importance of the questions constantly coming before the organization would make evident the wisdom of increasing the number of trustees. Dr. Burrell was of the opinion that making the president, ex-officio a member of the board of trustees would be instrumental in keeping this body as distinctly conservative as it should be. There were too many committees acting independently of the board of trustees. The policy of every committee should be approved by the board. Special committees should not be continued over a number of years. The expenses of travel of standing committees should be paid by the association. The growing tendency of some committees to use political methods should be curbed. Their motives were good, but when they came to politics they were but as babes in arms and if unrestrained would bring disgrace on the medical profession. While acknowledging the efficiency of the secretary, he thought it unfair to load too much responsibility upon one individual; the president was but a figurehead. Dr. Burrell regreted his inability to be present and hoped that the work of the House of Delegates would be conducted with that spirit of harmony that was conducive to effective work.

Report of the General Secretary.—Dr. GEORGE H. SIMMONS of Chicago submitted this report. The membership of the American Medical Association on May 1, 1908, was 31,343. During the past year 290 members had died, 1,439 resigned, 484 had been dropped for nonpayment of dues, 290 had been dropped as not eligible, and 55 members could not be found, making a total loss in membership of 2,558. Since May 1, 1908, 5,150 names had been added to the membership list, making the membership on May 1, 1909, 33,935, a net gain of 2,592 for the year. Attention was called to the necessity of appointing a reapportionment committee whose duty it should be to examine the membership lists of the constituent associations and to determine the number of delegates to the association to which each constituent association should be entitled for the ensuing three years. Attention was also called to the report of the committee on the regulation of membership, as it would be necessary to systematize and regulate this matter on a uniform basis throughout the entire organization.

As the present session brought to a close a period of ten years, during which the present incumbent had served the association as general secretary, a review of the past decade was made. The membership of the American Medical Association in 1899 was 7,907 and on May 1, 1909, it was, as shown, 33,935, an increase of 424 per cent. The increase in State society membership had been even more marked. While complete figures to show the membership of the various State societies in 1899 were lacking, as late as 1902 the membership, as nearly as it could be determined, was 34,000. At present the combined strength of the associations constituent to the American Medical Association was 67,362. In 1899 not a single State owned and published an official State journal. To-day there were eighteen. Among other benefits resulting from the reorganization of the association were those pertaining to medical education, instruction of the public, regulation of pharmaceutical and drug products, the publication of an official directory of the profession, and the compilation of uniform laws for the different States. While these problems were by no means solved, a practical beginning had been made in the permanent and equitable solution of each of them. There were permanent boards, committees, and councils striving for the careful solution of these problems throughout the entire year, instead of having to be content with a hasty and inadequate consideration of the general problems and the adoption of resolutions at the annual session. It was hoped that the near future would see many questions which had vexed the profession and the public for years past definitely and permanently settled, permitting the profession to advance to greater usefulness both to its members and to the public.

Report of the Board of Trustees.—Dr. WILLIAM H. WELCH of Baltimore read this report. The past year had been the most successful one in the history of the association from the financial as well as from the scientific, educational, legislative, and philanthropic viewpoints. Few members of the association realized the great amount of time, energy, and work which the gentlemen who were serving on committees gratuitously were constantly giving for the improvement and benefit of the profession as a whole and the community at large. The manner in which the committee of to-day acted and did things was in marked contrast to that of a few years ago, which only resolved but did nothing. In order to facilitate the work of the committees the board of trustees had appropriated many thousands of dollars, and the board felt that the excellent results of their labors fully justified the expenditure.

The Council on Pharmacy and Chemistry.—This council, which reported directly to the board of trustees, was constantly examining a large number of preparations with which the profession was being exploited and weeding out the frauds, so that the physician to-day need not be deceived by false representations into using or administering anything with which he was not entirely familiar. Many of these fraudulent preparations were put on the market by so-called chemical houses which existed as such only on paper, and which were organized for the sole purpose of "working" the profession and the people. This was, however, but a minor part of the council's work. There were many preparations placed on the market with honest intent and purpose by reputable houses, which, on thorough investigation by the council, were found to be below standard or to fall below the claims made for them. On presentation to the manufacturers of the results of the investigations, many of these preparations and products were modified or the claims made to conform more carefully to the facts, or the preparations were taken off the market, so that not only physicians but the people as a whole were being benefited to a degree not realized. In addition to the work done by the several members of the council in their respective laboratories, the association had a laboratory of its own in the Journal building under the supervision of Professor Puckner. The work here had grown so rapidly that the trustees had recently authorized the appointment of another chemist. The excellent work of this council had received general recognition not only

at home but abroad. It has aroused the attention of the medical profession of Germany, which did not realize existing conditions until this work was commenced. A vote of thanks was adopted by the trustees to the men who had given their assistance in the investigations of the council.

The Directory.—Attention was called to the revised Directory, which was at present nearly ready for publication. The association had endeavored to supply the medical profession and the public with an official register of the medical profession comparable to the Medical Register of Great Britain, combining, however, appropriate biographical and personal information so far as reliable data could be obtained. This book should consequently not be regarded as a source of revenue, but as an investment for the benefit of the profession and of the public.

A New Building.—When the building of the association was erected it was believed to be ample for all needs for a considerable length of time, but three years ago it became necessary to enlarge it and it was extended to the full depth of the lot, and an additional story added; the space under the sidewalk was also utilized, but working space was still needed. The trustees were unanimously of the opinion that a new building was the only solution of the problem and as the adjoining lot was owned by the association architect's plans and construction bids had been secured, believing that this course would meet with the approval of this body. The estimated cost of this proposed building was $200,000. The report would not be complete did it not recognize that this had been the most remarkable decade in the history of the association. Through its active committees a most comprehensive study of medical education in this country had been accomplished and most positive results attained in elevating and standardizing the same. The association had made itself felt in national legislation. It had laid bare innumerable frauds and made it impossible for them to be longer unknowingly perpetrated on the profession and the people. It was educating the masses in general matters pertaining to medicine through its bureau of public instruction; it was stimulating scientific investigation by means of rewards for orginal research and commendable scientific exhibits. It had organized the profession in the United States into an intelligent, coherent body, which had come to learn its rights, to know its power, and to feel its duties and obligations. All of this had been accomplished in the brief period of ten years. Appended to the report of the board of trustees was the report of the subscription department and that of the treasurer. The subscripion department showed that the total issue for twelve months was 2,806,900 copies of the Journal and the weekly average 53,978. This did not include copies sent to exchanges, to libraries, Government services, or abroad. The treasurer's report showed the excess of assets over liabilities to be $354,667.

Committee on Medical Legislation.—Dr. CHARLES S. BACON of Chicago read this report. This committee had under consideration during the past year the Navy Medical Reorganization Bill; bills relating to the public health and Marine Hospital Service; measures relating to the Federal and State regulation of the public health; relief measures for the surviving families of persons who had died in the service of the country; the uniform regulation of the practice of medicine by the different States; uniform regulation of vital statistics by the States; uniform State laws on foods and drugs; the attitude of the last administration in appointing a commission with the purpose of reviewing and thus overriding certain findings of the governmental agencies lawfully established for the interpretation and enforcement of the National Pure Food and Drug Act; and the general position of expert medical testimony. The history of the Public Health Bill was reviewed, and it became apparent at the hearing in January before the subcommittee of the House Committee on Interstate and Foreign Commerce (1) that there was some sentiment in Congress favorable to the creation of a Department of Public Health, with representation in the cabinet, and that looked on this measure as obstructive; (2) that the proposed amendment was looked upon as being so framed that the present organization of any and all departments could be changed at the discretion of the President, and that changes outside of the health services were believed to be the real object of this measure, which, in this particular, was looked upon as being disingenuous; (3) that there was a decided objection, expressed by the members of both branches of Congress, that the proposition contemplated the surrender by the Congress of a constitutional prerogative, and was an additional instance of the attempted encroachment of the executive on the legislative branch of the government; and (4) that the creation of a governmental bureau by executive order was without precedent, and that such a precedent ought not to be established. In view of these considerations the bill did not come up for passage, and this committee was authorized to state that its efforts to secure a more highly organized national public health service by practical and constitutional legislation would receive the cordial support of President Taft. The bill known as the "Personnel bill," relating to the Public Health and Marine Hospital Service, suffered the same fate as the bill just referred to. The present organization of the government made it impossible for any move to be made by the administration in public health matters until they should have been considered and passed on by the layman who happened to be at the head of the Treasury Department. This fact made it pertinent to enquire whether or not there would be a practical advantage in having, if not a physician, at least some man with a technical knowledge of public health matters as the particular assistant secretary of the treasury, to whom the Surgeon General of the Public Health and Marine Hospital Service reported, and who must be the adviser of our national health officer, otherwise known as the Secretary of the Treasury. The Naval Medical Reorganization Bill was now before both the House and the Senate, and should pass the regular session of this Congress on its merits. This bill provided for the reorganization of the Hospital Corps, together with the creation of the grade of chief pharmacist. Pharmacists represented the only warrant officers to whom the benefits of the advanced grade were not extended. The Naval Dental Bill, authorizing the appointment of dental surgeons in the Navy, had been introduced into both the Senate and the House at the present session of Congress, and, it was hoped, would duly come up for consideration at the regular session. Dental surgeons were needed in the Navy quite as much, if not more, than in the Army, which service enjoyed free treatment by dentists employed in accordance with law, and it seemed an unjust discrimination against men enlisted in the Navy not to provide for similar dental work. The Navy Department, during the last session of Congress, approved the insertion of a clause in the Navy Appropriation Act under "Pay of the Navy" providing for the establishment of a reserve corps for the medical department of the Navy, and recommended the insertion of this clause to Congress, but it failed of consideration. If this measure was enacted and the desired corps established: (1) The Medical Department of the Navy would be placed in close contact with the members of the medical profession throughout the country, and would be in a position to call them into consultation, and enjoy the advantage of their advice should occasion require. (2) It would secure for the medical department

adequate and efficient assistance, no matter what or how great the emergency demanded. (3) It would make the Army and Nay services equally attractive. This equality did not exist under the present policy of requiring all candidates for the Navy Medical Corps to pass through a probationary period as acting assistant surgeons under instruction at the Naval Medical School before being eligible for commissions in the regular service. The proposed amendment read as follows: "Provided that a medical reserve corps, to be a constituent part of the medical department of the Navy, is hereby established under the same provision in all respects (except as may be necessary to adapt the said provisions to the Navy), as those providing a medical reserve corps for the Army and as set forth in the act to increase the efficiency of the Medical Department of the United States Army." The value of hospital ships, from both economic and humane considerations, had been fully demonstrated by the experience with the hospital ship "Relief." This ship on many occasions saved to the service of the fleet a man of war which formerly would have to serve as carrier for the sick or wounded. The unseaworthiness of the "Relief" had required that she be retained in Philippine waters. The Department has authorized the refitting of the "Solace" as a hospital ship, but ships such as these were only makeshifts, and were not of a type suitable for the purpose; consequently the Bureau had urged the Department to make provision for two hospital ships based on plans already prepared under the Department's directions, the cost of each not to exceed $1,500,000.

Isthmian Sanitation.—The sanitation of the Canal Zone was being maintained at such a high standard and the status given the sanitary department under the present administration was so high and influential that no further legislation relating thereto had been required. The fact that the chief sanitary officer was now a member of the commission and that he had coordinate rather than subordinate powers was largely responsible for the fact that the work of constructing the canal with a minimum loss of human efficiency from disease and death was progressing with a rapidity never known before in the history of such an enterprise.

Work in the States.—The only measure actively taken up by the committee was the bill regulating the registration of vital statistics, which was endorsed by the House of Delegates at the Chicago session, and which after discussion of its provisions by the Section on Hygiene and Sanitary Science, as well as the American Public Health Association, was further amended and a final draft printed. This model bill was passed in Missouri. A modified form was passed in Arizona, and the Delaware vital statistics law was so modified as to admit that State to the registration area. The committee would continue its efforts along this line in selected States each year. The committee on legislation had endeavored to cooperate whenever possible with the various State associations for the furtherance of desirable legislation and for the defeat of vicious and undesirable bills. The committee had restricted its efforts in this direction, however, to those cases in which the State committee on legislation had asked assistance. Efforts in the direction of uniform food and drug legislation in the various States had also been inaugurated. At the annual conference on Medical Legislation held in Washington in January, 1909, a model bill had been drawn up by the Committee on Uniform State Legislation appointed by the Association of National and State Food and Dairy Departments. This bill contained an elaborate system of standards and definitions necessary for pure food legislation, and was endorsed by the conference, printed and widely distributed. A section on drugs would be drafted later, and they would then be in a position to advocate the adoption of uniform legislation on this important subject. The most difficult and intricate question now before the committee was that of the preparation of a uniform bill for the regulation of the practice of medicine. A large amount of material had been collected for the careful study of this question and the time seemed to be ripe for a general discussion of the entire subject. The committee recommended that it be authorized to call a general conference to take the place of its Annual Conference on Medical Legislature to be devoted to a discussion of the essentials of a uniform medical practice act for adoption by the various states. To such a conference should be invited all the members of the National Council, all members and especially presidents and secretaries of state examining boards, all members of state committees on medical legislation, representatives of various colleges, sectarian schools of medicine, prominent jurists, sociologists and economists.

Report of Council on Medical Education.—Dr. Arthur D. Bevan of Chicago presented this report. An abundance of information had been collected, tabulated and published regarding medical colleges, standards, students, graduates, facilities and equipment. Information had also been collected regarding elementary, secondary and collegiate education. This information had thrown much light on medical education and had revealed problems which otherwise could not have been seen. The report reviewed the work of the five annual conferences of the council on the subject of medical education. At the first conference the minimum standard was formulated requiring the student to have a preliminary education which would enable him to enter the freshman class of our recognized universities; the passing on the credentials of such an education by a state official; the graduation from an approved medical college requiring a four years' course of not less than 30 weeks each year with 30 hours each week of actual work; the passing of an examination for licensure before a state board. The council formulated an "ideal standard" which should be secured as rapidly as conditions warranted. The aim of the "ideal standard" was: A four years' high school education, a year's university training in physics, chemistry and biology, four years' course of medicine proper, and one year as interne in a hospital or dispensary. At the second conference the medical colleges were divided into three groups based on the failures of their graduates to pass the examinations of State boards. These reports, which had been published, had done much good in stimulating faculties to guard against the graduation of illy prepared students. At the third conference there was presented a detailed report of the personal inspection of the medical colleges of the United States by members of the Council. This inspection had been continued and a second inspection would soon be completed. At the fourth conference the secretary presented a graphic study of medical education in the various states and in the twenty most important countries of the world showing the comparative position of medical education in this country with that of the rest of the world. It revealed that while this country had a few medical colleges equal to any in the world, it was nevertheless far behind other countries in standards both of preliminary and medical education. The fifth annual conference, held in Chicago in April, 1909, consisted of one hundred prominent educators representing all the departments and specialties in medicine. The recommendations of this committee as to what constituted a proper medical course has attracted much attention, but it was agreed that a hard and fast medical curriculum for all colleges was not desirable and not for the best interests of the profession. The curriculum submitted by this committee was regarded as suggestive and educational only, and was not intended for adoption by colleges or state boards. Statements were made by examiners on state boards suggesting that in ad-

dition to the written examination the candidate be required to do some chemical work, to examine specimens under the microscope, to describe gross pathological and anatomical specimens, to make demonstrations on the obstetric mannikin and on the cadaver and to make application of bandages and surgical dressings. Several states had already introduced such practical examinations. The members of the Council were unanimous in endorsing this as a most important advance. Investigation revealed much confusion in standards not only among medical colleges but in high schools, colleges and all departments of education, but at no previous time were so many forces at work in the effort to standardize the different departments and to develop system and uniformity. Eleven medical colleges already required two or more years in a college of liberal arts for admission. Eighteen other colleges had announced an increase in their entrance requirements to two or more years in a college of liberal arts. Twenty-one other colleges required one year in a college of liberal arts. The State Examining Boards in six states had established higher requirements of preliminary education. There had been five important mergers of medical colleges, by which nine medical schools were replaced by four stronger ones. Five years ago there were 166 medical colleges in the United States; since that time 25 others had been organized, but 43 were closed, leaving 148 at the present time. If all the medical colleges of any large city could be merged into one great university, such as were found in Berlin, Paris or Vienna, it would be to the greatest possible advantage to the medical profession in this country. The teaching of medicine at night schools had been practically abandoned, although several schools still existed in St. Louis and Chicago. Among the defects and needs of medical colleges revealed by the investigation of the Council were that there were too many medical colleges. The methods of teaching medicine of fifteen or twenty years ago were still in use in some institutions. Medicine today demanded a more thorough preliminary training than was possible in the vast majority of our secondary schools. The teaching of medicine today demanded trained teachers, with salaries sufficient to enable them to devote their entire time to teaching and research work. In order to properly teach medicine, the medical college should own or control a hospital. Medical education should be brought into harmony with other departments of education. The medical school might obtain valuable suggestions from liberal arts colleges in the matters of supervision, standards of equipment, and methods of teaching. A medical school would be greatly benefited by becoming the organic medical department of a university which had a strong liberal arts department, *i. e.* the finance of the medical school would be controlled by the trustees of the university, and the educational standards would be fixed by the liberal arts department.

Report of Board of Public Instruction on Medical Subjects.—This board had inaugurated a plan of work which was passing through an experimental stage. Many of the avenues of publicity which it had been hoped could be used were found unavailable. Managers of newspapers and magazines were unwilling to accept matter without their editorial supervision which, in many instances, tended to impart a sensational character to the matter. Each periodical insisted on having the exclusive right of publication. For the present the Board had limited the work to a few subjects, such as typhoid fever, diphtheria, variola, dysentery, gastroenteritis in infants, cancer, ophthalmia neonatorum, malaria, meningitis, tetanus, rabies, Asiatic cholera and yellow fever. The appropriation would not admit of giving the work a wider scope. One newspaper syndicate had offered to distribute to 1,000 newspapers over the country one column weekly for $1,800. By resolution of the Board of Public Instruction one representative from each State in the Union had been invited to cooperate as an Auxiliary Board. Each member was expected to keep in touch with such matters as required publicity and to supervise the inauguration of publicity schemes in his own territory. Each article would be published in pamphlet form and kept in stock in the Bureau of Public Instruction at the American Medical Association buildings in Chicago. In the event of an epidemic of typhoid fever, or other infectious disease, these pamphlets might be at once dispatched to those places and distributed through physicians or other channels to the people. Cooperation of the state associations would be essential to the proper execution of the plans of the Board of Public Instruction, for the problems of each state had individual peculiarities which could only be met by the state and county societies. All articles compiled by the Board of Public Instruction would appear as unsigned documents emanating from the authorized body of the American Medical Association. It would be the policy of the board to avoid all controversial questions.

In Memory of Dr. Happel.—The board of trustees desiring to express their appreciation of the devoted and valuable services of Dr. T. J. Happel, a member of the Board of Trustees, who died on May 24, on motion adjourned the morning session in his honor.

Afternoon Session.

Committee on Organization.—Dr. J. N. McCormack of Kentucky reported a growing interest in the subject of organization everywhere, but more especially of the acceptance of the idea by educational institutions. The way in which teachers and students received the ideas connected with this organization made him believe that a generation of voters and educators could be trained so as to recognize the value of organized medical work and they could look to them for constructive legislative work. There should be cooperation between physician and teachers in every locality, and it was the duty of the physician to inaugurate this movement. Dr. McCormack referred to the antagonism that the organization had engendered on the part of quacks who, not satisfied with the failure to accomplish anything by attacks on the organization as a whole, had resorted to personal attacks which were absolutely without any foundation.

Report of Committee on Ophthalmia Neonatorum.—Dr. F. Park Lewis of New York reviewed the work of this committee since the year 1906. In March, 1909, a circular was sent to the various states asking the following questions: "1. What laws have been enacted or proposed governing the practice of midwifery or the reporting of cases of ophthalmia neonatorum? 2. Are physicians required to report this disease? 3. Are prophylactics provided by the Health Department for gratuituous distribution? 4. Do regulations provide for the early registration of birth certificates? 5. Is an inquiry made on the birth certificate whether a prophylactic has been employed, when omitted, the reason for its omission? 6. Have any special resolutions been proposed or action taken by the medical societies for the control of this disease? Have you suggestions to offer the committee that may be helpful in controlling this disease? Investigation showed that one-fifth of the blind in institutions in the various states and cared for by the State at a cost of $364 per capita per annum were thus afflicted as a result of ophthalmia neonatorum. Although many requests had been received requesting that a phophylactic be recommended, the committee had neither the authority nor the desire to recommend any special form of prophylactic, neither was it desirable to do so until the subject was more exactly determined. It had been shown by the late Dr. Snell at the Jessop Hospital at Sheffield that a careful sanitary toilet would prevent infection in a large proportion of cases, and if this

were supplemented by the judicious use of any of the silver salts, and by prompt treatment when infection occurred, the disasters of the disease would be practically reduced to the vanishing point. In each state there was a committee of experienced physicians ready to advise with the Department of Public Health and it had, therefore, been deemed wise to advise that in every State the subject be taken officially under consideration by them. Attention of the committee had been directed to the fact that in a disproportionately large number of cases, reinfection had occurred where prophylaxis had been employed. This differed widely from careful records from large numbers of cases and led to the belief that the solutions were often used in a perfunctory or careless way, or were not prepared in the proper manner. When any silver salt was used it should be in fresh solution unless it was prepared in hermetically sealed and light-proof receptacles, and used but once for prophylaxis. The Department of Health should make it very clear that when the nitrate of silver was employed some reaction followed, or the inexperienced might regard the transitory redness and gummy secretion as an infection and employ active treatment to the detriment of the cornea. If infection occurred its treatment should be immediate and under medical supervision. It should always be made clear that the treatment of a birth infection of the eyes must never be undertaken by a midwife or nurse. When a prophylactic was freely distributed it should be accompanied by a brief description of the disease and the necessity for prompt treatment. In order to achieve success two things were necessary, publicity and the placing of responsibility. In order to secure publicity, it should be the duty of this committee to secure by cooperation with the Department of Health in every community, or by such other means as might be desirable, by the issuance of impersonal descriptive leaflets, by public lectures, by practical exhibits, and otherwise a widespread knowledge concerning ophthalmia neonatorum, its method of infection, its prevention and the necessity of immediate and proper treatment. With such a knowledge the public would readily and heartly join in any rightly directed movement for its control. The placing of responsibility could only be secured by recording the notice of the birth with the properly constituted authorities when it occurred, and it was necessary that the registration be made soon after the child was born. The recent English law required "that it should be the duty of the father if he resided in the house at the time the birth occurred, and of any person in attendance upon the mother, at the time of or within six hours after the birth, to give notice in writing to the medical officer of health of the district in which the child is born." This was in addition and not as a substitution for the usual birth certificate. On such a report a statement was required as to whether or not a prophylactic had been employed against ophthalmia neonatorum. This served both as a warning and a record and enabled the department to keep in touch with the births in the poorer districts where often the eyes of the child were lost before the authorities knew that the child had been born. It was recommended that committees, which had assumed the responsibility of cooperating with the central committee, begin an organized movement for the control of ophthalmia neonatorum in the several states and territories. The movement for the control of ophthalmia neonatorum, which had for its object the control of ophthalmia neonatorum in the United States, had grown to one in which the whole civilized world had joined. At the Eleventh International Ophthalmological Congress held at Naples, April 3, resolutions were adopted recognizing the importance of ophthalmia neonatorum as a cause of blindness and the practi' ility of its control was admitted by the appointment of a committee charged with the duty of its consideration.

Report of Committee on Patents and Trade-Marks.—Dr. S. C. Bacon of Illinois reported that the committee had made a study of the work previously done in this line by the American Pharmaceutical Association. It had investigated the patent and trade mark laws of the United States and foreign countries and conferred with about fifty of the leading drug manufacturers of this country in reference to the proposed change in the laws. They concluded that such changes in the patent laws as were suggested in the resolution adopted at the session in Chicago in June, 1908, was impracticable. It was believed, however, that it would be possible to improve the situation by certain changes such as would be in a line with those recently adopted in England, restricting patents to articles manufactured solely or chiefly in the country. They had learned that changes in the patent laws in other directions were being considered by other organizations, and they recommended that the Association continue a committee to keep track of legislation on this subject and to cooperate with bodies interested in the improvement of medicine and drug patents. In regard to the evils arising from the registration of names as trade marks, they had come to the conclusion that these evils were to be remedied by the courts rather than by the enactment of new laws. Other questions were in a state of confusion. It was a question whether a manufacturer could be protected on trade mark principles in the use of a number of names, each used to indicate a particular product. Another question was as to whether a manufacturer had the right to give a chemical name to a medicine as the patent or descriptive name and use another more catchy name as a trade mark. In view of these and other questions it was recommended that the Committee on Patents and Trade Marks consider the advisability of trying to secure such judicial opinions, and in the event that such action seemed desirable it should be empowered to proceed by and with the advice and consent of the Trustees.

Report of Committee on Davis Memorial.—Dr. Henry O. Marcy said that this was not a report of progress. Owing to the San Francisco disaster and the financial depression it had been deemed best to defer active solicitation. It had been decided nevertheless that a sum of $25,000 should be raised and this was apportioned among different States. Massachusetts had exceeded her apportionment by nearly one-half. The State of Illinois and the city of Chicago had promised generous assistance. Upon the presentation of the last report it was regretfully stated that the Memorial Committee had refused further active assistance on the part of the States until the Association itself should give encouragement and support by contributing to the fund. The committee urged that this be done at the present meeting.

Report of Committee on Uniform Regulation of Membership.—Dr. T. S. McDavitt of Minnesota presented this report. After correspondence with the secretaries of the various State societies, it had become evident that if the by-laws of the Association were to be enforced, and if the membership of the American Medical Association was only to be held by members in good standing in county and State societies, a simple, easily operated and effective system for the transmission of such official information regarding membership must be established. The present lack of uniformity and system was expensive and also resulted in a large loss on account of members who were dropped, suspended or relinquished their membership owing to misunderstanding regarding the provisions for membership dues, etc. The committee recommended: (1) All State associations be requested to make their fiscal year conform to the calendar year and to request their component county societies to do the same. (2) This committee further recommended that this committee be continued, that it be increased by the addition of four State

secretaries and that it be instructed to draft uniform by-laws for the regulation of membership for state and county societies, as well as to devise a system of necessary blanks, forms, etc., which would be applicable for general use, and which could be recommended by the House of Delegates to State societies for adoption. It had been suggested that this committee take up the question of requirements for membership as it was evident that there was a lack of harmony on this subject. The constitutional provisions of the various States, as shown by the last copies of their constitutions and by-laws, had been tabulated. Questions had arisen in regard to procedure in matters of discipline upon which the constitution and by-laws were vague. This matter was referred to the Committee on Constitution and By-Laws.

A resolution was introduced requesting that the Association use its influence to prevent the use of the Geneva cross by other organizations or for other purposes than by the Army, Navy and Red Cross Societies. This resolution was referred to the Committee on Legislation.

Resolution to Create a New Section.—Whereas, it was held that not enough attention was paid by the profession in general to syphilis and venereal diseases; that syphilis belonged both to surgery and to cutaneous diseases and that in the minds of the laity syphilis and other venereal diseases were associated, it seemed advisable that a section on Venereal and Genitourinary Disease should be established by the Association. This resolution was referred to the Committee on Section Work.

Tuesday, June 8—Second Day.

Report of Committee on Scientific Research.—This committee reported that three grants of $200 each had been made during the past year for research work: One to Dr. Isabel Herb of Chicago for a contribution entitled "A Study of the Etiology of Mumps;" a second to Dr. H. T. Ricketts of Chicago for a study entitled "An Investigation of the Identity of Rocky Mountain Fever of Idaho With That Found in Montana," and a third to Dr. R. M. Pearce of New York for two papers entitled "A Study of the Elimination of the Inorganic Salts in a Case of Chronic Universal Edema of Unknown Etiology With Apparent Recovery," and "A Comparative Study of the Physical Changes in the Blood in Relation to Opsonic and Phagocytic Indices and Cell Content Under Normal Conditions." A grant of $200 was also made to Drs. D. J. McCarthy and M. K. Meyers of Philadelphia for an "Experimental Study of Cerebral Thrombosis." For the year 1909 five grants of $200 each had been allowed, two of $100 each, and one of $50. The committee had continued its policy of making grants to certain individuals and repeating these grants when the quality of the work had been such that continued support had been desirable. The committee was fully convinced that the amount expended by the Association for this purpose had been usefully employed and that an increase of the yearly appropriation to $1,000 would be judicious if this sum could be spared.

Report of Committee on Scientific Exhibit.—Dr. F. B. Wynn of Indianapolis presented this report. He said that ten years ago the scientific exhibits as a feature of the meetings of the Association were an experiment. They had now passed the experimental stage and become a permanent and important attraction of the meetings. He called attention to the pathological exhibit and the three research exhibits. The power of an appeal to the eye had long been recognized in commercial lines, as was fully demonstrated by modern methods of advertising. That they had been so long in applying this method to the education of the people seemed strange. The health boards had finally adopted this idea in the education of the people in regard to tuberculosis. The great need was in constantly keeping the subject before the eyes of the public. To this end popular lectures, health propaganda, etc., were an important feature, but the great need was for a permanent exhibit. An automatic lantern-slide cabinet had been invented suitable for railroad stations, theaters, stores, and all public places, which gave a graphic education on the subject of tuberculosis. This was one of the features of the scientific exhibit. The committee had offered a medal last year for the best tuberculosis exhibit, but none of the exhibits had been deemed worthy of the prize. The same prize had been offered again this year. The work of departments of public health in popularizing knowledge in regard to tuberculosis was a species of advertising and should be conducted along sane and judicious lines. Placards should be attractive but always dignified. They should bring out plain truths, and to this end they should contain sufficient science to drive the truth home, but not so much as to make them incapable of appealing to the lay mind.

Report of Council in Defense of Medical Research.—This Council reported that it had organized at a meeting in Philadelphia, in November, 1908, and that its work since had been classified under three heads, (1) investigating the conditions of animal experimentation and the opposition to it; (2) taking precautions against the abuse of animal experimentation and against misconceptions of the conditions and purposes of medical research; (3) diffusing information regarding laboratory procedures and the results of laboratory study of disease. In order to obtain information regarding the conditions of medical research in the United States, circulars were sent to 111 of the most prominent schools, and reports had been received from 80 of them. The information received was quite complete and would appear later in a series of papers. In order to understand the nature of the opposition to medical research, literature had been collected from all the societies in the United States, and the Council had subscribed to anti-vivisection journals, and had obtained from a clipping bureau the statements for and against vivisection which had appeared in the newspapers throughout the country. An analysis of this literature would be presented in a later publication of the Council. Hostile agitators had declared that irresponsible and untrained medical students operated on animals in private places outside of proper supervision. The evidence of such a condition of affairs had not been forthcoming, and the Council had sought to remove suspicion by advocating that teachers of medical science speak to students regarding the importance of the experimental method in medical research, the suspicion of laymen that animals were not treated humanely in laboratories, and the resulting agitation that might work injury to medical science from checking animal experimentation. There was no evidence that students did not realize the importance of the caution and that it was not obeyed. It was learned that in many instances such caution was accustomed to be given. In larger medical laboratories rules governing animal experimentation had been posted. The Council had been instrumental in having them adopted in a number of new places, and hoped that they would be made the regulations for research in all medical laboratories in the United States. Although such a measure would not change in any respect existing good conditions, it would indicate to newcomers and to those interested the good intentions of the investigators. The information which the Council had secured had been utilized in enlightening the editors of certain lay publications regarding the conditions of medical research, and also in regard to the character of the opposition to it. In order to forestall the possibility of hostile legislation the Council sent out during the sessions of the legislatures in the various States a circular letter to the deans of medical schools, and to members

of the National Auxiliary Committee on Medical Legislation, stating the objections to such legislation, which revealed an alert body of men scattered through the country prepared to do their part in securing the benefits of medical research. The Council had planned a series of papers by experts on the importance of animals in the development of various phases of medical science and practice in the hope of thus securing a body of evidence to which physicians could refer in case agitation on the subject of vivisection arose in their communities.

Wednesday, June 9—Third Day.

Endorsement of George Washington Memorial Association.—Dr. William H. Welsh of Baltimore said that the George Washington Memorial Association had been formed for the purpose of raising funds for the erection of a building that should be a fit meeting place for national and international societies. The inconvenience and discomfort undergone at the recent International Tuberculosis Cogress was sufficient proof of the need of such a building in this country, and it had been generally agreed that no more fitting tribute or more useful and appropriate memorial could be erected to the memory of George Washington. Other national organizations had endorsed the undertaking, and as such endorsement would involve no expenditure on the part of the American Medical Association Dr. Welsh presented this matter in the form of a resolution which the House of Delegates adopted.

Resolution on Davis Memorial.—A resolution recommending that the American Medical Association appropriate $5,000 toward the Davis Memorial, on condition that the State and county societies raise the sum of $20,000 within three years, the $5,000 not to be available until the $20,000 was raised, was adopted by the House of Delegates.

Section and Section Work.—The Reference Committee on Sections and Section Work stated that, as there existed a very active body for the study of anatomy in the Society of American Anatomists, and, since teachers of anatomy were no longer accustomed to doing practical surgical work, it was advisable to omit the words "and surgery" from the section known as the "Section on Surgery and Anatomy," and to call it hereafter "The Section on Surgery." A resolution to this effect was adopted.

This committee also recommended that the section known as "The Section on Cutaneous Medicine and Surgery" be changed to "Section on Dermatology." A resolution to this effect was adopted. A resolution was also adopted forming a new section, to be known as "The Section on Urology and Venereal Diseases." The committee also recommended that the president appoint a committee to consider the advisability of forming a Section on Anesthesia, the committee to be appointed from the several sections, and the board of trustees to be instructed to appropriate the funds required for this investigation. A resolution to this effect was adopted.

Report of Reference Committee on Legislation.—This committee recommended: (1) That the House of Delegates again endorse the establishment of a National Public Health Department, and presented a resolution to the effect that the American Medical Association reaffirm their stand and that they recommend legislation to that end. (2) That this association respectfully recommend a resolution to Congress amending the National Food and Drug Law and urging the necessity for this amendment. This resolution recommended (1) that they prohibit absolutely the use of benzoate of soda and such preservatives in the preparation and preservation of foods designed for interstate commerce. (2) That effective Federal inspection of food manufactories be enforced in order to prevent the employment in such factories of persons affected with contagious or infectious diseases, and, furthermore, that they prohibit the use of benzoate of soda and such preservatives in the disposal of waste products handled as food stuffs and foisted upon the public.

Dr. Welsh of Baltimore thought the resolution should not be adopted because it was an open question as to whether benzoate of soda was injurious; some claimed that in the quantities in which it was ordinarily used as a preservative it was absolutely harmless.

Dr. C. A. L. Reed of Cincinnati said that the attention of the legislative committee had been directed to that question, and that in framing the resolution they had been very careful not to say whether benzoate of soda was harmless or not. There were some undisputed facts that made it imperative to speak in no uncertain manner. Laying aside the question of salubrity, upon which there was such a difference of opinion, the fact remained: (1) That benzoate of soda was the last stand taken and held by those who used deleterious preservatives in food stuffs. (2) Laws had been passed which had driven out all other substances of this class. (3) This remaining one was used for the purpose of preserving waste products of canneries which were absolutely unfit for food. Near Baltimore there were many canneries with a large number of colored employees, who went about in the factories barefooted and barehanded. There were no regulations regarding expectoration. Fruits were peeled and cored and this waste often fell on the floor. It was collected with a rubber sweeper and used again. Without benzoate of soda this refuse could not be utilized. They wanted Federal inspection for purposes of cleanliness. Testimony was ample that subjects of tuberculosis and syphilis, even those with syphilitic lesions on their fingers, were employed without let or hindrance. It was time for the American Medical Association to speak in no uncertain terms. If they ignored the question it was equivalent to an approval of the present state of affairs.

The House of Delegates voted to present this resolution to Congress.

The Reference Committee on Legislation, in the matter of the "Navy Department Bill," approved and urged as follows: (1) A bill to reorganize and increase the efficiency of the Hospital Corps of the United States Navy and regulate its pay. (2) A bill authorizing the appointment of dental surgeons in the Navy. (3) A measure to provide for a medical reserve corps in the Navy. (4) A bill authorizing the construction of two hospital ships, not to exceed in cost $3,000,000.

The House of Delegates adopted the resolution to support these bills.

Uniform Medical Practice Law.—The Reference Committee on Legislation reported that it approved the resolution calling for a general conference on medical legislation for the purpose of considering the essentials of a uniform medical practice act suitable for adoption by the various States. Such a conference should consist of members of the National Council on Legislation, the Council on Legislation of the American Medical Association, members, secretaries and presidents of State Examining Boards, State committees on medical legislation, and deans of medical colleges.

The House of Delegates adopted the resolution calling for this conference, and the Reference Committee on Legislation endorsed the resolution, proposing that a committee be appointed to consider the advisability of establishing a relief fund for those who had devoted themselves to the cause of medicine, the resolution urging the passage of uniform State laws on vital statistics, and the resolution commending the work done for the relief of Dr Carroll's widow. The House endorsed and adopted these resolutions.

Drug and Patent Laws.—The Reference Committee on Drug and Patent Laws recommended that as further investigation along these lines was needed, the present committee be continued. The House acted on this recommendation.

Amendments to Constitution and By-Laws.—Two amendments were passed whereby during the interval between the meetings of the House of Delegates the Board of Trustees should supervise the action of committees, and any committee acting between sessions should be subject to the Board of Trustees.

Report of the Reference Committee on Scientific Nomenclature.—This committee recommended that the report of the standing committee on Scientific Nomenclature be adopted, and expressed great appreciation of the work done. The result of two conferences, one held in Philadelphia and one in Washington, of special section committees and associated committees of the American Medical Association, the Committee of the Vital Statistics Section of the American Public Health Association and Cooperating Federal Services, was a recommendation for the revision of the International Classification of the Causes of Death. Among the changes suggested were: Change "Epidemic Diseases" to "Infective Diseases"; disuse the word "croup"; divide title dysentery into amebic dysentery, bacillary dysentery and dysentery (undefined); make title Plague and add pestis minor, pneumonic plague, and septicemic plague; separate actinomycosis and trichinosis; the word "tuberculous" should be restricted to the specific disease tuberculosis, and the word tubercular should be discarded in this connection. The proposed rearrangement of tuberculosis was under the following titles: Total Tuberculosis, Tuberculosis of the Lungs, Acute Miliary Tuberculosis, Tuberculous Meningitis, Abdominal Tuberculosis, Tuberculosis of Joints, Glands, Spine, etc. In reporting cancer give point of origin, or primary site; specify, if possible, the variety of neoplasm. As a result of the conferences a prepared list of undesirable terms was agreed upon and the reasons for considering such terms undesirable. Among these terms were abscess, accident, injury, violence, undesirable because unqualified; other undesirable terms were atrophy, congestion, convulsions, dropsy, heart disease, heart failure, hemorrhage, hemoptysis, hydrocephalus, marasmus, operation, surgical shock, paralysis, peritonitis, pneumonia, pyemia, tuberculosis, tumor, typhoid pneumonia. These terms were either unqualified or vague. A rearrangement of the causes of violent death was also proposed. In regard to nomenclature proper the committee considered the Nomenclature of Diseases, drawn up by the joint committee appointed by the Royal College of Physicians of London, as, in the main, admirable, but they thought it had some defects requiring correction and that certain additions should be made. This committee recommended that in all diseases involving anatomical terms the nomenclature adopted by the German Anatomical Society, generally known as the *Basle Nomina Anatomica*, be adhered to. This nomenclature was superior to anything of the sort that had been proposed. It involved the retention of all diphthongs in Latin words. In such words as anæmia and diarrhœa they proposed to enclose the first letter of the diphthong in parenthesis, as an (a)emia, diarrh(o)ea. This method required the substitution of chorioid for choroid, Falloppian for Fallopian, etc., and they recommended this change in the interest of uniformity. They recommended that lukemia and septicemia be spelled luchæmin and septichæmia. They thought no other spelling defensible. Many other changes were recommended based on a careful study of all the suggestions received from the cooperating bodies and they were approved of at a meeting held in New York on April 1, 1909, at which meeting were present Dr. Wilbur, Dr. Batt, Dr. Cattrell, Dr. Meyer, Dr. Coleman, Dr. Guilfoy, and Dr. Frank P. Foster. At this meeting it was resolved to recommend the following additional titles: Paratyphoid, African tick fever, tropical bubo, hill diarrhea, epidemic gangrenous proctitis, Japanese river fever, basha fever, acute febrile jaundice (Weils' disease), glandular fever, mountain fever, Rocky Mountain tick fever, coccidioidal granuloma psittacosis, milk sickness, polyeythemia, cardiac arrythmia, heart block, achilia gastrica, asthenic bulbar paralysis. This committee was charged with making provision for a delegation to the Paris conference for revising the International Classification of Causes of Death. It was found that this matter was in the hands of the United States Government; this committee was not aware that any steps had as yet been taken by Congress to provide for a delegation.

Awarding of Prizes.—It was announced that the Gold Medal for the best exhibit of research work had been awarded to the New York Lying-in Hospital and the gold medal for the best tuberculosis exhibit had been awarded to the Indiana Society for the Prevention of Tuberculosis.

(To be continued.)

GENERAL SESSIONS.

Tuesday, June 8—First Day.

THE FIRST VICE-PRESIDENT, DR. T. J. MURRAY OF BUTTE, MONTANA, IN THE CHAIR.

Invocation.—The Rev. NEWTON CALDWELL of Atlantic City opened the meeting with prayer.

Address of Welcome.—HON. FRANKLIN STOY, Mayor of Atlantic City, said that it gave him pleasure to again welcome the American Medical Association to the city. He questioned whether there was a conference anywhere that had representatives from so many States and Territories. He was grateful that they had again chosen this city as the place of meeting.

Address of Welcome.—Dr. E. H. HARVEY of Atlantic City also welcomed the members of the Association on behalf of the Medical Profession of Atlantic City.

Address of Welcome.—Dr. DAVID ST. JOHN of Hackensack, President of the New Jersey State Medical Society, said that their welcome was intensified with each return to this city. He reviewed some of the advances made in research work which were enabling the practice of medicine to approach to an exact science. The opposition that they had encountered from those opposed to vivisection should act only as a stimulus to their efforts.

Introduction and Installation of the President-Elect.—Dr. MURRAY introduced Col. WILLIAM C. GORGAS, U. S. A., Chief Sanitary Officer of the Isthmian Canal Commission, the President-elect of the Association.

Address by the President.—Col. WILLIAM C. GORGAS then delivered his address (to be published).

SECTION ON DISEASES OF CHILDREN.

Tuesday, June 8—First Day.

DR. THOMAS S. SOUTHWORTH OF NEW YORK IN THE CHAIR.

Chairman's Address: The Field for Prophylaxis Among Children.—Dr. THOMAS S. SOUTHWORTH of New York read this paper. He said that the period between infancy and puberty was the most important, because it was the time of greatest development, and that the foundation of a good physique was laid in childhood. He stated that the beneficial effects of environment, education, and proper food were recognized by the profession at large. The high mortality among infants was due to overcrowding in our large cities and to the steady decrease in maternal nursing. He claimed that ignorant physicians and midwives were responsible for this latter condition. The education of the mothers as to the dangers of un-

necessary weaning was urged. He told of the serious results which sometimes occurred from the presence of adenoids and enlarged tonsils, and advised their early removal. He called attention to the fact that the premature loss of the first teeth had a serious effect on the development of the jaw, which resulted in disfigurement of the face. It was important to note that an examination of the ears and eyes was necessary in every patient. Prophylaxis was the highest ideal of our profession, and we were responsible for the safeguarding of the child.

Transitory Urinary Findings Associated with Some Diseases of Childhood.—Dr. Walter Lester Carr of New York presented this communication. He said that the common forms of kidney lesion found after or associated with acute diseases were generally appreciated. He believed many cases of influenza, tonsillitis, and enteritis gave symptoms of kidney changes that were evidently transitory, and were not always of a serious character. Sugar was found in the urine of babies that were fed on patented foods. Hyaline casts and albumin were discovered in the urine of children who had a lithemic family history, and also in the urine of children who had a record of intestinal indigestion. He advised an examination of the urine in every case of gastritis in children. Pyelitis was one of the obscure causes of fever in a child that had enteritis.

Dr. John Lovett Morse of Boston said that an infection of the kidney secondary to other diseases never showed edema. Albuminuria was regarded as a degree of toxemia, and on this account was of prognostic import. Pneumonia and meningitis in children usually were accompanied by an albuminuria.

Dr. F. S. Churchill of Chicago believed in making a careful uranalysis in every case. He stated that when the chemical test showed no albumin he examined the sediment for casts. Pyelitis was often found in a patient that had tonsillitis and otitis media, and it prolonged convalescence.

Food Intoxications in Childhood.—Dr. John Ruhräh of Baltimore read this paper. He cited several typical cases, and concluded as follows: (1) Improper feeding was the most frequent cause of the affection. (2) There was no separate symptom-complex for each form of food poisoning. (3) Poisoning was produced by the child's inability to utilize normal amounts of fats, proteins, or carbohydrates. (4) Treatment consisted of outdoor life in the country, restricted diet, and a mild laxative administered once weekly for several weeks.

Infantile Eczema; Recent Views Concerning Its Pathology and Etiology.—Dr. Isaac A. Abt of Chicago presented this paper. He said the older authors thought infantile eczema was due to overfeeding and constipation. He believed that eczema in children was dependent on constitutional disturbance. There was a relationship between infantile eczema and bronchial asthma. Many cases showed a lithemic family history. The complications of infantile eczema were albuminuria and heart disease. Treatment consisted in the use of oils or vaseline to soften the crusts, which were removed slowly to prevent fever. The area was covered with zinc oxide ointment and dusted with talcum powder. Fowler's solution was given internally. Diet was regulated and good results were obtained from the use of skimmed milk and buttermilk.

Hair-Ball or Hair-Cast of the Stomach and Its Occurrence in Children.—Dr. W. W. Butterworth of New Orleans read this paper. He stated that there were less than fifty cases of hair-ball reported as occurring in man. Thirteen cases were reported occurring in children. He reported the case of a girl, age eight years, who had complained of gastric disturbances, and a tumor in the epigastric region. Diagnosis was not made antemortem. The postmortem revealed a cast resembling the shape of the stomach, which was composed of human hair, the color of the patient's. The habit of swallowing small strands of hair was quite common in early life, especially among young girls.

Adenoid Hypertrophy During the First Year of Life and Its Treatment.—Dr. Rowland Godfrey Freeman of New York read this paper. He said that physicians paid too little attention to the presence of adenoids in early infancy. He removed adenoids in the first year. It was important to advise early operation. Operation was rapidly performed without an anesthetic. Slight pyrexia was no contraindication. When performed under an anesthetic, nitrous oxide was used. There was no shock to the infant in either case. The instrument used was the curette Hemorrhage was checked by adrenalin solution—1-5,000.

Dr. John Lovett Morse of Boston said that he believed in the removal of adenoids when they produced symptoms, without regard to age.

Dr. F. S. Churchill of Chicago said he preferred not to operate on adenoids when there was any fever present.

Dr. S. W. Kelley of Cleveland stated that he was opposed to using anesthetics in very young infants. An anesthetic was seldom necessary.

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

Tuesday, June 8—First Day.

Dr. Walter P. Manton of Detroit in the Chair.

The Chairman's Address on Mental Alienation in Women and Abdominopelvic Disease was read by Dr. Walter P. Manton of Detroit. He said that for twenty years he had been studying this condition, that sympathetic insanities had been described by Hippocrates, that somatic insanities had long been appreciated and mental diseases were known to be due to bodily disease and yet these had been largely ignored in treatment by the alienists. The relation of diseases of women to mental disturbances at the time of puberty, menstruation and menopause had been made prominent by gynecologists. The State had undertaken to care for the insane but should also attend to the bodily sufferings leading to the morbid states of mind in the insane. Eighty-one per cent. of insane women were shown to suffer from pelvic disorder. Post-operative insanities were rare, occurring less than once in one thousand cases as recorded in institutions, but many were temporary and were not included in these statistics. A mental breakdown was more liable to follow operation on the pelvic organs than that on any other organ except the eye. Following the puerperal period, except in cases of sepsis and toxemia, insanity was rare. Of the somatic conditions associated with insanities abdominal lesions due to adhesions, etc., led to imaginations suggesting that the intestines were being eaten up and the like. In addition to the definite local lesion an unstable mental organization was always present as a substructure. The local pelvic disease rarely led to mental debility except when some constitutional condition, such as sepsis or toxemia, was also present. The pelvic condition was only one factor in the mental condition. In the cases of puerperal insanity there was an additional mental instability present. In a certain number of cases relief of the mental condition followed the cure of the somatic condition, and in every case the somatic condition should be primarily treated.

The Operation of Choice in Retrodisplacements of the Uterus.—Dr. A. E. Benjamin of Minneapolis said that retrodisplacement associated with disease of the pelvic organs always needed operation, otherwise the retrodisplacement alone might not need treatment. No one type of operation would answer in all cases. The ventral suspension of Kelly once popular had given much relief, but had also caused much harm. Alexander's operation was

not popular on account of technical difficulties. Most operations had their objections. He had gotten best results from a modified Gilliam operation, making a medium incision, opening the abdomen and correcting other pelvic conditions, then dissecting back the skin, pushing the forceps through the internal ring, getting the round ligaments, and pulling the uterus forward. The anterior ends of the round ligaments were then spread out in fan shape and fastened to the fascia. In this operation only normal tissues were used, the weak parts of the ligaments were avoided and there was no interference with function of bowel, bladder, or uterus.

Dr. Barrett of Chicago said that the choice of operation should provide safety and simplicity, allow intraabdominal inspection, use normal ligaments, preserve their best parts, and leave them in normal position. If all these were present the success was almost sure. The operation of Dr. Benjamin in its intraabdominal finding of the round ligament and utilization of its best part in its normal canal should give the ideal results.

Dr. Bovée of Washington, D. C., said that no one operation was suited to all cases. In many cases shortening of the round ligaments was sufficient, but it was often necessary to cut the short uterovesical, and shorten the long uterosacral, as well as the round ligaments. He cited one case in which he had done a ventral fixation and eight months later the patient had been operated on again for prolapse. The cervix was found at the vulval outlet with the fundus still adherent to the abdominal wall eight inches away.

Dr. Boldt of New York said that while no one operation was suited to all cases, Alexander's operation gave excellent results in the cases for which it was originally intended in the freely movable uterus without adnexal disease. But many of these cases could get along without operation, or by the use of a pessary. In the conditions where the pelvic floor was relaxed he had found nothing equal to suspension.

Dr. Hall of Cincinnati said that he considered it very rare that suspension should be allowed on account of the possible intestinal obstruction. He thought the operation should be abandoned.

Dr. Marcy of Boston said that in inguinal hernia the main factor of cure depended upon reconstruction of the canal. In Alexander's operation for retroversion, if the canal was split up hernia would frequently be found and a curative operation on the hernia in addition to the Alexander operation was a great benefit.

Dr. Peterson of Ann Arbor said that he always opened the inguinal canal and shortened the round ligaments, thus curing the hernia at the same time, as did Dr. Marcy. He never used ventral suspension and he had too many relapses after the Webster-Baldy operation.

Dr. I. S. Stone of Washington, D. C., said that there were some displacements that were never curable. The condition behind the retroversion and its true cause could be understood only by a better study of the pathology. There was usually a visceroptosis and no round ligament operation could be expected to cure such a condition. A relaxation of all the abdominal and pelvic ligaments preceding the retroversion caused a descent of the viscera, and treatment should be aimed at the support of all the viscera, or better, at a prevention of the visceroptosis. Another reason for failure in many of the round ligament operations was paralysis of the nerves and obliteration of the blood-vessels caught in the suture of the ligament.

Dr. Fry of Washington said that the discussion of the question as to which was the best operation for retroversion was like asking which was the best remedy for whooping-cough. He used suspension but occasionally got fixation. The Alexander operation was unsatisfactory on account of the difficulty in finding the ligaments and did not cure the prolapse of the ovary. He had given up suspension principally on account of the objections raised from the experience of other operators. The Gilliam operation gave a great deal of pain after operation. He preferred to do a Webster-Baldy operation, often with a Pfannenstiel incision, which relieved the prolapse of the ovary. There would be no atrophy of the ligament if only one-half of its diameter was included in the suture.

Dr. Cole of Buffalo said that he believed in the treatment of visceroptosis, but thought it necessary to give previous medical care before all operations and thorough examination to provide a full diagnosis before a round ligament operation was undertaken, which could only cure one feature.

Dr. Potter of Rochester, N. Y., said that the reason we did not cure more patients was because we did not get them early enough. She believed in the careful examination in all cases of dysmenorrhea in virgins and treatment to prevent the later complications.

Dr. Shoemaker of Philadelphia said that a careful study of his patients had shown that many cases of retroversion did not need any operative treatment. Treatment of other pathological conditions when present frequently relieved the symptoms. He laid emphasis on the seriousness of infection of the inguinal canal.

Dr. Benjamin, in closing, said that pronounced retroversion gave symptoms which could frequently be improved by attention to the patient's general condition and muscular development. The suspension he objected to on account of the intestinal obstruction possibilities, and in the Baldy operation the ligaments hugged the uterus and the blood supply was constricted.

A Study of the Anatomy and Clinical Importance of the Sacroiliac Joint.—Dr. Fred H. Albee of New York City said that the presence of a synovial cavity with the possibility of movement of the sacroiliac joint was questioned by anatomists and described most varyingly in text-books. His own dissections of fifty specimens showed a constant presence of a synovial membrane and capsule of a fairly uniform size and definite location. This capsule was thin anteriorly and very liable to rupture in that direction. The lumbosacral cord lay close to it, and in a constant relation to it, giving rise to possible sciatica in case of disease of this joint. The sacrum and the ilia separated easily when the symphysis pubis was cut and the anterior layer of the capsule ruptured. The interosseous ligament regularly separated from the ilium. The joint tended to tip downward and forward and sprains occurred easily. In Walcher's position an increase of eight millimeters in the conjugate diameter was gained, due to movement of this joint. In symphyseotomy even greater motion was obtained. He laid special stress on the fact that the sacroiliac was a true joint and open to metastatic infection and especially liable to rupture into the pelvis. He cited four cases of disease of this joint, two of them sprains cured by strapping, one of dislocation reduced under ether, and one postpartum also cured by strapping.

Dr. Frederick of Buffalo said that this paper brought up the important point of differential diagnosis between conditions in the female pelvis referable to the female organs and those simulating these affections but not due to peculiar gynecological conditions. The symptoms in common were the backache, pelvic tenderness, and neurasthenia. Some cases of diseases of the sacroiliac joint showed hyperesthesia of all the pelvic organs and could be cured by supporting the hips and the lumbar spine.

Dr. Peterson of Ann Arbor said that while the diagnosis was not easy, certain cases of marked pain in the back occurring after operation he had prevented empirically by using a mattress pad two to three inches thick on the operating table. The Trendelenburg and lithotomy positions put distinct strain on the sacroiliac joint.

Dr. Barrett of Chicago said that certain cases of pelvic infection were due to a rupture of an abscess of this sacro-iliac joint into the pelvic tissue and gave rise to suspicion of gynecological conditions.

Dr. Morris Solis-Cohen of Philadelphia called attention to the fact that sacroiliac disease was due to malposition in standing, or sitting, with an abnormal lordosis of the spine.

Dr. Wynekurg of Scranton said that this joint was the most abused joint, especially by obstetricians in high forceps deliveries, where the strain was divided between compressing the child's head and rupturing the weak anterior capsule of this joint. He thought that cesarean section should always be preferred to high forceps delivery.

The Endometrium and Some of Its Variations.—Drs. William S. Gardner and Emil Novak of Baltimore presented this communication. They said that they had undertaken a study of the normal histology of the endometrium in relation to the menstrual function, in the light of the work recently done by Hitchman and Adler, who had shown a constant cycle of changes in the condition of the endometrium leading up to the menstrual discharge. To a large extent the writers had confirmed this work. The material obtained, however, had shown the condition considered characteristic of the premenstrual stage at periods from nine to fourteen days after the menses; therefore, they had considered that these endometrial changes were probably due to changes in the blood-vessels and blood pressure in the pelvis. The blood pressure was highest at the premenstrual epoch, and any pathological hyperemia might give the same appearance. The glands with papillomatous outgrowths considered by Opiz characteristic of pregnancy evidently were not such. The stroma cells seemed like the decidual. They did not believe that the date of the menses could be told by the histology of the endometrium.

Dr. Marcy of Boston said that many years ago there had been shown to be a necrosis of the endometrium in animals simulating menstruation.

Dr. Clark of Philadelphia said that three years ago the American Medical Association had asked for a simplification of the nomenclature of endometritis, that this work might now well be revised in the light of the present paper. It was easy to understand how the diagnosis of "adenoma suspicious of malignancy" could be made from curettings procured at a time approaching menstruation or in conditions of pelvic high blood pressure. He thought that when uterine curettings were sent to a pathologist they ought to be accompanied with the patient's menstrual history, to give him a chance to study the condition of the endometrium in its normal phases, and learn not to confuse the pathological and normal physiological changes

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SECTION ON SURGERY AND ANATOMY.

Tuesday, June 8—First Day.

"Pulmonary Complications in One Thousand Consecutive Laparotomy Cases."—The chairman, Dr. John C. Munro, of Boston, read this paper. Of the total, 30 per cent. were appendicular; 21 per cent. were hernias; 10 per cent. liver and pancreas; 6 per cent. were gastric. Of the thousand cases, eleven or 4-10 per cent developed pulmonic conditions. Four were cases of simple bronchitis; five were lobar pneumonia; three were fatal. This was a much lower percentage than had been reported from European clinics, and the author had been unable to find any single explanation of this fact. In Europe from 4 to 5 per cent. was the common figure. Age, sex, climate were in general of little significance. The anesthetic had been ethyl chloride, followed by ether, carefully given by the drop method. Morphine and atropine were always used; the patients were almost always out of bed in 48 hours, and always sat up as early as possible after operation. Water and a free diet were given as soon as possible, and the patient was encouraged to move freely as early as possible. This divergence from the usual post-operative course, combined with the very perfect asepsis and nursing, made possible by coordinate hospital work, was probably the collective cause of the low thoracic post-operative involvement reported.

Localized Subphrenic Tuberculosis.—Dr. C. A. Powers of Denver reported a case of caseous infiltration between the liver and diaphragm which had produced very typical symptoms of gall-bladder disease. The mass was removed and the region curetted. The pathological report showed tuberculosis. Later the appendix was removed for tuberculous involvement. The mode of passage of germs through the diaphragm was not yet clear, but lymphatic currents traveled in both directions. Some authorities held, however, that transmission was always by active growth.

Treatment of Tuberculous Pleuritis and Empyema.—Dr. Emil G. Beck of Chicago read this paper. He advocated the use of a 33 per cent. bismuth-vaselin paste. It worked more successfully in empyema even than in ordinary sinuses. He presented two series of cases treated by this method, and stated that if signs of poisoning developed the paste could be removed with the help of hot oil. It was not necessary to distend the cavity on introducing the bismuth.

Address on Thoracic Surgery.—Prof. P. L. Friedrich of Marburg, Germany, made this address. He said that while pneumothorax lessened the motion of the chest and thus aided the operator, it added a real danger to the patient by collapsing the lymphatic channels and thus favoring sepsis. Infection was by far the greatest danger to be feared in any chest work. The differential pressure had proved to be of the greatest aid in controlling hemorrhage and no serious operations on the chest should be undertaken without it. He spoke of the technique of closing wounds of the lung, advising the use of silk, and stated that while minor work could be done without extensive rib resection, any active treatment of abscess or gangrene of the lung required wide resection. The closure of the bronchi above the cartilages was very difficult and demanded special technique—this was not yet satisfactorily evolved. He had used an elastic ligature in some cases. The two-stage operation was being studied in Germany, but its indications were still problematical. On the whole, the results of operations in empyema and certain forms of pulmonic tuberculosis had been, during the past eighteen months, very encouraging. Lesions should be unilateral for successful surgical intervention. He described the technique of a transverse sternal thoracotomy which, after ligation of the mammaries, gave an excellent field for thoracic exploration. Longitudinal section was much more difficult and slower. As to the future of intrathoracic surgery he thought it would be possible with the aid of perfect technique actually to invade the heart itself and effect repair of diseased valves. Meanwhile, the great prospect of the future was in the field of exploratory thoracotomy.

Pneumonectomy with the Aid of Differential Pressure; an Experimental Study.—Dr. Willy Meyer of New York read this paper. He said that there no longer existed any question as to the importance of differential pressure in the surgery of the chest. It greatly facilitated any procedure. He alluded to the use of the angiotribe as an aid in severing and inturning the larger bronchi. Air was retained in the cavity after lung resection for many weeks. He said that the balloon was a new addition to thoracic surgery, as was also the combination of negative and positive pressure

Intrathoracic Physiological and Technical Studies.—Drs. NATHAN W. GREEN and H. H. JANEWAY of New York read this paper. One of the most important elements for successful intrathoracic work was the introduction of a physiological apnea. The authors had made use of two methods of over pressure at the Surgical Research Laboratory of Columbia, in one of which the air was delivered directly through intubation, the supply and exhaust being controlled by a circular valve, while in the other the air had been delivered after the manner of the ordinary Brauer Chamber. This, as usually employed, had not the advantage of over-oxygenating the blood. To the ordinary box a valve had been added which was actuated by automatic electric attachments, and which was capable of emptying the box suddenly of all over pressure about eighteen times a minute. This simulated the ordinary respiratory act except that it was in greater volume. Thus the patient could be hyper-oxygenated very soon after entering the chamber and all the advantages of the intubation method were thus given an ordinary Brauer box. Professor Joseph A. Blake was now using this apparatus in New York. Two types of operation had been done in sixty-eight days. The one was a side-tracking of the cardia, the other embraced resection of the cardia. The first was done with little or no mortality, the second was followed by a very high mortality. This might be due to a disturbance of normal physiological action, for death sometimes occurred without gross evidence of sepsis. Any invasion of the esophagus, even by means of specially designed buttons, was a grave matter, for sepsis was much more common than after any form of operation on the lungs.

Dr. C. A. POWERS of Denver, in opening the discussion, said that the thoracic organs, unlike those of the abdomen, were immediately concerned with life. Hence this region, now opening to the surgeon, had until to-day been closed.

Dr. MELTZER of New York said that it was physiologically incorrect to suppose that no difference existed between the positive and negative pressures. There was much interference with carbon dioxide exchange in overpressure.

Dr. ROBINSON of Boston said that clinically the results of positive and negative pressures were identical—that the essential point was for surgeons to use a form of differential pressure rather than to depend on the fixation of the mediastinal partition. Most cases of empyema would in future be shown to be due to the failure of the surgeon at the time of primary operation to utilize differential pressure, and make the lung fast to the chest wall.

Dr. N. W. GREEN of New York spoke of the method of removal of lobes or of entire lungs, noting that the technique evolved in the Surgical Research Laboratory of Columbia, two years ago, had proved relatively free from danger when used on healthy dogs. Not so, however, in intervention on the esophagus where, despite unusual precautions the mortality was exceedingly high. It probably was not alone a matter of sepsis, but was concerned with a physiological disturbance as yet uninterpreted. There were many chances for exploratory work in the chest, and with properly applied differential overpressure, combined, probably, with rectal anesthesia, thoracotomy would be as safe as an ordinary laparotomy. Atropine had been used at the laboratory as routine preparation for thoracotomy for several years. Furthermore, Schäfer of Edinburgh had spoken of its similar use at the 1908 meeting in Chicago. Its employment was therefore not new. Inasmuch as sixty mm. of mercury could be recorded by expiratory effort, an overpressure of ten mm. must be absolutely harmless.

Dr. MURPHY of Chicago said that the treatment of empyema cavities lay in the successful sterilization of their walls followed by the introduction of an enzyme to create soluble albumoses, which were absorbable. A 2 per cent. formalin-glycerin solution was useful. Effusions, if sterile, should be left alone. Nature put them there to compress the lung in order to promote repair.

Dr. OCHSNER of Chicago considered the use of bismuth paste a very great advance.

Dr. FRIEDRICH, in closing, said that exploratory thoracotomy would be the triumph of the future.

Dr. JANEWAY, in closing, said that while operations might be done on the chest without differential pressure, there could not possibly be any progress made in the surgery of the esophagus without the employment of this technique. He made a strong plea for systematic and continued experiments on animals, and urged that as epithelioma of the esophagus had long been known to occur in early stages as a removable growth, a systematic examination with proper instruments should be made of all suspicious cases.

SECTION ON MEDICINE.

Tuesday, June 8—First Day.

DR. JOSEPH L. MILLER OF CHICAGO IN THE CHAIR.

Medical Supervision of Boarding Schools and of Athletic Contests Among Schoolboys.—Dr. NATHANIEL BOWDITCH POTTER of New York reported his observations of thirty-eight boys from six schools; the ages were between fourteen and three-quarters and twenty-one years; observations were made before and after one-mile runs, which lasted from five and one-third to ten minutes. He noted that the pulse became irregular in 11, or 29 per cent.; before the run 25, or 60 per cent., had a pulse of 80 or more; after the run 14, or 37 per cent., had a pulse of 150 or more, and 8, of 33, or 24 per cent., had a pulse of 110 or more. With regard to heart dulness, it was increased to the right in 11, or 29 per cent.; to the left in 15, or 39 per cent., and above in 2, or 5 per cent. The pulmonic second sound was increased in 21 boys, or 55 per cent.; the aortic second sound was increased in 7, or 18 per cent. In 4, or 10 per cent., there was a thrill. There was an apical murmur in 17, or 44 per cent., and a basal murmur in 21, or 55 per cent. In all acetone in the urine was absent. Before the run albumen was present in the urine in 9, or 23 per cent., and casts in 6, or 16 per cent. After the run albumin appeared in the urine in 31, or 81 per cent., and casts in 16, or 43 per cent. On the morning following the run albumen was present in none of 6 cases, and casts appeared in but 1 of 6 cases, or 16 per cent. The result of his observations pointed to the fact that in each school where from six to eight boys were selected to engage in athletic contests, there was at least one boy whose condition required a very careful supervision before entering these contests. His paper was written merely to stimulate interest in this subject and in the collection of statistics to show that more care should be given in the selection of those who were in boarding schools and who were about to engage in athletics.

Dr. DE LANCEY ROCHESTER of Buffalo knew of three serious cases of cardiac trouble which developed in boys under observation in school athletics. In athletics one of the most serious things they had to contend with was the fact that they were to engage in a contest; competition was what made these boys overexert themselves. There was danger in the masters in the schools encouraging the boys, urging them on in the athletic contests, thus making physical injury possible.

Dr. RICHARD C. CABOT of Boston spoke of what was found by a Cambridge man in the urine of men who had engaged in a boat race—large amounts of albumin, blood, and casts; and yet the urine was free of these within forty-eight hours after the contest.

Dr. Black of California believed that these contests developed endocarditis; they were developing heart troubles in children by encouraging athletic contests. When children were but eight years of age they were encouraged to make one-mile runs, and he knew instances in which they fell from exhaustion and unconscious on the track; and these were the little boys in the primary grades. This he considered an outrage.

Cardiac and Vascular Complications in Pneumonia, with Special Reference to Treatment.—Dr. Frederick Forchheimer of Cincinnati read this paper. He discussed the subject under three headings, viz. (1) the normal heart which became diseased in pneumonia; (2) the heart which was already diseased in pneumonia; (3) the effects of vasomotor paresis and paralysis. Because of the peculiar action of caffeine in stimulating the vasomotor centers and its action upon the heart he had administered this drug in a routine way during the past twelve years; this agent always increased the blood pressure, unless there was some organic lesion, which increased it. The only contraindications for its use would be abnormally high blood pressure, when there was danger of doing harm by the possibility of increasing it, a condition which might present itself in cases of cerebral arteriosclerosis, or in recent endocarditis. He had never seen any other effect upon the heart than that of diminution in the rate in pneumonia when the drug was given in proper doses. He employed the double salts, as they were more stable when dissolved in water and less irritating when administered hypodermically than any of the other salts of caffeine. Besides dilatation of the right heart as a menace in pneumonic patients, other cardiac conditions which might develop were pericarditis, acute myocarditis, and endocarditis. Endocarditis was the most frequent complication. It seemed that acute myocarditis occurring in pneumonia was a post-febrile form, and as such led to sudden death from acute myocardial insufficiency. As pneumonia was a bacteriemia it was not remarkable that the septic form developed, relatively, quite frequently. The treatment of these conditions was the same as that applied to them under other conditions. The treatment of pneumonia with coexisting cardiac lesions had been variously described; some authors gave digitalis in every case, while others gave it only for specific indications. Dr. Forschheimer now restricted the use of digitalis to those cases in which there was a probability of decompensation because of the additional work put upon the heart. In diseases of the myocardium were found upon the whole the most dangerous complications of pneumonia. Whenever any manifestation of myocardial insufficiency developed, it should be treated as an acute myocardial insufficiency, and the results would vary with the form of myocardial disease and with the individual condition. In the fatty heart, little could be expected from the use of digitalis or strophanthus, when the myocardium was already weak or when there existed arteriosclerosis. In the heart of Bright's disease when, notwithstanding the existence of renal disease, the blood pressure went down, caffeine should be given in large doses and digitalis as well. In arteriosclerosis the blood pressure was an infallible guide to therapy. Pericarditis did harm in various ways, either by producing myocardial insufficiency by extension to the myocardium, by the production of adhesive processes, or by the presence of fluid in the pericardium. When the latter existed, the fluid should be removed, otherwise the myocardial insufficiency should be treated.

Dr. De Lancey Rochester of Buffalo said that dilatation of the right heart occurring in pneumonia was not very uncommon, and was one of the conditions in which venesection was of particular value. He recalled twelve cases of pneumonia with dilatation of the right heart, and in each case he believed life was saved by the prompt removal of from 200 to 400 c. c. of blood, and as an illustration of its value he reported one case in detail.

Dr. Frank Billings of Chicago agreed with Dr. Forschheimer that active measures were necessary when the cardiovascular syndrome developed; until that time not all were agreed as to what should be done. It was very necessary that one should know not only when to give drugs but when not to give drugs. He said that the longer he lived and attempted to care for pneumonia patients the less was he inclined to give drugs until they were necessarily called for. The moment, however, that cardiovascular symptoms appeared, when the cardiovascular syndrome became manifest with the lowered blood pressure, with failing left heart, etc., the time had then arrived for active work. First of all he believed in the proper use of digitalis, but not as ordinarily given, by the mouth. He used a preparation of the leaves of the digitalis. Camphor was an agent which would rapidly raise the blood pressure in a failing heart; he gave one or two grains in the ordinary camphorated oil. Musk also was an agent which would raise the blood pressure. Strychnine was absolutely useless in these conditions except through its action on the nerve centers. In those cases of failing right heart, with dilatation, etc., he believed that venesection was the one thing which was productive of good results, if done immediately, no matter if the patient was plethoric; one should bleed, and bleed freely, and at the same time carry out other indications for treatment. After all the watchful and vigilant care of the pneumonia patient, without the use of drugs, was the ideal treatment; an attempt should be made to preserve the functions of the individual's body.

Dr. John H. Musser of Philadelphia called attention to the importance of remembering that in cases of early cardiac failure the cause was pericardial effusion; one often saw patients treated for heart failure or acute dilatation of the heart during a course of pneumonia when the removal of a few ounces of fluid from the pericardial sac would entirely relieve the symptoms. Of course, Dr. Forschheimer would agree that the best treatment of the heart was to begin the management from the first period of the disease, as soon as the pneumococcus infection was recognized. Therefore, the results that would follow would depend upon such early form of management. In the large majority of cases he preferred to rely upon fresh air, upon the judicious local treatment, hydrotherapy, regulating the amount of food taken, with particular care that the patient be not overfed.

Dr. Alexander Lambert of New York said that eight years ago he became disgusted with the results of the treatments employed in cases of pneumonia and the very unsatisfactory results obtained. Therefore in his division in Bellevue Hospital he determined to try to compare the results of the simultaneous treatment of patients with alcohol and nitroglycerin and drugs which raised the blood pressure. In one division there were 125 patients, while in the other there were 137 patients. He learned that among the patients who were treated with alcohol and nitroglycerin the death rate was 10 per cent higher than in those who were treated with drugs which raised the blood pressure.

An Experimental Study of Gastric Tetany.—Dr. W. G. MacCallum of Baltimore said that the severe cases of gastric tetany that he had seen all ended in the death of the patients. The etiology of the condition had not been understood, and several theories had been advanced to explain it, and the best known probably was that it was due to dessication of the tissues. The French tried to explain it as the result of an autointoxication from the absorption of poisons from the stomach. It was very desirable that the nature of the disease should be determined in order that some form of therapy might be carried out. The work done last year led them to the conclusion that

a sort of tetany could be stopped by the administration of the salts of calcium. Tetany of gastric origin they tried to approach experimentally, first producing tetany by causing an obstruction at the pylorus, in that way keeping the stomach empty. Feeding was carried on through an esophageal fistula. Animals so treated developed tetany, but not so severe as after parathyroidectomy, after the lapse of five or six days. Tetany developed even after large amounts of water were given. The first theory was disproved because gastric tetany did not depend upon the deprivation of water which caused a dessication of the tissues. As the stomach was washed clean, and contained no food whatever, it did not seem possible that it could be the result of an autointoxication from absorption of poisons from the stomach, for no fermentation could occur. In the mornings there was found a considerable quantity of gastric juice, sometimes as much as 500 or 600 c. c. It was possible for them to cure these animals temporarily by the administration intravenously or subcutaneously or by way of the intestine of sodium chloride. This would cure them of their tetanic contractures, but only temporarily, however. They were not able to keep the animals alive for any length of time by the administration of this salt.

Dr. ALLEN A. JONES of Buffalo reported the case of a middle-aged woman who was unconscious for a considerable length of time, and in other respects presented the typical picture of tetany. The woman recovered, but was again seized with tetany, unconsciousness, etc., and again recovered. She probably had gastric tetany; she had a very high hydrochloric acidity and some obstruction with food stagnation.

Dr. NATHANIEL BOWDITCH POTTER of New York said he had had under observation one year ago a case of gastric tetany, and Dr. Herter had examined the stools and urine, but found no evidence of any deficiency in calcium, and no evidences of intestinal putrefaction. They gave the patient calcium in reasonably large doses and she recovered, but they did not believe, however, that the calcium salts did much good.

Chronic Infectious Endocarditis.—Dr. FRANK BILLINGS of Chicago gave a description of the disease with its clinical course, including the positive demonstration of the microorganism by blood cultures. The disease was probably much more prevalent than the literature indicated. Among 14 cases, 11 were pneumococcic and three streptococcic; the pneumococci found in these patients were primarily found in streptococcic form. The source of invasion was an interesting question; in two patients an attack of tonsillitis had preceded the infection; in one case there had been influenza which led to an involvement of the heart and the pneumococci had been found; in two cases there had been a pyorrhea alveolaris, and in the pus from the abscess the pneumococci with other organisms were demonstrated. Drug treatment was absolutely useless. Two patients were given antistreptococcic serum; one received two doses, the other repeated doses. Experience had shown that if they were to use an antistreptococcic serum they must have it from the strain of bacteria that infected the individual to be treated; consequently the antistreptococcic serum now in the market was practically useless. As to vaccination with the pneumococci or gonococci their results had been absolutely negative.

(To be continued.)

Opposition to a State Tuberculosis Sanitarium.—The Governor of Texas has vetoed a bill for a tuberculosis sanatorium on the ground that such an institution would attract indigent invalids to the State. The physicians of the State hope that in two years' time they can ask another Governor to sign a similar bill.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending June 5, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	400	193
Diphtheria	371	30
Measles	1,458	30
Scarlet Fever	274	19
Smallpox	..	..
Varicella	142	.
Typhoid Fever	44	7
Whooping Cough	66	10
Cerebrospinal Meningitis	7	12
Malarial Fever	..	..
Totals	2,762	301

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending June 4, 1909:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES			
Arizona, Winslow	Apr. 24–May 1	1	1
California, Los Angeles	May 8–15	3	.
San Francisco	May 8–15	1	.
District of Columbia, Washington	May 15–22	1	.
Georgia, Atlanta	Jan. 15–May 21	62	.
Macon	May 2–9	3	.
Illinois, Danville	May 16–23	2	.
Springfield	May 14–21	1	.
Kentucky, Covington	May 15–22	3	.
Newport	May 15–22	1	.
Massachusetts, Somerville	May 15–22	1	.
Minnesota, Duluth	May 13–20	2	.
Missouri, Kansas City	May 15–22	2	.
Montana, Butte	May 6–20	11	.
New Jersey, New Brunswick	May 1–22	5	.
North Carolina, State of	Apr. 1–30	127	.
Ohio, Columbus	May 15–22	1	.
Sandusky	May 8–15	1	.
Pennsylvania, Philadelphia	May 14–21	1	.
Pittsburg	May 15–22	1	.
Utah, State of	Apr. 1–30	37	.
Virginia, Portsmouth	May 18–25	2	2
Washington, Spokane	May 1–8	5	.
Wisconsin, Milwaukee	May 15–22	2	.
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Apr. 10–17	9	2
SMALLPOX—FOREIGN.			
Africa, East London	Apr. 10–17	1	1
Algeria, Algiers	Apr. 1–30	18	Imported
Brazil, Rio de Janeiro	Mar. 29–Apr. 25	44	26
Sao Paulo	Apr. 5–11	.	1
Canada, Halifax	May 8–15	2	.
Toronto	Apr. 24–May 15	5	.
Yarmouth	May 22–29	2	.
Ceylon, Colombo	Mar. 27–Apr. 17	3	4
China, Amoy	Apr. 20	.	Present
Egypt, Cairo	Apr. 8–29	22	19
India, Bombay	Apr. 20–27	.	20
Calcutta	Apr. 10–17	.	171
Madras	Apr. 17–23	.	2
Rangoon	Apr. 10–17	.	9
Indo-China, Saigon	Apr. 1–30	2	2
Italy, Catania	May 1–8	1	.
Naples	May 2–16	17	7
Java, Batavia	Apr. 10–17	3	.
Mexico, Matamoras	May 8–15	1	.
Monterey	May 9–16	.	10
Vera Cruz	May 9–16	1	.
Portugal, Lisbon	May 8–15	4	.
Russia, Odessa	Apr. 24–May 1	1	1
St. Petersburg	Apr. 10–17	13	5
Warsaw	Mar. 6–20	.	6
Servia, Belgrade	May 1–8	10	2
Spain, Barcelona	May 3–10	5	.
Madrid	Apr. 1–30	.	30
Vigo	May 1–8	.	1
YELLOW FEVER.			
Barbados	May 8–15	1	.
Brazil, Para	May 1–8	4	2
Mexico, Merida	May 14	1	Imported From Texas.
CHOLERA—INSULAR.			
Philippine Islands, Provinces	Apr. 10–17	133	90
CHOLERA.			
India, Bombay	Apr. 20–27	.	25
Calcutta	Apr. 10–17	108	.
Rangoon	Apr. 10–17	.	5
Russia, St. Petersburg	May 7–14	15	7
PLAGUE.			
Brazil, Rio de Janeiro	Mar. 27–Apr. 25	3	.
Chile, Antofagasta	Apr. 17	9	.
Iquique	Apr. 18	22	.
Egypt, general	Apr. 15	29	19
German East Africa, Muanza	Apr. 14	.	60
India, general	Apr. 10–17	5,309	4,594
Bombay	Apr. 20–27	.	508
Calcutta	Apr. 10–17	.	90
Rangoon	Apr. 10–17	.	30
*Indo-China, Saigon	Apr. 3–10	5	5
Japan, Himeji	Apr. 30	1	1

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Original Articles.

THE CONQUEST OF THE TROPICS FOR THE WHITE RACE.*

By W. C. GORGAS, M.D.,

ANCON, CANAL ZONE

ASSISTANT SURGEON-GENERAL, U. S. A.

After looking over the ground very carefully, I can find no particular field of work that should be called to the attention of the Association. We have progressed markedly in the last ten years along the line of raising the standards of medical education. This was the great aim the Association had in its formation. We should continue to push this work during the coming year as in the past.

During the past few years the Association has also done excellent work along the line of examining into various medicinal preparations put on the market and expressing an opinion as to their genuineness. This is a very useful work and should be continued.

We have recently begun to try to influence legislation in a direction favorable to medical and sanitary matters. Our field for usefulness in this direction is very great. These activities have been well covered by the Association during the past year, and I have no doubt they will be equally well sustained during the coming year.

It has been customary for the incoming President to urge on the Association some line of action which he thinks particularly useful. It seems to me best that the Association follow, during the coming year, along the lines mentioned above, just as it has done during the past year.

Dr. S. Weir Mitchell of Philadelphia has suggested that our Association should erect in the national capital some suitable monument in memory of the medical officers on both sides who lost their lives in the performance of their duties during the war between the States. Our Association now represents the medical profession of the whole United States. No period in the history of our profession can be selected in which greater devotion to duty was shown than was evidenced by the medical officers who served in this war, nor can any war be pointed out in which a greater number of medical officers gave up their lives in the performance of their duties. I, therefore, recommend that the Association take steps looking to the erection in the national capital of a suitable monument in memory of the medical officers on both sides who gave up their lives in the performance of duty during the war between the States.

I have consulted with my friends, and have given careful thought, as to what lines my address should follow. And I have concluded that, as I believe no special recommendations from me as to action on the part of the Association are needed, it would be best to outline some phase of our sanitary work at Panama, the description of which would be generally useful, and, possibly, generally interesting. With your permission, then, I will make this address on our sanitary work at Panama, as it bears on malaria, and as to how these measures could be applied in other localities.

I hold that it has been proved that malaria is carried from person to person by the bite of the female of a particular species of mosquito—the anopheles—and that it is conveyed practically in no other way. Our measures are principally directed to the destruction of this species of mosquito. The anopheles propagates itself by laying its eggs, about a hundred at a laying, on the surface of fresh water. These eggs float around until they are hatched by the heat of the sun. The young live a larval and pupal stage of about eight days in the water, at the end of which time they have developed into full-grown mosquitos.

This mosquito seeks clean, fresh water in which grass and algæ are abundant. As soon as the eggs hatch the larvæ flee to the grass and algæ for protection from small fish and their other natural enemies. The adult anopheles is weak in flight, and does not habitually move about much. We place a hundred yards as practically its ordinary flight. The adult is much afraid of wind and seeks undergrowth, grass, and plants near the ground for its protection.

The anopheles, then, requires clean, fresh water in which there is plenty of grass and algæ for the development of its larvæ, and, when grown, does not fly farther than a hundred yards. It also needs brush and grass for its protection against the wind. Our measures for destruction are based on these two peculiarities. We destroy all the breeding-places within a hundred yards of the locality we desire to protect, so that the mosquito can find no water in which to lay her eggs, or where her larvæ can develop. At the same time we clear off the brush within the same area, so that the adult cannot find protection against the wind.

Measures for the destruction of breeding-places have to vary with the locality. Wherever we can drain at a reasonable cost, we do so. This drainage is generally done with superficial ditches or subsoil tiling. Subsoil tiling is the ideal antimalarial drainage system. It does away entirely with mosquito-breeding, and after it is once laid in there is no further expense for keeping the ditch open. In the tropics vegetation grows so rapidly that a ditch has to be cleaned out every two weeks so as to keep the channel free from breeding-places. This is so heavy an expense that we find it much more economical to concrete all superficial ditches. A con-

*President's address at the sixtieth annual session of the American Medical Association, at Atlantic City, June 9, 1909. From advance sheets through the courtesy of the editor of the *Journal of the American Medical Association*

crete ditch should be swept out frequently, else obstructions will form many small pools. Drainage is *par excellence* the great means for anopheles destruction. But in many instances on account of the too great expense drainage cannot be resorted to; if, for instance, the town is situated near a large swamp or lake. In such cases the mosquito larvæ can live only around the edges, where they are protected from the small fish by grass and algæ, or in holes made by the feet of animals in the soft soil at the margins of the water. In such cases we keep the brush and grass cut along the edge of the water near the town and see that animals are not allowed access here. Or the town may be situated near the bank of a small stream. In this case we would keep the stream and banks free from grass and algæ in the neighborhood of the town. When we can do so safely, we use sulphate of copper for killing algæ. When we cannot use the above methods we kill the larvæ with either crude petroleum or phinotas oil. Petroleum destroys the larvæ by spreading over the surface and smothering them. Phinotas oil acts by directly poisoning them. The above are the principal methods for destroying larvæ, and I look on the destruction of larvæ as the principal means for controlling malaria.

We keep the brush and grass cut within a hundred yards of the point to be protected. Both grow very rapidly at Panama, and this is a large item of expense. It is a great economy to get the ground in such condition that horse mowers and scythes can be used. Using the subsoil tile greatly facilitates getting the ground into this condition. Along the line of the canal most of the localities at which we have been at work for a year or longer are already in this condition. Brush-cutting I consider as only second in importance to drainage as an antimalarial measure. If brush and grass are thick about a dwelling, mosquitos seek them as shelter from the wind. If brush and grass are continuous, the female anopheles will wander from a breeding-place by short flights for a mile or more. A cleared space of a hundred yards or more will, in general, stop her flight.

In adapting these measures to special conditions as they arise, practice and experience are of great advantage. And the greater knowledge a man has of the habits of the mosquito with which he is dealing, the more likely he is to succeed. My surprise has not been so much at the difficulties of getting rid of mosquitos as at the great results of apparently inadequate measures.

Colon, a town of 15,000 inhabitants, is built on an island just above sea level. The houses, where the ground has not been filled in, have to be built on piles from two to four feet high, and approached by wooden footways raised above the water. The heavy rains in the wet season make this part of the town a freshwater swamp. Mosquitos of all varieties were very numerous in Colon. The brush was cut away for half a mile back of the town. This area was then intersected by several small canals twenty feet wide by six feet deep, and all the swamp connected with these canals by surface ditches. This allowed the fresh water to run off, and all ditches to be filled daily with sea-water. We also looked carefully after all water-containers, cisterns and barrels in the town. The result has been that Colon is almost free from mosquitos of all kinds. Such results were not expected. It was hoped by these measures to get rid of the hurtful mosquitos, the stegomyia and anopheles, which do not fly far. But it was not expected to affect to any great extent the culex, which is strong on the wing and still breeds for many miles in the swamps beyond.

Besides measures directed at mosquito destruction, we screen with wire gauze the houses of all employés. Most of our houses are built with galleries, on to which the doors and windows open. These galleries are screened rather than the doors and windows. This leaves only one or two openings to a house which have to be looked after with regard to being kept closed. The screening should always be supervised by some one of experience in mosquito work, as there are many points that are overlooked by the ordinary carpenter. We also urge on the people the use of mosquito-bars. Most of us, however, have become careless about this, as in the well-drained districts, where the houses are well screened, mosquitos are rare. All employés are urged to take three grains of quinine daily as a preventive against malaria. On the average about 20,000 doses of quinine are taken daily by our 45,000 employés.

To carry these measures into effect we have the forty-five miles of country along the line of the canal divided into seventeen districts, each district in charge of an inspector, and the whole under the charge of one chief inspector.

The chief inspector has in his office a man familiar with the life history of mosquitos; another, expert in tiling and ditching, and a general inspector. These men keep in constant touch with the district inspectors and act as their teachers and instructors.

The district inspector is held responsible for his district. He has twenty-five or thirty men for ditching and brush-cutting, a force of carpenters for keeping screens in repair, and one or two quinine dispensers. The men are not required to take quinine, but the dispensers visit all the camps and barracks daily offering quinine to such men as care to take it. Each district inspector is notified monthly that he must keep his expenditures within a certain sum. The chief inspector keeps in such touch with the various districts that this sum can be increased or decreased as necessity arises.

The medical officer in each district reports weekly the number and locality of the employés in his district suffering from malaria. This report is consolidated every week in the central office, giving for each district the number of employés in that district, the number of cases of malaria which occurred during the week among these employés, and what percentage the number of cases of malaria is of the whole number of employés. A copy of this report is sent weekly to each district inspector. The work of the district inspector is judged by this report. If the malarial rate rises in a district the special inspectors from the central office go out to the district and they, with the district inspector, are expected to find the cause of the rise and correct it.

The results as to malaria have so far been very satisfactory at Panama. Table 1 shows the malarial rate:

TABLE 1—MALARIAL RATE AT PANAMA.

Year	Force	Cases	Rate per 1,000	Deaths	Rate per 1,000
1904	6,747	422	125	9	2.66
1905	10,511	8,496	514	92	5.57
1906	26,705	21,938	831	199	7.45
1907	39,344	16,709	424	138	3.51
1908	43,890	12,372	282	59	1.34

You will see from this table that there has been a steady decrease in the malarial rate and that at pres-

ent it is less than one-fourth of what it was in 1905. I see no reason why if the proper methods are kept up the rate should not continue to decrease indefinitely.

The general health of our force is excellent. Considering the whole population under our sanitary jurisdiction, including the cities of Panama and Colon, the death rate is shown in Table 2.

TABLE 2—DEATH RATE IN THE POPULATION UNDER AMERICAN SANITARY JURISDICTION.

Year	Population	Number of Deaths	Rate per 1
1904.	35,000	1,224	52 45
1905.	42,699	2,793	65.41
1906.	66,011	3,544	49.10
1907.	102,133	3,435	33 63
1908.	120,097	2,983	24 83

The Canal Zone, where the health work is under the chief sanitary inspector, the rates are as shown in Table 3.

TABLE 3—DEATH RATE IN CANAL ZONE.

Year	Population	Number of Deaths	Rate per 1
1907	54,366	1,768	31
1908.	67,146	1,273	18

While this is not small as compared with most parts of the United States, it is small for tropical regions and small as compared with many parts of Europe.

The death rate among the employees of the United States government from all causes (including violence), considering the whole force, has been as shown in Table 4.

TABLE 4—DEATH RATE AMONG GOVERNMENT EMPLOYEES

Year	Force	Number of Deaths	Rate per 1
1904	6,213	82	13
1905	16,511	427	25
1906	26,765	1,105	41
1907	39,443	1,152	28
1908.	48,890	571	1

The rate for 1908 is probably not any higher than that of a similar body of men doing the same work in New York State.

The rate for Americans from all causes, including violence, has been as shown in Table 5.

TABLE 5—DEATH RATE FOR AMERICANS IN PANAMA

Year	Number of Men	Deaths	Rate	No. of Women and Children	Death	Rate
1904	865					
1905.	3,029					
1906	5,000	35	7 00	800		
1907	4,300	42	9 76	1,337	4	3
1908	5,459	42	7 69	2,174	2	9

This is certainly no higher than for a similar population in any healthy part of the United States.

I believe that the debility from which the white man has suffered in the past at Panama and in other tropical countries is due to malaria principally, and that if he protects himself from this infection he will remain vigorous and strong in the same degree as he will in a temperate climate; and as a reason for this belief I advance the condition of the Americans at Panama. We have about eight thousand of them living under about the same conditions as they would live at home if doing the same work. They are exposed to the weather as much as they are at home, a large proportion of them being exposed for eight hours daily to the tropical sun and rains. Yet the figures I have quoted above show that their general health remains fully as good as it was at home.

The only difference between ourselves and the whites formerly in Panama is that we have protected ourselves from yellow fever altogether and malaria to a great extent. Yellow fever has a great effect on the death rate of a non-immune population, but very little effect in causing debility, whereas malaria is a disease which may last for years in the individual, and in a locality like Panama causes a widespread debility in the whole population.

For the white man going to the tropics it is neither difficult nor expensive to protect himself from malaria. All that is necessary is to screen his house well and drain and clear off the brush within a hundred yards of his residence. This is much less expensive than the measures a man has to take in the temperate zones to protect himself from cold.

The advances in tropical sanitation in the last fifteen years have shown that the white man can live in the tropics with as good health as he can in the temperate zones. This has been demonstrated by both of our military occupations of Cuba, and also by our occupation of Panama. The white man can protect himself against disease in the tropics at no greater expense than he would have to undergo in order to protect himself against cold in the temperate zones. The returns for his labor are many-fold greater in the tropics than in the temperate zones. I think, therefore, that the tendency in the next few centuries will be for the white man to drift to the tropics, and I dare predict that, by the time the year 1909 is as old as is at the present day the Norman conquest of England, localities in the tropics will be the centers of as powerful and as cultured a white civilization as any that will exist in temperate zones.

I believe that our work in Cuba and Panama will then be looked on as the earliest demonstration that the white man could flourish in the tropics and as the starting-point of the effective settlement of these regions by the Caucasian. I am inclined to think that at this time the construction of the Panama canal will be known less as a great commercial accomplishment or engineering feat than as the first demonstration of the fact that the white man can flourish in the tropics in spite of those most trying conditions which have in the past rendered it impossible for him to thrive.

CAISSON DISEASE.*

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In the last few years, when work in caissons has been carried on constantly in this city, the phenomena of caisson disease have become familiar to all hospital physicians. These cases are of special interest to the neurologist, because the majority of the symptoms presenting themselves are due to disturbance of function in the nervous system. It is well known that these symptoms are produced by the development of air bubbles in the blood vessels consequent upon the sudden relief of air pressure after it has been exerted for some time in the caisson. These air bubbles act as emboli in the

*Read before the Practitioners' Society April 5, 1909.

blood-vessels and produce a stasis in those vessels, and consequent disturbance of function and nutrition in the nervous tissues supplied by those vessels. In some cases this disturbance of nutrition is temporary, and in the course of a week all the symptoms, even when severe, pass off. In other cases the symptoms remain a much longer time and appear to be very serious, yet in the end the patients recover. In a third set of cases the symptoms remain permanent with only a slight degree of recovery, and the patients are confirmed invalids. In a fourth set of cases the result is fatal within a few hours or days of the onset. It is quite remarkable, however, to find in a study of several hundred cases of caisson disease presenting nervous symptoms, that the large majority of these cases recover, even though they had at the outset presented symptoms of a cerebral or spinal nature which, if not due to this cause, would have presented a very unfavorable prognosis, and inasmuch as in fatal cases well marked degenerations in the nervous system have been found, this recovery appears to be quite extraordinary.

An analysis of about three hundred cases which have occurred in recent years shows the following list of symptoms occurring in the order of frequency:

(1) Myalgia, or severe pain in the muscles, and especially in the muscles of the back, but also in the muscles of the extremities, seems to be a uniform accompaniment of the disease. It occurred in 105 of the 310 cases here analyzed. It is the symptom which has given rise to the common term used by the workmen for this affection, viz., "the bends," the patient being practically doubled up with pain and unable to move the muscles or to straighten himself out, as in a case of intense lumbago.

(2) The second most frequent symptom is an affection of the ears, either a rupture of the drum or such an intense congestion of the inner ear as to produce symptoms comparable to Ménière's disease; vertigo, vomiting, intense prostration, tinnitus aurium, and deafness. These symptoms occurred in 68 cases.

(3) Pain in the joints, classed together as arthralgias, occurred in 60 cases, in many of them being attended also by myalgia. It seems probable that in these cases there has been a sudden effusion of fluid into the joints, stretching the capsules of the joints without any acute inflammatory condition, and in proof of this the frequency of swelling without heat or redness can be cited.

(4) In 26 cases acute paraplegia developed and as these cases are of particular interest, both in their progress and in their recovery, the following case is cited in full:

A young engineer of the Pennsylvania Railroad, who had been in perfect health and had been accustomed to work in caissons, and who had a knowledge of the dangers attendant upon too rapid a transit from the compressed air to the ordinary atmosphere, neglected the ordinary precautions and on one occasion passed out of the caisson without delaying a sufficient time in the two intermediate chambers. He was seized immediately with vertigo and intense headache, with great pain between his shoulders, and within fifteen minutes found himself completely paralyzed below the neck. He was taken to the hospital in a state of prostration. During the first twenty-four hours he was delirious, restless, but incapable of moving any muscle below his neck, had retention of urine, and had considerable difficulty in breathing. The cerebral symptoms then began to subside, but when I saw him, on the fourth day after the onset, his paralysis had not in any way improved. There was no cranial nerve palsy, and the motion of his head upon his neck was free. He could abduct his arms, there being no paralysis of the deltoid, upper pectoral or trapezius muscles, but he had absolutely no power of flexing or extending the elbows, of moving the hands, of moving the trunk, or of moving the limbs. There was priapism, with retention of urine and a paralysis of the rectum, which had to be emptied mechanically. He had some sensation of touch, temperature, and pain in the arms and hands, though this was less acute than on the face. Below the line of the eighth rib he was totally anesthetic. His respiration was diaphragmatic, and he was unable to distend the chest by any inspiratory effort.

He thus presented the picture of a transverse myelitis at the level of the fifth and sixth cervical segments of the spinal cord, such as is seen in injuries, or occasionally in an infective myelitis. Such a case ordinarily would have the most unfavorable prognosis both as to life and as to recovery, especially as in this case a tendency to bedsores at any portion of the body subjected to pressure was evident. In spite of this condition, however, this young man went on to a rather rapid recovery. He was confined to his bed for two months, but within two weeks of the onset it was evident that power was returning little by little in all of the muscles, and at the end of two months he was able to sit up and to stand when held. The tendency to bedsores subsided in six weeks from the onset, at the time when the power to voluntarily turn himself in bed had been regained. Sensation returned slowly, that to pain and temperature returning before that to touch. The control of the bladder was not regained until two months after the onset. His recovery was steady and at the end of four months from the time of the beginning of the disease, he was sufficiently well to go back to work.

It is well known that the prognosis in myelitis is, as a rule, most unfavorable, for even after the dangers attendant upon the onset of total paralysis are avoided, viz., bedsores and cystitis, there is usually left a state of spastic paralysis which persists through life. In the cases that have been recorded of spinal cord symptoms occurring in caisson disease, it has been possible to classify the cases; some which resembled those of spastic paraplegia due to an affection of the lateral columns, others which resembled locomotor ataxia due to a lesion of the posterior columns, and cases of atrophic paralysis with a disturbance of temperature and pain sensations due to lesions of the gray matter, and, finally, cases which presented symptoms common to all these affections and which are classed together as chronic myelitis. But in all of these various types of spinal lesion occurring as a result of exposure to the dangers of caisson disease, recoveries have been recorded. The explanation for such recoveries is to be found in the fact that the collateral circulation in the spinal cord and the anastomoses of the spinal blood vessels are very complete, and we must believe, therefore, that the circulation is resumed in the vessels which have originally been obstructed by the presence of air within them.

(5) Monoplegia has been observed in 17 cases, cerebral in type rather than spinal, and undoubtedly due to localized areas of softening, or to malnutrition in the cortex produced by bubbles of air in the

veins of the brain. That this condition is possible is proven by a specimen here presented, which I owe to the kindness of Dr. Larkin, of the Laboratory of the College of Physicians and Surgeons. It shows the existence of air bubbles in the veins of the cortex of the brain in a patient who died of caisson disease. It is evident that such bubbles can act exactly as emboli, and hence, if in the cortex, are more liable to produce monoplegia than hemiplegia.

(6) Symptoms of intense vertigo of cerebral nature, undoubtedly due to emboli in the cerebellum, were noted in 14 cases. These resembled in many respects the symptoms of Ménière's disease, already mentioned, but were followed by paraylsis of some of the cranial nerves, indicating that the origin of the symptoms was not in the ear.

(7) The seventh most frequent set of symptoms were classed together as asphyxia, the patients showing all the signs of faintness with irregular heart action, but these are, of course, temporary in their nature. Thirteen patients suffered from this symptom.

(8) Aphasia has been observed in a number of the cases.

Recoveries have also been recorded in many of the cases where the symptoms were largely cerebral. Thus in cases presenting the phenomena of acute transitory mania, in other cases presenting symptoms of hemiplegia, in other cases presenting the symptoms of various types of aphasia, and temporary deafness and temporary blindness, as well as in those very numerous cases in which peripheral disturbances of the auditory nerve has been produced by lesions of the inner or middle ear, recoveries have been recorded. It is evident, therefore, that in the cases of apoplexy or of paraplegia occurring in connection with caisson disease, the prognosis is very different from that in cases occurring under other circumstances.

It is well known that the important element in the treatment, is to replace the individual as soon as possible after the onset of the symptoms, in a chamber containing compressed air and to keep him under two or three atmospheric pressures for several hours, reducing this pressure very gradually. Fortunately, in our hospitals at the present time, such air chambers have been instituted. If this cannot be done, the most successful treatment appears to be to stimulate the circulation by strychnine, and to increase the arterial tension by ergot.

THE VALUE OF CYSTOSCOPY IN GYNECOLOGY.*

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In surgical conditions, more especially in affections of the genitourinary organs, the value of cystoscopy is well recognized by everyone. This can hardly be said in connection with diseases of the *female* genital organs, and yet in the latter the field of usefulness of the cystoscope is a large one. Numerous investigations in recent years have demonstrated the occurrence of certain affections of the female genitourinary system, partly primary, partly secondary, which present themselves but seldom or not at all in the male. For this reason, gentlemen, I shall give you a general outline of what we as gynecologists can hope to accomplish in diagnosis and therapy by the liberal use of the cystoscope.

I shall not describe the picture presented by the normal bladder, as only practical experience and not didactic teaching can acquaint one with the illuminated bladder. I shall, however, refer briefly to the peculiarities of the normal *female* bladder. Due to its close approximity to the genital organs, the appearance of the female bladder shows several differences in comparison to the male bladder. These differences appear especially in the form of protuberances into the bladder, as well as in the form of pocket-like recesses and diverticula. Accordingly, the inspection of the female organ, especially in its lateral sacculations, is more difficult than that of the distended ovoid male organ. The peculiarities of the female bladder are attributable to numerous causes. Normally, and especially that holds true in cases of sharp anteflexion, the fundus of the uterus lies upon the posterior bladder wall making a more or less marked impression. The cystoscopic picture here shows a protuberance which may resemble a tumor by throwing a shadow on the lateral wall of the bladder. The gravid uterus or the foetal head toward the end of pregnancy compress the bladder so that it resembles a mere fissure. A retroflexed gravid uterus has the same effect, at the same time pushing the neck of the bladder upwards. The posteriorly and laterally displaced uterus will displace the bladder. Myomata of the uterus, especially if multiple and of the subserous variety, tumors of the uterine appendages, all distort the bladder wall in various ways. In other words, a thorough inspection of such bladders amounts to a tedious winding through valleys with the cystoscope, while the endoscope examination may reveal absolutely normal findings.

After these general remarks, I shall now take up the female affections in which the cystoscope is of great value to us and shows striking pictures. Beginning with *inflammatory* conditions of the bladder, about which the general practitioner is most frequently consulted, the pictures are exceptionally varied. There are, however, a few characteristic forms which are especially prevalent in the female. I refer to the inflammation of the neck of the bladder—cystitis colli vesicae—and of the trigonum. In these two forms the inflammation frequently confines itself to the localities mentioned, though it may extend over the entire bladder, in which case the appearances at the neck and trigonum are less prominent. The frequency of cystitis of the trigonum is striking. Recently published statistics show that it occurs in 20 per cent. of all the forms of cystitis in females. Judging from my own experiences these figures are, if anything, too low. This fact that in so many cases only a certain part of the bladder—neck or trigonum—is involved, makes it evident that bladder irrigations, which are unfortunately still used as routine treatment in these conditions, will not be followed by satisfactory results. In these cases, as well as in all other affections in which even the slightest involvement of the bladder is suspected, it is necessary to bring the diseased area directly before the examining eye, that is, to use the cystoscope. Two, I might say typical, cases out of my practice will prove this to you. The first concerns a woman who was referred to me after having been treated for one and one-half years for a cystitis following labor. The treatment had consisted in bladder irrigations at regular intervals. When she first came to me the catheterized specimen was ammoniacal, contained pus and bacteria. A careful examination excluded any involvement of the kidneys. The endoscopic examination revealed at a glance that we were deal-

*Paper read at a meeting of the Eastern Medical Society, March 12, 1909.

ing with a pronounced cystitis coli et trigoni together with a slight involvement of the remainder of the bladder. Here only local treatment, that is, cauterization of the neck and trigonum could have been of any avail. The outcome of the treatment verified this view. After five weeks the patient, who had been getting bladder irrigations for such a long time without improvement, was without a subjective symptom, while her urine was absolutely clear. This case, to which I could easily add numerous others, shows definitely the value of cystoscopy as the only certain method of diagnosis, and as there can be no correct therapy without a correct diagnosis it also proves the therapeutic value of the cystoscope. The second case is equally instructive: An elderly woman came under my care after she had been treated for cystitis over a period of several years. A minute examination of the urine and an endoscopic examination showed that there was no inflammatory condition of the bladder or kidney present. The vesical symptoms had been caused by a weakness of the bladder. In this case the success of the treatment again substantiated the diagnosis. After a few electrical massage treatments of the neck of the bladder by way of the vagina, the vesical symptoms which had lasted for years had entirely disappeared and had not returned many months later. Such text-book cases demonstrate without doubt the value and importance of a cystoscopic examination. The latter enables us to recognize the presence or absence of pathological changes, and thus to draw conclusions as to what line of therapy is to be pursued. With the introduction of the cystoscope, the diagnosis "irritable bladder," as shown by Bierhoff and Knorr, has almost become extinct; only very rarely are we justified in making this diagnosis. The cystoscope is indispensable for making the diagnosis "cystitis trigoni" as in this condition the urine may contain but little pus and at certain times of the day may even be free from it. Frequently the trigonum is the only seat of disease in the entire genitourinary tract, and often it is combined with chronic inflammatory conditions of the vagina, cervix, uterine appendages or parametria. One of its most frequent cause is the gonococcus; the latter, however, is only found with great difficulty in the urine, or more often it is impossible to demonstrate it at all.

Foreign bodies of the most varied type are only too frequently the primary cause of a cystitis. Cystoscopy is incontestably better than any other method for determining their presence in the bladder except the use of the *x*-rays. In addition it informs us as to the localization and extent of the cystitis and as to its origin, that is, whether it is primary or secondary. Calculi, foreign bodies and tumors of the bladder are often complicated by a secondary infection which manifests itself in a more or less severe cystitis. The clinical symptoms of the latter are so prominent that only the cystoscope can enlighten us as to the true state of affairs. Among the diffuse cystitis cases, cystitis cystica is quite common among women. In this form flat reddish-gray vesicles are found especially in the region of the trigonum, though they can also be present in other parts of the bladder and may even extend over the entire organ. They are usually surrounded by a red ring. They are more irregularly distributed as compared with the tubercles in a tuberculous cystitis and usually not along the course of the vessels. Tubercles are circumscribed, larger, have a different color, and are distinctly raised.

Among the foreign bodies in the bladder the calculi, if we have a right to consider them such, hold a prominent place. In many cases the symptoms are almost sufficient to establish a diagnosis. In others the diagnosis must rest upon the result of physical examination. While I do not wish to underestimate the value of the metallic sound in the hands of an experienced surgeon in these cases, and not speaking of the value of the *x*-rays, I feel certain that an examination with the cystoscope is far superior to that with the sound since it gives absolutely accurate information. Then, too, stones lying in pockets may entirely escape detection with the sound. All those who have seen them have become convinced for all times of the value of endoscopic examination. This is especially true when, as it has happened to me several times, one detects a calculus with the cystoscope after no other method of examination was able to reveal the cause of the symptoms. The sound does not throw any light upon the composition of the calculi, nor does it give us, as a rule, any exact knowledge as to their size. Endoscopic examination, on the other hand, quickly demonstrates the presence or absence of calculi and if present, their size, shape, number, and to a certain degree their composition. One can also see the calculus and ascertain whether it is movable or imbedded in the vesical wall. Furthermore, the cystoscope gives us accurate knowledge in regard to any accompanying complications and thus paves the way for the proper treatment. An inspection of the stones reveals the character and color of their surface, and thus we can form some idea as to their chemical composition. We know that the urates, the most common variety of vesical calculus, are yellow or brown, that the phosphates have a white or whitish-gray appearance and that the oxalates, which form the so-called mulberry stones, are greenish-gray or greenish-black. We furthermore know that the oxalates are very hard, the urates usually very soft, and can thus draw important conclusions as to the therapy to be pursued. Because the cystoscopic examination is a better guide to the necessary therapy than any other clinical method, and because it makes possible endovesical treatment—a mode of treatment which I am certain is destined to outflank the cystotomy in many cases—for these reasons every case suspicious of calculi should be cystoscoped both in the interest of patient and physician and thus disagreeable surprises avoided. In regard to the endovesical treatment of calculi, and this applies to benign bladder tumors as well, it is more easily carried out and accompanied by less danger in the female than in the male. This is so for the reason that an operating cystoscope usually can be more freely moved about in the female bladder, and because the female parts readily permit of two simple procedures: Dilatation of the urethra and colpocystotomy.

Turning now to foreign bodies in general, you well know, gentlemen, that the female bladder in particular can be the seat of the most varied and most curious foreign bodies. Such bodies usually find their way into the bladder through the urethra into which they are introduced for sexual excitement, or in hysterical patients, or by mistake in attempts at criminal abortion. Often they enter the body without any fault of the patient, for instance, when ectopics or dermoid cysts, undergoing suppuration, break into the bladder. We may then find hair, teeth, bones, etc., in the bladder. After abdominal operations, sponges, gauze drains, or

even forceps may suppurate into the bladder. Such cases have been reported in literature and they point to the great value of cystoscopy, because the latter alone enables us to make the correct diagnosis and therefore to carry out the proper treatment. It is not rare that ligatures, which were employed outside of the bladder during gynecological operations, find their way into the bladder, especially after a supravaginal hysterectomy, at which the cervical stump is left extraperitoneally. It is therefore always well to keep in mind the possibility of the presence of ligatures in the bladder in all cases in which suture material with long resistance, that is, with a long absorption limit, has been used in the neighborhood of the bladder wall. The cystoscope alone is able to enlighten us as to whether the wandering of a ligature is in progress, has, or has not taken place.

In cases of tumor of the bladder we meet with similar conditions. The symptoms are frequently none other than those of a cystitis. Hematuria, the most characteristic symptom of tumor, is frequently intermittent and does not necessarily indicate the presence of a bladder tumor. Therefore, all patients who give a history of having had blood in the urine should certainly be cystoscoped, even if the urine is absolutely clear at the time the patient presents herself for examination. Among the benign tumors, the fibrous polyps and villous papillomata both present striking endovesical pictures. A true fibrous polyp juts into the lumen of the bladder and floats to and fro. The villous variety may either be sessile or pedunculated; these consist of a connective-tissue center which is studded with innumerable small villi like the branches of a tree coming off from its trunk. Whether these tumors should be treated by colpocystotomy or by the intravesical method by means of the operative cystoscope, the individual case can only decide.

In primary carcinoma or sarcoma of the bladder the cystoscope is not of so great importance. The endoscopic picture in these cases frequently differs but little from that of a severe cystitis in which the entire bladder wall is thickened and made rigid by edema and inflammatory infiltration, the mucosa being considerably puffed out. When the tumor is raised above the level of the surrounding mucosa, small irregular, easily bleeding areas can be seen jutting into the bladder lumen. Only under the latter conditions can we hope to make the diagnosis of malignancy with the cystoscope. On the other hand, cystoscopy is of value when we wish to ascertain whether the bladder has become involved in cases of carcinoma of the portio or cervical canal.

This brings us up to the question of *changes in the bladder which are secondary to diseases of the genital tract.* Great differences of opinion are found in literature as to the value of the cystoscope in determining a secondary involvement of the bladder in cases of carcinoma of the cervix. I believe that it is possible by means of the cystoscope to make a positive statement as to the non-involvement of the bladder, and in some cases to state with certainty that the carcinoma has extended to the bladder. Sometimes, of course, it will be impossible to reach any positive conclusion as to whether the bladder has become involved or not. And yet, gentlemen, I advise you to always use the cystoscope before operating for carcinoma of the uterus, in order to get some idea of the condition of the bladder and thus guard against disagreeable surprises during operation. When the carcinoma first begins to encroach upon the bladder we only notice a mechanical displacement and a congestion of the floor of the bladder. This frequently means that the separation of the bladder from the uterus will be attended by difficulties. In more advanced cases we see a bullous edema caused by circulatory disturbances of the bladder mucosa. This consists of translucent vesicles which at first are flat and then become larger. Such an edema is a bad prognostic sign. In the markedly advanced cases we see carcinomatous growths in the bladder in the form of hard, irregular, papilloma-like masses which bleed easily on being touched.

Among the benign uterine tumors the myomata often have a detrimental influence upon the bladder. About two-thirds of all women with uterine myomata have bladder symptoms. Large myomata undoubtedly influence the bladder by the constant compression of the latter. This, however, cannot be said of the smaller tumors which do not even come in contact with the organ; in these cases a dilatation of the perivesical vessels as well as an alteration of the surrounding connective-tissue must be considered as possible causes of the bladder symptoms.

There is no doubt of the practical importance of cystoscopy in women with uterine myomata, for a knowledge of the character of the anatomical changes causing the bladder symptoms is of no little consequence in deciding upon the kind of treatment to be applied for the tumors.

Finally there remains to be mentioned the fistulae which develop as a result of trauma to the ureter or bladder. They are of great interest not only to the specialist, but also to the general practitioner. It is obvious that here too the cystoscope has a field of usefulness both as an aid to locating the fistula and as an aid to its treatment. In vesicovaginal fistulæ it enables one to recognize the size and situation of the defect. Then, too, it is of practical importance to know just where the ureteral orifice is situated in relation to the fistula, in order to avoid including the ureter in a suture when repairing the bladder defect. The bladder can usually be filled in cases of vesicovaginal fistula, by placing a tampon saturated with oil into the vagina. In ureteral work the subcutaneous injection of 20 c.c of a four-tenths per cent solution of indigo-carmine (according to the method of Voelcker-Joseph) is often invaluable. The injection is made in the gluteal region and after ten minutes the urine is colored blue. It is a great aid in locating the ureteral orifices in cases in which displacements, sacculations, or prominences make this more difficult than usual. Furthermore, in the diagnosis of ureteral fistulæ or ureters which have been accidentally included in a ligature during an operation, indigo-carmine is indispensable. From one ureteral orifice the blue-colored urine will be seen spurting at intervals, the other one will either discharge very little urine or none at all. Thus one can find very quickly the injured side and operate accordingly. The good or bad result of an implantation of the ureter can be ascertained in no better way than by the cystoscope.

Only a few words more about cystocele and prolapse. In advanced cases of prolapse we find the whole bladder distended, as usually the urination is difficult owing to a dislocation of the urethra. The sequelæ are: A chronic cystitis, as there is a stagnation of urine in the descended parts of the bladder and a pronounced hypertrophy of the muscular wall. In very pronounced cases of cystocele and prolapse

the whole trigonum disappears and is only to be found in that part of the bladder which lies outside of the vulva. For a correct diagnosis it is advisable to reduce the whole prolapse and then to make a cystoscopic examination, as it is clear, that the whole technique of the cystoscopic examination is not very easy in an unreduced prolapse.

Much more could be said about these interesting pathological conditions, as well as about retroflexion and pelvic cellulitis in their relation to the bladder, as well as about ureteral catherization, but lack of time prevents me from doing so. Pathological changes, technique, and therapy must also be left for some future time. My purpose this evening was to draw your attention to the close relationship between the female bladder and female genitals, and to convince you that the cystoscope is indispensable in gynecology. If I have succeeded in doing this I have accomplished what I set out to do in preparing this paper.

1 West Eighty-fifth Street.

ON THE AMOUNT OF PEPSIN IN VARIOUS DISORDERS OF THE STOMACH.

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Of the specific elements of the gastric juice hydrochloric acid has been subjected to the most thorough investigation, physiologically as well as pathologically. A number of clinicians have endeavored to ascertain the presence and quantity of pepsin in different ailments of the stomach. The old method of determining the presence of pepsin consisted in using a small piece of the white of a hard-boiled egg (Leube). This permitted only a rough estimate of the amount of pepsin.

An improvement of this method is Mett's procedure. This consists in placing small, calibrated glass tubes filled with coagulated albumin into the gastric juice and estimating the amount of pepsin from the quantity of albumin digested in the glass tube.

Bettmann and Schroeder[1] have devised a novel method of estimating the pepsin. They call it the "foam method;" it consists in mixing an albuminous solution with the stomach contents and shaking thoroughly until a great deal of foam develops The time it takes for this albumin foam to disappear indicates the relative amount of pepsin.

Illoway[2] coagulates 10 cg. of albumin and places this in 10 c.c. of the gastric juice. The time taken to digest this indicates the relative amount of pepsin. Among the newer tests for pepsin the Jacoby-Solms[3] ricin method can be considered the most practical. The method consists in the following: 1 g. of ricin and 5 g. of sodium chloride are dissolved in 100 c.c. of water and filtered. To 2 c.c. of this solution 1 c.c. of diluted stomach contents and ½ c.c. of decinormal HCl solution are added. The quantity of pepsin is determined from the amount of dilution in which the stomach contents will cause a disappearance of the ricin deposit. Solms recommends that the mixture be left in a thermostat for three hours and designates that amount of gastric juice which is just sufficient to clear up entirely the 2 c.c. of 1 per cent. ricin solution when kept at blood temperature as one pepsin unit. Normally stomach contents contain about 100 pepsin units to the cubic centimeter.

Goodman[4] has tested the Jacoby-Solms method and is satisfied with its results. He comes to the following conclusions: The normal amount of pepsin may be placed at 100-200 units. In hyperacidity there is usually no increase of pepsin; in subacidity, however, a diminution in the quantity of pepsin takes place constantly.

One of us (Einhorn) has simplified the method by using especially graduated pepsin tubes and also a vacuum tube as a warm water container and further by shortening the time to half an hour.[5]

This modification makes it easy to apply the ricin test. Although quite a number of writers have already tried to ascertain the amounts of the pepsin ferment in gastric diseases, it appeared to us of value to gather our experience in this respect in order to have our own opinion.

We have examined the amount of pepsin in a number of patients according to the Jacoby-Solms method and the rest according to Einhorn's modification. We submit the results in the following two tables:

I.—PEPSIN DETERMINATION BY THE JACOBY-SOLMS METHOD.

No.	Name.	HCl.	Total Acidity.	Dilution.	Amount of Precipitate After 3 Hours.
1	J. L.	70	95	100	None.
				300	Trace.
2	J.	68	92	500	None
3	B.	65	85	50	None
				200	0.2 c.c.
4	W.	40	85	10	After 30 min.
				50	Trace.
5	B.	55	80	50	None
				200	Trace.
6	T.	60	76	50	0.2 c.c.
7	L.	55	75	50	None
				100	Trace.
8	H. Sch.	55	75	50	None
				100	Trace.
9	S. T.	+	75	50	None
				100	0.2 c.c.
10	M. R.	52	72	50	Trace.
11	S.	50	70	50	None
				100	0.25 c.c.
12	A. A.	44	68	25	0.22 c.c.
13	N.	+	65	50	0.25 c.c.
14	B.	+	65	50	None
				100	0.2 c.c.
15	C. R.	+	65	25	None
				50	0.3 c.c.
16	J. K.	+	65	500	None
17	E. S.	+	60	50	None
				100	0.5 c.c.
18	A. J. C.	40	60	200	None
19	B. R.	44	60	25	None
				50	0.2 c.c.
20	M.	35	55	50	0.3 c.c.
21	F. J. N.	30	50	50	None
				100	Trace.
22	D. S.	30	55	100	None
				200	0.3 c.c.
23	G.	+	55	50	0.2 c.c.
24	K.	+	55	50	None
				100	0.3 c.c.
25	S.	+	55	100	None
				200	0.3 c.c.
26	H. S.	+	55	100	None
				200	Trace.
27	J. J. H.	20	50	25	None
				50	0.2 c.c.
28	T.	+	48	5	After 5 min.
				20	0.15 c.c.
29	St.	+	48	50	None
				100	Trace.
30	H.	+	48	100	Trace.
31	Sch.	+	40	50	0.2 c.c.
32	G. G.	+	40	100	Trace.
33	M.	+	40	5	None
				20	0.15 c.c.
34	K.	+	40	200	None
35	M.	+	25	10	Trace.
36	R. F.	+	10	5	None.
				25	0.15 c.c.
37	J. D. R.	15	35	50	0.1 c.c.
38*	A. B. F.	0	..	0	0.2 c.c.
39*	M.	0	..	5	0.5 c.c.
40*	G.	0	..	25	0.2 c.c.
41*	G.	0	0	0	0.6 c.c.
42*	P.	0	..	0	0.7 c.c.
43*	H.	0	..	0	0.2 c.c.

* Achylia gastrica.

We examined in all 110 cases. Among these were 48 cases of hyperchlorhydria, 4 cases of subacidity,

II.—PEPSIN DETERMINATION BY THE EINHORN MODIFICATION OF THE JACOBY-SOLMS METHOD.

No.	Name.	HCl.	Total Acidity.	Dilution.	Precipitate disappears After	Amount of Precipitate Left After 30 Min.	Rennet Dilution.	Rennet Coagulation.
44	K	75	125	10	14 min.			
				40		0.5 c.c.		
45	L. B.	84	100	20	25 min.		1:50	Yes.
				100		0.4 c.c.	1:100	No.
46	J F. W	80	100	40	14 min.			
				100		0.3 c.c.		
47	F. H. G.	25	100	10	25 min.			
				20		0.2 c.c.		
48	A. S	25	90	10		0.2 c.c.		
49	F. L.	55	85	40	23 min.		1:50	Yes.
							1:100	No.
50	MacA	72	84	10	25 min.		1:50	Partial.
				20		0.2 c.c.	1:100	No.
51	J. D.	68	84	10	15 min.		1:50	Partial.
				20		0 2 c.c.	1:100	No.
52	Dr. L	+	100	20	25 min.			
				40		0.2 c.c.		
53	P. A	+	100	10	30 min.			
				20		0.2 c.c.		
54	H.	+	100	10	25 min.			
				40		0 3 c.c.		
55	J	55	80	40	15 min.			
				100		0.2 c.c.		
56	C. P. R.	64	80	20	10 min.		1:20	Yes.
				100		0.6 c.c.	1:50	No.
57	Ph	50	80	10	8 min.			
				40		0 2 c.c.		
58	Fl.	40	80	40	15 min.			
				100		0.3 c.c.		
59	Da	40	80	10	10 min.			
				40		0.2 c.c.		
60	Do	+	80	5	30 min.			
				10		0 1 c.c.		
61	S.	+	80	10		0.4 c.c.		
62	Cr.	48	76	20	8 min.		1:100	Yes.
				40		0.4 c.c.		
63	A. H	55	75	10	10 min.			
				40		0.2 c.c.		
64	M	50	75	10	10 min.			
				20		0.2 c.c.		
65	E. L. B	+	75	10		1.0 c.c.	1:20	No.
66	A. F	+	75	10	12 min.			
				15		0 2 c.c.		
67	Dr. J. J.	50	70	10	0 3 c.c.		1:100	Yes.
68	L	50	70	10	30 min.			
69	M	35	70	20	15 min.			
70	W. J. B.	35	70	40	10 min.			
71	M. P.	30	70	10		0.1 c.c.	1:20	No.
72	M.	+	65	5	27 min.			
				10		0.3 c.c.		
73	H. F.	+	65	10	25 min.			
74	B.	40	64	40	17 min.			
				100		0.5 c.c.		
75	W	32	64	64	22 min.			
				100		0.4 c.c.		
76	F. S.	40	60	10	25 min.			
				20		0.1 c.c.		
77	St.	40	60	10	25 min.			
				20		0.2 c.c.		
78	Ph	35	60	10		0 3 c.c.	1:20	Yes.
79	G	20	60	40	22 min.		1:50	No.
				100		0 1 c.c.		
80	W. J. O	40	55	10	12 min.		1:20	Partially
				20		0.7 c.c.		
81	Dr. B	35	50	10	25 min.			
				20		0 5 c.c.		
82	W	20	50	10	25 min.			
				40		0 4 c.c.		
83	McG	+	48	10		0 5 c.c.		
84	A	+	48	10	17 min.			
				20		0 1 c.c.		
85	C. K	+	48	10	5 min.			
				40		0.2 c.c.		
86	W. F.	30	45	10	25 min.		1:100	Yes.
				20		0.5 c.c.		
87	McI	30	45	20	15 min.			
88	F. R.	25	45	10	20 min.			
				20		0 3 c.c.		
89	B.	20	40	40	30 min.			
				100		0.3 c.c.		
90	M	20	40	10	10 min.			
				40		0 1 c.c.		
91	K	+	40	15	21 min.			
92	G. S	+	40	40	15 min.			
				100		0.3 c.c.		
93	L	+	40	10	5 min.			
				40		0.2 c.c.		
94	Dr. R	+	40	20	10 min.			
				40		0 1 c.c.		
95	M	12	35	40	28 min.			
				100		0.25 c.c		
96	P. B	0	+	20	17 min.			
97	W	0	35	1		0 1 c.c.	1:40	Yes.
98*	St	0		0		0 8 c.c.	1:50	No.
99*	B. F.	0	18	2	7 min.			
100*	B	0		0	0 5 c.c.		1:20	No.
101*	L. B. E.	0		0		0 3 c.c.		
102*	C.	0		0		1.0 c.c.		
103*	McK	0	12	0		0.6 c.c.		
104*	L	0		2		1.1 c.c.		
105*	J. L. D.	0		0		0 3 c.c		
106*	M. C. A	0	15	0		0 3 c.c		
107†	Z	0	110	40	20 min			
				100		0 2 c.c		
108†	J. K	0	85	0		0 5 c.c	1:20	No.
109†	P. H	0	75	2		1 0 c.c		
110†	Ch	0		0		0.7 c.c	1:5	Yes.

* Achylia gastrica. † Carcinoma ventriculi

21 cases of absence of free HCl, and 37 cases of normal acidity.

In looking over the results of these tables we find that there is no strict relation between the amount of pepsin and the acidity in the group of hyperchlorhydria and normal acidity.

In fifteen cases of achylia the ricin deposit was cleared up entirely only once, and in five cases of cancer of the stomach without free HCl it also occurred only once. In one case of achylia the amount of pepsin was fairly considerable, as the precipitate disappeared in seven minutes (case 99).

Among the cases of hyperacidity we find in Table I, among 16 only two, Nos. 2 and 16, that show a correspondingly increased amount of pepsin; in Table II, among 32 cases, only five (46, 55, 58, 74, 75). In all other cases of hyperacidity the amount of pepsin did not exceed the normal limits.

The result of these conclusions harmonizes with those reached by Solms and by Witte. Solms says: "In spite of an increase of HCl the pepsin units do not seem to rise. If we consider our table from the clinical standpoint and ask ourselves whether with the aid of this new method the diagnosis of diseases of the stomach would be materially facilitated, we must answer that at present no definite judgment can be formed on the diagnostic or therapeutic value of the method. In diseases with diminished secretion of hydrochloric acid pepsin production was less, whereas conversely in hyperchlorhydria an increase of pepsin production could rarely be demonstrated."

Johannes Witte[6] comes to the following conclusions: "In normally acid stomach contents there is no strict parallelism between acidity and pepsin values. Functional diseases of the stomach usually remain under the average.

"In hyperacidity: (1) The increase of acidity is accompanied by a marked increase of pepsin action. Neuroses remain below the average. (2) Within this group there is no parallelism between acidity and pepsin action.

"In subacidity and anacidity: Compared with the normally acid cases they show uniformly low pepsin values. Within this group there exists generally a more marked parallelism between acidity and pepsin values; it is, however, not regular. In all cases of absence of free HCl pepsin is present even if only in traces (only one case shows no pepsin action). Neuroses yield relatively low pepsin values. In carcinoma distinct traces of pepsin action are recognizable."

Pepsin and rennet usually occur together; in fact the physiologists are not yet in accord whether rennet and pepsin are two different ferments or whether the action of dissolving albumin and coagulating milk is not due to one and the same substance (Pavloff and his school). It appeared to us of value to make a comparative study between the amounts of pepsin and those of rennet in some of the cases. The test for rennet was done in the following way:

To 2 c.c. of milk in a test tube, one, two, or five drops of stomach contents, diluted three times, were added, and after one-half hour, observations were made as to coagulation. In the table the actual amount of dilution with water and milk together has been given for each sample of gastric contents.

It is therefore evident that when pepsin is present rennet is also present. When pepsin is absent, rennet is also often absent, except in cases 67, 78, 97, and 110, where rennet was present when pepsin was not found, at least not in the dilutions em-

ployed. Of 16 cases examined, *no* correspondence was found between the amounts of rennet and pepsin in 8 cases (49, 50, 51, 67, 78, 80, 97, 110).

The following is the result:

III.—COMPARISON BETWEEN THE AMOUNTS OF PEPSIN AND RENNET.

No.	Name.	HCl	Total Acidity.	Dilution.	Pepsin Ferment: Precipitate Disappears After	Pepsin Ferment: Amount of Precipitate Left After 30 Min.	Rennet Ferment: Dilution.	Rennet Ferment: Coagulation.
45	L. B	84	100	20	25 min.		1:50	Yes.
				100		0.4 c.c.	1:100	No.
49	F. L	55	85	40	23 min.		1:50	Yes.
							1:100	No.
50	MacA	72	84	10	25 min.		1:50	Partially
				20		0.2 c.c.	1:100	No.
51	J. D	68	84	10	15 min.		1:50	Partial.
				20		0.2 c.c.	1:100	No.
56	C. P. R	64	80	20	10 min.		1:20	Yes.
				100		0.6 c.c.	1:50	No.
62	Cr	48	76	20	8 min.		1:100	Yes.
				40		0.4 c.c.		
65	E. L. B.	+	75	10		1.0 c.c.	1:20	No.
67	Dr. I. J.	50	70	10		0.3 c.c.	1:100	Yes
71	M. P	30	70	10		0.1 c.c.	1:20	No.
78	Ph	35	60	10		0.3 c.c.	1:20	Yes.
							1:50	No.
80	W. J. O	40	50	10	12 min.		1:20	Partially
				20		0.7 c.c.		
86	W. F.	35	40	10	25 min.		1:100	Yes.
				20		0.5 c.c.		
97	W	0	35	1		0.1 c.c.	1:20	Yes.
							1:50	No.
100*	B	0		0		0.5 c.c.	1:20	No.
108†	J. K	0	85	0		0.5 c.c.	1:20	No.
110†	Ch	0		0		0.7 cc.	1:5	Yes.

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CALCULUS IN THE LOWER SEGMENT OF THE URETER IN THE FEMALE,

WITH SPECIAL REFERENCE TO THE OPERATIVE METHOD.*

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Cystoscopy with ureteral catheterization, and especially radiography in its present standard of development have added two most valuable and efficient measures to our armamentarium for the investigation and diagnosis of diseases of the urinary organs. Especially in the determination of the presence of stone in the kidney or ureter are these procedures of service, and eminently so in the localization of the calculus. Diagnosis in the absence of these measures must be more or less problematical because the symptom-complex of other conditions may so stimulate calculus that the differentiation cannot be made definitely. There may be calculi of composition so pervious to the *x*-ray that with it they cast no appreciable shadow. While these are the exception, the possibility is always to be borne in mind when the radiographic result is negative. On the other hand when a shadow is obtained on a radiograph taken under proper conditions and its interpretation made by an experienced radiographer the diagnosis is almost beyond question and entirely so in conjunction with other available data.

It is well to confirm the diagnosis by ureteral catheterization as such conditions as foreign bodies in the intestines, or calcareous glands in the mesentery, or phleboliths in the veins may, when present, simulate the shadow of a stone. These conditions or other possible ones outside of the ureter would interpose no obstruction to the passage of the catheter. Better still a radiograph with shadowgraph ureteral bougies in situ would indicate on the plate the relation of the suspected shadow to that of the bougie which occupies the tract of the ureter.

The indication of the position of the stone is of the utmost importance from the operative standpoint. Before the advantages of localization by the *x*-ray were available the procedure was first to explore the kidney through a nephrotomy incision through which the ureter could also be sounded and the calculus localized. An additional operation, either at the same sitting or subsequently, was then required to remove it. This is the procedure that I followed in one of the cases reported herewith when the radiograph was not positive, and therefore this experience all the more impressed me that this method is unnecessarily complicated, and, though it may be useful for exploratory work under certain conditions, as I thought it would be in my case, it may usually be dispensed with when not especially indicated by evidence of trouble in the kidney.

This applies more particularly when the lower segment of the ureter is the portion involved, and especially so when this condition occurs in the female. Within the past year four almost similar cases came under my care, the results of observation and treatment of which, besides demonstrating the value of the cystoscope and radiograph, cleared up to my satisfaction the mooted question of the preferable mode of operative approach to the lower segment of the ureter in the female, which is the main point I want to bring out in this paper, and to which I will revert later.

The symptoms presented by these cases are also instructive. They go to show the incorrectness of the ideas, prevailing to a great extent even in the profession, that pain due to calculus in the ureter is differently located or may be differentiated from the pain caused by stone in the kidney, and that the paroxysmal pain of renal colic begins with the engagement of the calculus in the upper ureter, continues during its passage, and stops with the dropping of the stone into the bladder, and that repeated attacks are due to passage of additional stones. While this sequence may be true in some cases, the histories of these demonstrate that engagement from the kidney pelvis is not necessary to start a paroxysm nor delivery to the bladder to end one, but that paroxysms may begin and end and recur indefinitely with the calculus holding its situation in the ureter. In these cases the character and location of the pain was similar to that usually complained of when the source of the irritation is in the kidney. The attacks were paroxysmal and very severe in

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all four cases. Subjective pain was referred mostly to the lumbar region, radiating to the thigh and groin, and objectively the kidney region anteriorly and posteriorly was tender during attacks. Urinary frequency and bladder irritation were not marked symptoms and were only brought out by close questioning as moderately existent during the paroxysms. In the interval of attacks there was perfect freedom of all symptoms, no pain or discomfort, subjective or objective.

Case I.—Bessie S., schoolgirl, age 15. Came under my observation March 3, 1908, and entered the Beth Isreal Hospital. For four years she had attacks of severe pain in the left side, increasing in severity and frequency, accompanied with vomiting, each attack lasting one or two days, though the last had kept on for a whole week. Examination of her urine showed a specific gravity of 1020, acid, a trace of albumin, many white cells and uric-acid crystals. A radiograph showed no stone in the kidney but a suspicious shadow in the pelvis. Cystoscopic examination with catheterization of the ureters showed the bladder negative, good secretion from either kidney, both urines alike, but, while the right urctheral catheter slip up to the pelvis without any hindrance, the left would enter only a short distance. This taken together with the suspicious radiographic pelvic shadow suggested another radiograph which was made directed specially to the pelvic region, and which gave a distinct shadow confirming the presence of a pelvic ureteral calculus. As the symptoms pointed so directly to the kidney, I did a nephrotomy so as to cover the possibility of an infected kidney. The kidney and its pelvis were found normal in size and appearance. A bougie introduced through the cortical incision passed without hindrance down the ureter for a distance of some twelve inches from the outside of the kidney cortex where it met an obstruction, thus confirming the presence of the calculus in the lower ureter very near the bladder. The ureteral operation was postponed for a subsequent occasion. Recovery from nephrotomy was uneventful except for repeated severe paroxysms of pain similar to those previously complained of, and easily accounted for by obstruction caused by the engagement of blood clots passing down from the operative field to the site of the stone in the ureter.

Two weeks later she went on the table again for the ureterolithotomy. Preliminary to the operation her ureters were catheterized again for assurance that her attacks of colic since the first operation had not resulted in or been caused by the advance of the calculus into or towards the bladder. Conditions were found the same as before, the left ureter admitting the catheter for only one and a quarter inches. With this localization the retroperitoneal operation was done, regarding which I will speak later as there are certain features in the operation common to all the cases on which I wish to lay stress. A crescent-shaped phosphatic calculus three-quarters of an inch long by one-quarter of an inch in diameter was found. Its surface was very rough and so firmly imbeded in the lining of the ureter that it took considerable manipulation to dislodge it. A curious feature of the calculus, though one that has been observed before, is a longitudinal groove about one-sixteenth of an inch in diameter, extending its whole length, which allowed the urine to trickle through most of the time, yet at other times must have become obstructed, possibly by swelling of the mucous membrane, and so caused the severe attacks of pain. The ureter above the calculus was dilated to three or four times its normal caliber. Convalescence was prompt and smooth.

Case II.—Lena D., age 23, married four years, had two children, the last 17 months old, was admitted to the Beth Israel Hospital March 13, 1908. For three years she had had attacks of pain in the right lumbar region, at intervals of about two weeks and lasting about two days. Pain during paroxysms was constant, limited to the lumbar region and not radiating, very severe and usually accompanied by vomiting and sometimes by syncope. There was no urinary frequency or irritation even during attacks, and between attacks she felt perfectly well. Physical examination was negative except for a slightly tender local point at about the brim of the pelvis on the right side. Vaginal examination was negative. The urine was of 1014 sp.gr. and contained pus cells in moderate number; otherwise it was negative. On catheterization of the ureters the left permitted the passage of the catheter to the kidney while in the right ureter it could not be introduced for more than two inches. The radiograph gave a shadow corresponding to the location of the calculus as indicated by the ureteral examination. Inguinal retroperitoneal ureterolithotomy was done on March 23, and an ovoid calculus a good half inch long by a quarter inch in diameter, probably composed of calcium oxalate and covered with rough projections, was removed. Recovery was prompt and without any untoward symptoms.

Case III.—This was in the same patient as case II, but on the opposite side. She was readmitted to the Beth Isreal Hospital December 3, 1908, with the history that since her operation, eight months previously, she had had no pain till two days ago, when she was taken suddenly with very severe colic on the left side, persisting up to the time of her admission. Radiograph showed a stone low down in the pelvic ureter, and catheterization showed an obstruction in the left ureter about three inches from the bladder. After allowing a reasonable time for the stone to pass of its own accord, which it did not do, she was operated on December 12, and a very rough triangular-shaped calculus, about one-half inch long by one-quarter broad, was removed. She made a smooth recovery and left the hospital in two weeks.

Case IV.—Beckie C., age 21, not married, was admitted to the Beth Isreal Hospital February 1, 1909, with an acute attack of pain in the right iliac region, this being the fifth attack within six months. She was sick for three days and the symptoms were suggestive of acute appendicitis as well as of ureteral calculus. The urine contained many pus cells and phosphate and oxalate crystals. A radiograph showed a shadow indicative of calculus in the right pelvic ureter. Confirmatory catheterization of the ureters was not done because the patient began to object to an operation and I did not want to allow her time to change her mind. Through the iliolinguinal incision the appendix, distended and acutely inflamed, was removed, then the peritoneum closed and the usual retroperitoneal ureterotomy proceeded with. A small stone was located very low down, seemingly within two inches of the bladder.

Although calculi may become impacted in any portion of the ureter there seem to be points of election in the course of the canal that are the favorite sites. Morris gives three points: First, one or two centimeters below the commencement of the ureter; second, where the ureter crosses the brim of the

bony pelvis, and third, at the intermural portion of the ureter where it passes between the coats of the bladder wall before entering.

On the location depends to a great extent the method of operation. The procedure for removal is fairly well established in either male or female when the calculus is situated anywhere from the renal end to a point an inch or two below the pelvic brim, or even if it be lower than this in the male. In cases of impaction above the brim lumbar incision, extended as far downwards and forwards as necessary, with retroperitoneal exposure of the ureter, is the accepted procedure. In impaction below the brim the ilioinguinal incision is the usual procedure in the male, but in the female its use has been restricted to those cases in which the impaction is above the point where the ureter enters the region of the broad ligament. The more complex anatomical relations of the lower three or four inches of the ureter in the female make its approach by this method much more difficult, and, according to some authorities, almost impossible. Whether the objections to this mode of approach in the female were the result of trial by those who present them, or whether they were only the result of anticipation of difficulty on account of the complicated anatomy of the region, is not stated. How great the difficulties are considered may be judged from the variety and ingenuity of the methods proposed and carried out to reach the pelvic ureter in the female. Morris says: "When in the female the stone is impacted below where the ureter leaves the pelvic wall, but still at a distance of from two and a half to three inches from the bladder, . . . the best way to extract it is by the sacral route," and further on he describes the "sacral" operation devised by himself which he used in two cases to reach the ureter, concededly a more difficult and complicated operation than the ilioinguinal. He mentions also the vaginal, transsacral and other methods employed by various surgeons to reach that portion of the female ureter in question. The ilioinguinal he says is out of the question in these cases, and quotes other writers to the same effect. So far as I have been able to look over the subsequent literature I have not found any writer to question this view.

The four operations here reported were in females and the calculus in each case was very near the bladder, in one, one and a quarter inches, in two, two inches, and in one, three inches from the bladder outlet. According to all accepted authority I should have made my method of approach from below, either vaginal or sacral. But it seemed to me that I could work down from above more easily in spite of the anticipated difficulties which did not impress me as being greater than those encountered in other difficult intraabdominal or pelvic work.

The usual incision parallel to and about an inch from Poupart's ligament, beginning about the level of the anterior superior spine and extending almost to the spine of the pubes, was used, with division of all the structures down to the peritoneum. The latter was raised from the pelvic wall until the iliac vessels were exposed, when the ureter was located adhering to the raised peritoneum. The ureter, in its exposed portion, was separated from the peritoneum and a traction strip passed around it to draw it up out of the pelvis for separation. This was comparatively easy as far as the base of the broad ligament. Here it was very adherent, yet separable with the blunt end of a scalpel handle, while under traction from above. During this separation probably one inch or somewhat more of the ureter distal to the point of separation, together with its surrounding and yet adherent structures, could be picked up between the thumb and finger of one hand and palpated sufficiently well to determine whether it contained the stone or not. The traction from above was of material assistance in permitting this to be done. Following along in this manner the stone in each case was located. After location very little more separation was necessary, just sufficient to allow the finger tips to engage the distal aspect of the stone through the ureter and its coverings so as to enable its being milked backwards towards the exposed portion of the tube. In all four instances the stone lay beyond the uterine artery which could be located by its pulsation, but the expedient of milking the stone backwards and proximal to the artery eliminated the necessity of its division and ligature. In one of the cases, CASE II, the separation of the plexus of veins at the base of the broad ligament from the ureter caused some hemorrhage which was inconvenient to handle on account of the depth of the cavity at the bottom of which it took place. Yet with a little care and persistence it was fairly easily controlled. In the other three cases there was no troublesome hemorrhage though the calculus was lower in the ureter than in Case II. In three of the cases the stone was milked up to a convenient situation for incision of the ureter, the ureter incised on it, the stone removed, and the ureter closed with catgut sutures passed through the outer layers only. A narrow strip of gutta percha tissue was inserted as a drain from the site of the ureteral incision to the lower angle of the wound which was entirely closed with layer sutures. In the first three cases there was no sign of urine through the wound and the drains were removed within a week. All had perfect primary union. The fourth case did not go as smoothly as the others though the result was fortunately just as good. Inability to milk the stone backwards into the exposed portion of the ureter was a disappointment. It seemed to be too firmly embedded in the mucous membrane and I had to desist after using as much force as I thought within the limits of safety for the ureter. The ureter was then incised and a sound passed with the object of pushing the stone into the bladder, which I thought I had succeeded in doing, as I failed to locate it again either with the sound or by palpation. The ureter was sutured and the wound closed with a small gutta-percha drain as usual. On the fourth day, urine began to discharge along the drain. A few days after operation a radiograph showed the calculus in the ureter, but somewhat lower than its previous location. Two weeks after operation cystoscopy showed three small fragments in the bladder and no obstruction on catheterization of the ureter. A radiograph taken after this did not show the calculus. The urinary leak through the fistula decreased gradually and stopped entirely three and a half weeks after operation. The course subsequent to operation indicates that the calculus was broken by the attempts to dislodge it. That the fragments remained in the ureter and, with the swelling of the mucous membrane due to the traumatism, caused obstruction with backing up of urine and its discharge through the incision. With subsidence of the swelling the fragments passed on into the bladder and allowed the incision in the ureter to heal.

That the inguinal retroperitoneal operation in the

female is not only practicable but fairly easy of accomplishment when the calculus to be removed is as low down as one and a half inches from the vesical orifice of the ureter, is fairly proven by these cases, and I have no reason to doubt from experience with them that even were the calculus lower it could be similarly attacked and either forced backwards along the ureter or forwards into the bladder, though when in the intramural portion of the ureter it might be more easily removed transvesically.

A point in the technique that counts for a great deal is the traction strip, a strip of gauze or a heavy ligature passed around the ureter, not tied, by which the latter is raised from the pelvis as much as its surrounding connections will permit, bringing these adherent structures up into view for separation. This raising of the ureter with its adherent surroundings also permits of palpation, between the thumb and finger, of the yet unseparated portion, which is recognized by its being held under tension. Through the surrounding tissues the stone can be felt in the ureter and may be dislodged by milking it backwards into the exposed portion of the tube.

For the radiographic and cystoscopic work in connection with these cases I am indebted to Doctors I. S. Hirsch and W. S. Schapira, radiographist and cystoscopist, respectively, to the Beth Isreal Hospital.

THE ETIOLOGY OF CARCINOMA.

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For many years the cause of carcinoma has been the fascinating subject around which has arisen much speculation. The gross appearance was described by such ancient authors as Celsus, Galen, Antius, and Soranus, but the etiology of the disease remained for a much later period to be taken up and systematically investigated. The work that has been done had been exceedingly great; the literature has become massive, but it has been so baffling that to-day we witness here and abroad an army of tireless investigators at work and the establishment of organized laboratory research. The theories which have been advanced at one time or another to explain the cause have been many and varied. They have been the source of great influence in directing research along particular lines. Of these, two require a brief consideration.

The embryonic theory as first advanced by Cohnhein assumed that during the development of the body in its embryonic stages certain cells were not utilized, and that these rests, as they have been called, still retaining their potential power of growth, later in life, either without provocation or because of some irritation, were supposed to assume active growth, and hence, develop into a tumor. This theory, though advanced without any concrete evidence, found quick favor, and later inquiry demonstrated the fact that there were in existence tissue islands which, in some instances, might be regarded as sources from which tumors might grow. In the case of benign tumors this theory is both applicable and interesting. It is extremely easy to imagine certain cells to remain dormant and to proliferate later in life and become the same structure they would have been had they developed during the embryonic stages.

When, however, the attempt was made to apply this theory to malignant tumors, it signally failed. It failed to determine why one tumor should develop into a malignant one and another into a benign one. It failed to explain why malignant tumors recur, infiltrate, give metastasis, and have such marked destructive effects upon the human body. Indeed, it would be impossible to cite at the present time the many things which it does not explain and the many facts with which it does not come in accord. Moreover, many experiments have been carried out which prove that the embryonic theory cannot be applied to malignant tumors. One of these, performed by Cohnheim and Maas, may be cited. Into the jugular vein of animals small pieces of periosteum were introduced. After a few weeks or months the animals were killed and the lungs examined. It was found that the pieces of periosteum grew in the vessels in which they had become impacted. The size of the new growth, however, was limited to the lumen of the vessel. When this size was reached in every case further growth was arrested, and the bone was in time removed by absorption. From this experiment alone the question suggests itself, why was the further growth of the bone arrested? Why did not the periosteal emboli grow, infiltrate, and become malignant tumors? The attempt has been made to answer these questions by stating that the

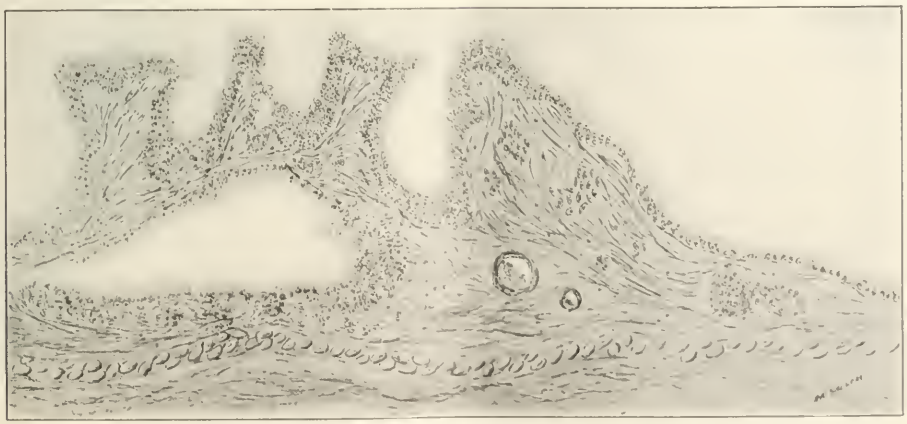

FIG. 1.—Section of the left ear of a rabbit in which nonsterilized Sudan III in olive oil was injected

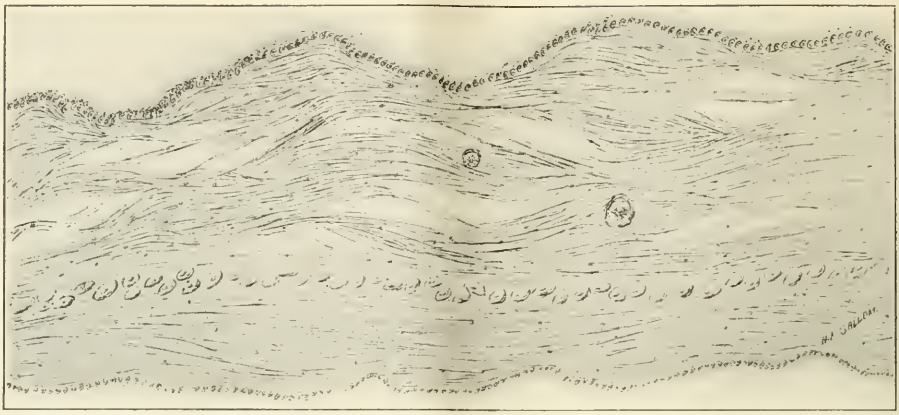

Fig. 2.—Section of the right ear of a rabbit in which sterilized Sudan III in olive oil was injected.

normal resistance of the tissue stopped the growth. But why did not that same resistance prohibit the growth of the piece of periosteum from the beginning? It has been admitted even by those who upheld the embryonic theory that there are other determining factors in the production of the tumors; but it has also been insisted upon that these isolated cells or rests are a necessary factor. Whether they are or are not it becomes evident that we must seek these so-called "determining factors," for it is only by the discovery of these that we can hope to find the true cause of carcinoma, and to combat it successfully by rational therapeutics based upon such discovery.

Sufficient stress has not been laid upon the marked difference between benign and malignant tumors. They resemble each other only in a superficial way and differ in many important ways. Therefore, any theory which attempts to explain the cause of both benign and malignant tumors in the same way must fail. The embryonic theory belongs properly to benign tumors. To determine the cause of malignant tumors other theories are necessary.

The second theory belongs properly to malignant tumors. It is the infectious theory. It suggested itself because of the marked resemblance of carcinoma to many of the recognized infectious diseases. Though bacteriological research has failed to reveal any microorganism as the possible cause of carcinoma, the belief among those who are thoroughly familiar with the clinical aspects of the disease is rapidly growing that in some future time the disease will be defined as a chronic infectious disease due to a specific microorganism, against which epithelial cells are best able to combat.

Many formidable objections have been raised against the infectious theory. It has been urged that even in extensive cases of cancer of the tongue, jaws, or pharynx, quantities of cancerous particles find their way into the stomach, and yet the mucous membrane of the gastrointestinal tract escapes. This, I believe, cannot be urged as a fair objection. The answer is the same as that for cases of pulmonary tuberculosis. It is a well-known fact that thousands of tubercle bacilli are always to be found in the mouths of tuberculous patients, and yet these patients rarely get tuberculosis of the mouth. Another objection urged against the infectious theory is that in typical infectious diseases the microorganisms are transplanted to the new situation, while in carcinoma the cells are transplanted and the secondary growth is always like the primary. In looking over the literature concerning this point little authority was found for the statement that the cells are transplanted. Evidently since no microorganism was found, it was assumed as a matter of fact that the cells were transplanted. Moreover, even if this were true it does not necessarily argue against the infectious theory. There are several possibilities. It might be assumed that the microorganisms are intracellular, and that when the microorganisms are carried to a new situation the cells are taken, also. There is another possibility. The microorganisms may have been carried to a new site and the epithelial cells may have been attracted to this secondary focus by a special positive chemotactic force. It is not forced when it is added that these epithelial cells, which are at the primary focus, combating the invading foe, should feel this chemotactic force most strongly and be attracted to the secondary focus. If this occurs we must get a new growth, alike in all respects to the primary. Such have been the objections urged against the infectious theory. It will be clearly seen that these objections can be readily set aside. Furthermore, we should not expect, on account of our ignorance, to be able to explain everything. If we could there would be no need for any theory.

In marked contrast to the objections against the infectious theory, there are numerous important facts which support it. The fact that carcinoma is almost always primary, being first a local and then a general infection, the cachexia and profound destructive changes which it brings about, the metastasis which it gives all strongly indicate that it is really an infectious process. Benign tumors have no such marked effects upon the body, and it is a common phenomenon to see either a primary or multiple growths. In these respects benign tumors essentially differ from malignant growths. Another important phenomenon often observed is that malignant tumors recur and grow very much more rapidly, and, hence, are more malignant after an unsuccessful attempt at removal. There can be but one possible explanation. That the tumor does recur has been explained on the basis that all of the growth has not been removed. This, however, is not always the case. In many instances recurrence

is not due to failure of the surgeon to remove all of the growth, but to the soiling of the healthy tissue.

It must be admitted that soiling also occurs in the removal of benign tumors. In this case, however, the cells which have been left behind are acting as foreign bodies, and are removed before growth and proliferation takes place. In case of malignant tumors, the cells which have been left behind are not acting as foreign bodies, but are protecting the body against the invading foe—hence their active growth and proliferation. That tumors grow more rapidly and show greater malignancy after an unsuccessful attempt at removal is easily explained if a few well-known facts are borne in mind. The center of the growth is not the active part. It may even be sterile. In carcinoma, as in a number of infectious diseases, the progressive growth is due to the establishment of independent growths in the periphery of the tumor. It is there that the battle is waging. The center is only the battlefield where the battle has been fought and lost. With this in mind the explanation is extremely simple. When the surgeon attempts the removal of the tumor he necessarily opens up new channels, any barrier which may have been set up against the disease is broken down, and the disease progresses the more rapidly. Unintentionally, soiling of healthy tissue takes place, and in this way it happens that the surgeon indirectly advances the disease. Of this I have already written.

Besides these facts there are many predisposing factors which support the infectious theory. Heredity, traumatism, prolonged irritation and inflammation have been considered as more or less important predisposing factors. Great importance was formerly attached to heredity, but it is now regarded of but little importance. The same condition of affairs has occurred in the history of other infectious diseases, notably tuberculosis. The tendency of the present time is to regard the offspring as inheriting a constitutional predisposition to the formation of new growths, and, being surrounded by those who have the disease, he is the more likely to acquire it.

Traumatism, prolonged irritation, and inflammation have been regarded and are important predisposing factors. An attempt has been made to advance the theory that prolonged irritation is the cause of tumor formation. In regard to benign tumors, this factor may be the exciting cause of the active growth of the isolated cells or rests. In regard to malignant tumors, the traumatism, prolonged irritation, and inflammation are important only inasmuch as they reduce the vitality of the tissue and make it a favorable media wherein the microorganism may grow. The importance of these factors can be readily estimated by a brief consideration of carcinoma of the alimentary tract. It has been found that cancer of the alimentary canal is very frequent; that the stomach is by far the most usual situation, especially at the pylorus; and that the duodenum, jejunum, and ileum are very rarely attacked, while the colon and rectum are very frequently the seat of the disease. In the small intestines the food is in a liquid or semi-liquid form and causes no irritation or traumatism, while in the stomach and larger intestines some degree of traumatism or irritation is usually present. When a slight abrasion occurs an opportunity is afforded the microorganisms to gain access to the tissues and set up the new growth. It, therefore, becomes evident that careful cooking and chewing of the food are of very great importance in the prophylaxis of malignant disease.

From the above discussion it becomes evident that carcinoma is really an infectious process, and that we must bend our efforts toward the staining and isolation of the microorganisms concerned. We should, however, bear in mind the fact that the microorganism is one of low virulence, as is shown by the chronic course of the disease, and that it possesses high resisting power toward stains. This at once suggests a possible means of identification if the microorganisms can be made to take the stain.

At the very beginning of the work Dr. Allen J. Smith suggested that I should try the effect of oils as a possible cause of carcinoma. But I could not bring myself to believe that the oils had anything to do with the disease. It was a few days later, while meditating upon the subject, that I thought even if the oil should produce a carcinoma it might not be due to the oil, but to the microorganism which contaminated it. If this were true I could then prove that the oil had nothing to do with carcinoma, and that the latter was really an infectious disease. I therefore decided to try the following experiment at the Pathological Laboratory of the University of Pennsylvania, which proved that my thought was correct.

One gram of Sudan III was taken and placed in 10 cubic centimeters of olive oil. The red oil was then divided into two equal parts, one of which was sterilized on five successive days by placing it in boiling water for fifteen minutes. The sterilized red oil was then taken and injected into the right ear of the rabbit. Then an equal amount of non-sterilized oil was injected into the left ear. This order of injection was quite important, inasmuch as the same syringe was employed, and it was necessary that the sterilized oil should not become contaminated with the non-sterilized oil. After ten days the rabbit was killed and pieces of each ear removed for microscopic examination.

The first drawing is taken from a section of the left ear, in which the non-sterilized oil had been injected. It will be seen that there is marked thickening of the epithelium, dipping down deep into the subcutaneous tissue in many places. Here and there are to be seen isolated collections of epithelium. They vary greatly in shape and size. The tissue is edematous, this being due without doubt to the red oil.

Figure 2 represents a section taken from the right ear in which the sterilized oil had been injected. The tissue does not show much change. It is edematous. The epithelium is not thickened, and is even thinner than is shown in the drawing. It does not dip down into the subcutaneous tissue. There are no such isolated collections of epithelium as are seen in the first drawing.

From this experiment alone it can be seen that the Sudan III and olive oil are not the cause of the marked change which has been produced. There must be something which has been killed by the sterilization. If it were not so we should get the same change in the one as in the other. Most likely it is the microorganisms. If this is so we have the explanation of why some investigators failed to get any result while others did. Those who did get results used the oil which had been contaminated, while those who did not get results used oil which was not contaminated or which had been sterilized.

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AN EXTREME OF LEPROPHOBIA.

WHEN we read of cholera panics among the ignorant peasantry of Italy or Russia, we smile a superior sort of smile, and wonder to what extremities the senseless fear of disease will drive the unlearned. But when we read of the Medical Examining Board of Oklahoma witholding a license to practise from any physician suffering from pulmonary tuberculosis; of health officers in several States becoming hysterical when a leper escaped from his place of unjust confinement a few years ago; of the officials of another State making prisoners of a retired army officer and his wife because one of them was alleged to have leprosy; and now of a man, whom competent authorities have declared not to be a leper, imprisoned in the Capital of the country because he inquired of his physician if possibly he had leprosy, we wonder whether there is a science of public health. This last mentioned case, in which public interest has been aroused by the recent examination of the victim by a well known dermatologist of this city, seems to call for some comment, for it presents a peculiarly flagrant instance of official cruelty inspired by unreasoning fear.

The case, briefly stated, is as follows: A man, aged thirty-six years, born in North Carolina, and living there most of his life, served nine years in the army, about two years in the Philippines and a short time in Cuba; in neither of these countries did he see a case of leprosy nor ever hear it mentioned. In June, 1908, he went to work in a pulp mill where he came in contact with a certain liquid made from "black ash," which is very poisonous and irritating. The hands became inflamed, then the face, and later the feet. There were a dozen or so in the mill who were more or less similarly affected. On August 18 he went to Washington, D. C., to get relief from the distressing inflammation of the skin. According to his statements the hands and forearms were greatly swollen and also the face, so that the eyes were almost closed; the feet and lower legs were also acutely inflamed. As the physician to whom he had applied was examining him, the patient innocently and foolishly remarked, "I wonder if I have leprosy." The hint was taken and the case referred to the health authorities. The inspector is said never to have seen a case of leprosy, but accepted the patient's interrogative diagnosis, after a hasty examination, and called in another physician, who had seen some leprosy many years ago; the latter regarded the case as "strongly suspicious." He excised a portion of the inflamed skin from the forehead and reported the finding of bacilli, "corresponding morphologically with those of leprosy." On this evidence the man was quarantined and has been kept a prisoner since August 21, 1908. So far as can be learned, no further attempt was made to establish the diagnosis, and until the arrival of Dr. Bulkley of New York, on May 9, of this year, no one well acquainted with diseases of the skin had ever examined the patient, although there are numbers of men in Washington perfectly competent to determine the nature of the trouble. At the first visit of the New York dermatologist the patient was stripped and the case was studied for an hour and a half. On May 30 another similar study of the case was made for three-quarters of an hour. At both of these examinations pieces of skin were punched out and were placed at once in absolute alcohol, most carefully stained, and examined by many pathologists, among them Drs. William H. Welch of Baltimore and William H. Park of New York. Absolutely no sign of leprosy was discovered, certainly no leprous bacilli. A third visit was made June 6. There were then absolutely no signs of leprosy on the face; the nose was aquiline, the lips and ears normal, and there were no lesions within the nose or mouth.

Analyzing this case we cannot see the slightest ground for even guessing that the man had leprosy. He went to Washington with an acute inflammatory dermatitis, caused by a vegetable poison and of only five or six weeks' duration. Leprosy would have taken as many years to have involved an equal area so severely. During his imprisonment all this has slowly disappeared, without treatment, the cause being removed.

The whole case seems to be one of official overzealousness, but the excess of zeal is in danger of becoming something worse by the action of the health officer in placing every possible obstacle in the way of the man's freedom. The officials of the New York Health Department have said in writing that he would be admitted here, as, "for some years past the Board of Health of this city has considered that leprosy in this climate is not of so infectious or contagious a nature as to require segregation." The New York Skin and Cancer Hospital has written that the patient "will be admitted to the wards of this hospital whenever he may come," adding "We have had many cases of true leprosy in the Hospital, often for considerable periods of time, dating back twenty years, and have never seen reason to fear the disease;" and yet the Washington officials, according to the newspaper reports of June 14, will not only not discharge him from custody but have even doubled the guard around his place of confinement. Even assuming that Dr. Bulkley is mistaken and that the man is really a leper, which, in view of the gradual disappearance of the dermatitis, is scarcely possible, there is absolutely no excuse for depriving him of his liberty.

Every well informed physician, the professional leprophobiacs perhaps excepted, knows that leprosy is far less communicable than tuberculosis, yet no health officer would think of imprisoning the tuberculous—nor yet the syphilitic, though the latter are a very real menace to their fellows and are almost certain to infect others, innocently or criminally. This case might well be made a text for instruction of the public regarding the nature of leprosy, so that others may escape the consequences of an excess of zeal on the part of sanitary authorities.

PHYSICAL TRAINING.

Judicious physical training in combination with rational living goes further than any other mode of life in developing the muscles, stimulating vitality, and strengthening the constitution. In these times, when the tendency of individuals to concentrate in large centers is becoming more and more marked, and when the strain upon the mental faculties is growing more and more intense, owing to the calls upon them entailed by modern systems of education, it is incumbent upon those responsible for the upbringing of the young that every effort should be made to build up a healthy body. Modern conditions of life have greatly intensified the difficulties in the way of successfully bringing about this object. Social wastrels in all civilized countries are increasing at an alarming rate, and the physique of the mass of the population has very much deteriorated.

Physical training to do the most good should not be undertaken with the view of simply developing the muscles, therefore gymnastics alone is contraindicated, or rather gymnastics should not be utilized merely with the idea of turning out specialized athletes but to produce what is known as the good all-round man. The systems of physical training in vogue in Germany and in Great Britain differ widely. In Germany the object seems to be to develop a man's muscles, whereas in Great Britain the aim appears to be to increase strength, agility, and power of endurance, so that while the finished product in Germany looks and probably is the physically stronger man, yet so far as endurance and agility are concerned he would not be able to compete on equal terms with the best type of British athlete. The reason why the Germans as a people are in physique generally superior to the British, and it may be said also to the American, is that physical training in Germany is universal and far more thorough.

Surgeon Kenelm Digby Bell, R. N., read a paper, on April 14, before the British United Service Medical Society in which he spoke very highly, judging from his experience as a naval medical physical instructor, of the Swedish system of gymnastics, and described its three fundamental characteristics: (1) The nature and intention of the exercises; (2) the progression of the exercises, and (3) the definite arrangement of the exercises in the daily lesson. He explained that the system is in reality educational gymnastics, that every exercise has a special physical effect embodied in it which is chiefly dependent on the changes produced in accordance with the laws of physiology, in the organs of locomotion taking part in the movement, and in those parts of the nervous system which are called into play by it; and each exercise is practised solely to produce that effect. One feature of the Swedish system particularly deserving of notice is that great attention is paid to the development of an expansible and resilient chest in the young and its maintenance throughout life, in order that breathing may be free at all times, and the fixed condition of the chest, the frequent objection to most of the older forms of gymnastics, may be prevented. In fact, the Swedish method of physical training is said carefully to avoid those exercises calculated to develop big and fixed muscles, exercises which in the nature of things must in the majority of instances produce overstrain. The results aimed at are suppleness, coordination, smart reaction, and agility. The Swedish system is by no means perfect, many defects in it could be easily pointed out; but, on the other hand, it is perhaps the best system known, and is incomparably superior to ordinary gymnastics.

Urban life, which is after all the life of the mass of civilized people, has an injurious effect on physical development, and steps must be taken to counterbalance the physical evils entailed on modern city dwellers. Material prosperity is of little use if the inhabitants of a country are deteriorating in physique and stamina while piling up wealth. The battle is to the strongest, which means the most physically and mentally fit, and the nation which does not use every possible means to preserve the health of its citizens is certain to go down. Medical men can do much by example and precept in the direction of spreading the gospel of health. They should be both pioneers and preachers, and it is an auspicious sign that they are everywhere becoming alive to their responsibilities.

The Cause of Goiter.

Since the discovery of the action of the secretion of the thyroid gland on general metabolism, much more interest has been taken in goiter than previously, and the appreciation that the factor of greatest importance in this disease is not the size of the gland but its secretory power has led to many theories as to the underlying cause of hypo- and hyperthyroidism. A recent ingenious contribution to these theories is one brought out by McCarty in the June number of *The American Journal of the Medical Sciences*. He suggests that the cause of goiter may be a reversion to type. He calls attention to the fact that probably in an earlier period in the development of man the thyroid was a gland opening freely into the alimentary tract through the thyroglossal duct. In modern man for some reason the demand for the thyroid secretion in the alimentary tract has been lost, the thyroglossal duct has closed, and the gland has been converted from a freely secreting one to one of sluggish activity. The writer calls attention to various examples of human reversion, as secreting male breasts, supernumerary breasts, and bicornate uteri, and suggests that possibly the reversion in the thyroid gland may take the form of an increased secretion.

The effect of such an increased secretion in a gland with an obliterated duct may be compared to the sudden obstruction of the duct of a normally secreting organ. The results of such obstructions may be of two kinds. If the gallduct is obstructed the secretion, in the form of bile, is forced back into the circulating blood and produces a systemic effect—jaundice; while if the ureter is blocked the result is more apt to be cystic formation with gradual loss of secretory activity of the kidney. McCarty thinks these two processes are comparable to the effect on the thyroid, the jaundice suggesting hyperthyroidism and the cystic kidney the so-called benign goiter. In either case of course the gland would enlarge. What the cause of this reversion is and the nature of the substance which acts to stimulate the thyroid secretion the author makes no effort to explain, but leaves the investigation to the physiological chemists. McCarty's theory is interesting, but its weak point would appear to be that the hypersecretion should affect the same organ so differently. It is easy to understand the same influence affecting various organs differently, but that is not the case in point. If all forms of goiter are due to hypersecretion of the gland, it is to be hoped that the cause of this may lie in the mode of life or character of food rather than in a reversion to the type of primitive man. With the insuperable obstacles to all efforts of scientific breeding of the human race the necessity of overcoming a reversion to type for the prophylaxis of goiter would not give an encouraging outlook for the stamping out of the disease.

Sanitary Conditions in Cuba.

It is most gratifying to learn from the letter of Dr. M. Duque, Secretary of Health and Charities of the Republic of Cuba, printed in another column, that the health conditions in that island are in so satisfactory a state, and that our correspondents, whose reports were the occasion of recent editorial comment, were mistaken in their belief that yellow fever existed there. Some very suspicious cases have undoubtedly occurred, but in each instance examination by competent diagnosticians has shown that the trouble was not yellow fever, and the President of the Havana Board of Infectious Diseases, Dr. Agramonte, writes that there has not been a case of the disease in Cuba since 1908. Even had the cases been found to be yellow fever there would have been no danger, for until the diagnosis was established the patients were isolated in screened wards and treated as if they were actually suffering from the disease. There is no question that the situation at present is thoroughly under control by competent health officers, and so long as they are given a free hand and the government does not cut down the appropriation for sanitary purposes, there is no reason to apprehend a return to the old conditions. The danger is, as we have maintained, that the needs of the politicians may hamper the work of the health department and impair its efficiency. What has happened before may happen again if those in control of the government forget their responsibility in sanitary matters. It is not in Cuba only that the lawmakers are sometimes short sighted in this respect, but it happens that just now, and for the hot months to come, it is this country that will suffer if the Cuban authorities are not alive to their duty to themselves and to us.

News of the Week.

Officers of the American Medical Association.—At the final meeting of the House of Delegates, on Thursday, June 10, the following officers were elected: *President,* Dr. William H. Welch, of Maryland; *First Vice-President,* Dr. Robert Wilson, Jr., of South Carolina; *Second Vice-President,* Dr. Charles J. Kipp, of New Jersey; *Third Vice-President,* Dr. Alexander Lambert, of New York; *Fourth Vice-President,* Dr. Stanley P. Black of California; *General Secretary,* Dr. George H. Simmons, of Illinois; *Treasurer,* Dr. Frank Billings, of Illinois. *Trustees*—Drs. C. E. Cantrell, of Texas; Malcolm L. Harris, of Illinois; T. W. Councilman, of Massachusetts, and A. C. Dougherty, of Indiana. St. Louis was selected as the place of meeting of the association in 1910.

Commencement Exercises.—The first commencement of the Fordham University School of Medicine was held on June 9 in the college auditorium. Eleven graduates received the degree of Doctor of Medicine from the Dean of the school, Dr. James J. Walsh.

Sixty-one students were graduated from the Cornell University Medical College of New York on June 9. Of the graduates fifty-four have already received hospital appointments. Prof. J. F. Crane, Dean of the Cornell University Faculty, conferred the degrees and made an address to the graduates.

The degree of doctor of medicine was conferred upon forty-eight graduates of the Washington University Medical School, St. Louis, on May 27, by Dr. David F. Houston, Chancellor of the University.

Twenty-nine men were graduated from the Army Medical School at Bangor, Maine, on May 29. The diplomas were delivered by Secretary of War Dickinson and the address to the graduates by Dr. Roswell Park.

The College of Physicians and Surgeons of Chicago conferred the degree of M.D. on a class of 131 students, on June 5.

Rush Medical College of Chicago graduated a class of fifty-seven on June 1. Dr. Edward J. James, President of the University of Illinois, addressed the class.

New Marriage Law.—The new law governing marriages and the issuance of licenses to marry in the State of Washington, which went into effect on June 10, provides that applicants must undergo medical examination. It is thought that the chief effect of the law will be to send many couples desiring to marry over the border to Canada where the laws are less stringent.

The Philadelphia Medical Club gave a reception on June 11 to Dr. William C. Gorgas, the retiring president, to Dr. William H. Welch, the president-elect of the American Medical Association, and to Dr. George W. Wagoner, president of the Medical Society of the State of Pennsylvania.

Free Radium.—The Senate, on June 12, passed an amendment putting radium on the free list in the new tariff schedule, on the suggestion that such a step would be in the aid of medical science.

New York's Death Rate.—For the week ending June 5, 1909, there were 1,405 deaths in New York City, an increase of 183 over the corresponding week of last year. The death rate per 1,000 of population was 16.06. Slight increases occurred in

the number of deaths from measles, diphtheria, heart disease, pneumonia, and pulmonary tuberculosis.

Typhoid Fever Epidemic.—Over thirty cases of typhoid fever are reported from Winsted, Conn., with three deaths up to June 9. The health officers consider that contamination of a well on one of the dairy farms is responsible for the outbreak, and the Borough Board has created a new office of milk inspector to investigate all dairies.

Charitable Bequests.—Beth Israel Hospital, the Mount Sinai Hospital, and the Montefiore Home for Chronic Invalids each receives $5,000 under the will of the late Ernest Ehrmann, of New York, for the founding of a bed in perpetuity.

The estate of Mr. E. O. Kindberg, of New York, the value of which is not given, is left by the terms of his will to the Presbyterian Hospital, which institution is named as executor.

By the will of the late George W. Fetter, of Philadelphia, the sum of $5,000 is bequeathed to the Medico-Chirurgical Hospital to endow a free bed in memory of his wife.

The Oklahoma Discrimination Against Tuberculous Physicians.—The Committee on Legislation of the American Medical Association passed a resolution at the Atlantic City meeting recommending that the Association use its efforts to have the Oklahoma law repealed that provides that a physician affected with tuberculosis shall not be permitted to practise his profession within the limits of that State. This law was shown to be extremely unjust in view of the fact that the careful consumptive was in no way a menace to his fellowmen, and further that many of our greatest advances in the knowledge of this disease were the results of the labors of men who were its victims.

New Tuberculosis Hospitals.—New York City is soon to add to the group of buildings on North Brother Island by erecting four pavilions of four stories each, with a total frontage of 114 feet, which will be used for the treatment of cases of tuberculosis. The buildings will be of concrete, roof with copper and slate, and will cost about $140,000.

Dr. Andrew Walker McAlester, professor of surgery and dean of the School of Medicine of the University of Missouri, has resigned from the faculty of the school with which he has been connected since 1873.

New York Neurological Institute.—This institute, the incorporation of which was noted not long ago, will, it is expected, be opened early in September, at 149 and 151 East Sixty-seventh street, for the treatment of nervous and mental diseases. The institute will aim to spread among doctors and nurses the principles of treatment of these diseases, and will receive both free and paying patients. The medical directors of the institute include Drs. Joseph Collins, Pearce Bailey, and Joseph Fraenkel.

The American Laryngological Association.—The recent meeting of this association in Boston was the most largely attended of any in its history. The following were elected officers for the coming year: *President*, Dr. James E. Logan, Kansas City; *First Vice-President*, Dr. Cornelius G. Coakley, New York City; *Second Vice-President*, Dr. Harris P. Mosher, Boston, Mass.; *Secretary and Treasurer*, Dr. James E. Newcomb, 118 West Sixty-ninth street, New York City (reelected); *Librarian*, Dr. Joseph H. Bryan, Washington, D. C.; *Member of Council* (to serve for four years), Dr. Algernon Coolidge, Jr., Boston, Mass. The following were elected to membership: *Honorary Fellows* (transferred from corresponding fellowship), Prof. Dr. B. Fraenkel, Berlin, Germany; Sir Felix Semon, London, England. *Active Fellows*, Dr. Albert C. Getchell, Worcester, Mass., Thesis, "Naso-Pharyngeal Fibromata;" Dr. Burt R. Shurly, Detroit, Mich., Thesis, "An Investigation of Post-Operative Conditions, five to ten years after Intubation;" Dr. Greenfield Sluder, St. Louis, Mo., Thesis, "The Anatomical and Clinical Relations of the Sphenopalatine (or Meckel's) Ganglion to the Nose and Its Accessory Sinuses." The next meeting will be in Washington, May 3 and 4, 1910, in connection with the Triennial Congress of American Physicians and Surgeons.

Chattahoochee Valley Medical and Surgical Association.—The sixth semi-annual meeting of this society will be held at Lafayette, Ala., on July 13 and 14, 1909. An interesting scientific program has been prepared under the direction of the president, Dr. A. L. Harlan, of Alexander City.

Society of Ex-Internes of the Jewish Hospital of Brooklyn.—The organization of an alumni association of the Jewish Hospital, of Brooklyn, was recently effected with the following officers: *President*, Dr. William F. Bozenhardt; *Vice-President*, Dr. August G. Horstman; *Secretary*, Dr. J. Ronsheim; *Treasurer*, Dr. William Lintz.

The Willimantic City (Conn.) Medical Society held its annual meeting on June 2, and elected the following officers: *President*, Dr. F. E. Wilcox; *Vice-President*, Dr. C. E. Simonds; *Secretary and Treasurer*, Dr. W. P. S. Keating.

The Arizona Medical Society, at its annual meeting in Prescott, recently, elected the following officers for the ensuing year: *President*, Dr. R. N. Looney, of Prescott; *Secretary*, Dr. John W. Flinn, of Prescott. It was decided to hold the next meeting at Phoenix in April, 1910. As a result of recommendations made by this society, the Arizona Association for the Study and Prevention of Tuberculosis has been formed with Dr. John W. Foss, of Phoenix as president, and Dr. John W. Flinn, as secretary.

The St. John (N. B.) Medical Society met in annual session on May 26, and elected the following officers: *President*, Dr. J. S. Bentley; *Vice-President*, Dr. T. D. Walker; *Secretary*, Dr. G. G. Corbet; *Treasurer*, Dr. James Christie; *Financial Secretary*, Dr. Warwick; *Librarian*, Dr. G. R. J. Crawford; *Pathologist*, Dr. G. G. Melvin.

The Franklin County (Vt.) Medical Society held its annual meeting in St. Albans, on May 25, when officers for the ensuing year were elected as follows: *President*, Dr. Alan Davidson, of St. Albans; *Vice-President*, Dr. C. A. Pratt, of Enosburg Falls; *Secretary and Treasurer*, Dr. F. A. Hyatt, of St. Albans.

The Arkansas Medical Society held its thirty-third annual meeting in Pine Bluff, on May 18 to 21. The following officers were elected: *President*, Dr. James H. Crow, of Little Rock; *Vice-Presidents*, Drs. Harvey D. Wood, of Fayetteville, F. L. Watson, of Newport, and F. A. Cerv, of Louoke; *Secretary*, Dr. Morgan Smith, of Little Rock; *Treasurer*, Dr. J. S. Wood, of Hot Springs.

Obituary Notes.—Dr. Robert K. Tuthill, of Poughkeepsie, N. Y., died of pneumonia at his home on June 9 aged 74 years. Dr. Tuthill was graduated from the New York Medical College in 1859, and served as assistant surgeon in the Twentieth New York State Militia during the Civil War. He was a member of the American Medical Association, and of the New York State and Dutchess County Medical Societies, and consulting surgeon to the Vassar Brothers' Hospital at Poughkeepsie.

Dr. E. W. Trowbridge, of Watertown, N. Y., died at his home on June 9, aged 60 years. He was a graduate of the medical department of the University of Buffalo, in the class of 1879.

Dr. M. L. Allen, of Cleveland, O., died at his home on June 3, aged 56 years. Dr. Allen was graduated from the medical department of the Western Reserve University in 1888, and had practised in Cleveland until about a year ago, when ill-health compelled his retirement.

Dr. Daniel S. Chase, of Medford, Mass., died at his home on June 3, aged 90 years. Dr. Chase was a graduate of the Jefferson Medical College, of Philadelphia.

Dr. John Alexander Geisendorffer, of Portland, Ore., died in St. Vincent's Hospital, in that city, of meningitis, on May 26, aged 43 years. Dr. Geisendorffer was graduated from the Marion-Sims Medical College, of St. Louis, in 1891, and also received a degree from the Jefferson Medical College, of Philadelphia, in 1893. He was a member of the American Medical Association and of the Pacific Coast Association of Railway Surgeons.

Dr. Leonard C. Whitford, of Seattle, Wash., died at his home on May 26, aged 72 years. Dr. Whitford was graduated from the Bennett Medical College, of Chicago, in 1870, and for nearly thirty years had practised in Seattle.

Dr. Philo D. St. John, of Wichita, Kan., died from accidental carbolic acid poisoning on May 23, aged 57 years. He was a graduate of the College of Physicians and Surgeons, of New York, 1883, and was a member of the staffs of the Wichita and St. Francis Hospitals.

Dr. Edward F. Gage, of Winthrop, Mass., died of pneumonia, after a short illness, on May 31, aged 46 years. Dr. Gage was a graduate of the Harvard Medical School.

Correspondence.

CUBA FREE FROM YELLOW FEVER.

To the Editor of the Medical Record:

Sir:—I enclose herewith a true copy of the recent report rendered to the Louisiana State Board of Health by Dr. Harvey Dillon, president of the Louisiana State Board of Health, and Dr. Hamilton P. Jones, State Analyst, in order that you may see how mistaken was the information that caused the editorial "The Cuban Menace" which appeared in the Medical Record of the 5th inst.

In the next issue of the Official Bulletin of this department, "Sanidad y Beneficencia" (Public Health and Charities), you will find a careful answer to the above referred editorial, which I hope you will reproduce in your journal as an act of courtesy due a colleague, no less than one of justice.

We have no yellow fever in Cuba; you can be assured of that. We have no contagious disease of any importance, except tuberculosis, from which no country is exempt. You can also state that if unfortunately we should find a focus of yellow fever in Cuba, it would be immediately reported, and would be extinguished in the same effective manner as was done by Drs. Gorgas and Kean, assisted by Dr. Guiteras, Dr. Finlay and many Cuban physicians, among them Dr. Agramonte, one of the great Major Reed's associates.

You may rest assured that I have the highest esteem for your journal and a great love for your powerful nation, and it is this feeling which has caused me to set aside a few moments of my busy time to beg you to make this just rectification.

Dr. M. Duque,
Secretary of Public Health and Charities.

Havana, June 10, 1909.

UNAUTHORIZED USE OF A NAME.

To the Editor of the Medical Record:

Sir:—My attention has been called to the fact that a manufacturing concern is advertising a number of preparations said to possess medicinal properties, one of which is called "Expectorant (Hare)"; another "Tonic Comp. (Hare)". I am also told that traveling salesmen employed by these parties are representing that I am responsible for these formulæ and that I have a financial interest in them. Will you kindly state for the benefit of your readers and for my protection that such a use of my name is without any justification whatever. I never heard of the manufacturing concern before today, nor do I know what the compounds contain. It is hardly necessary for me to add that all statements made by anyone to the effect that I have any interest in any pharmaceutical or chemical preparation are absolutely untrue.

H. A. Hare, M.D.

Philadelphia.

THE STUDY OF NEUROLOGY IN PARIS.

To the Editor of the Medical Record:

Sir:—In your issue of April 24 I notice an interesting article by Dr. George Mannheimer on "Post-graduate Study in Europe." In this article Paris is set down as "best for dermatology, genito-urinary work and bacteriology." This is perfectly correct. But may I point out that Paris is, if anything, preeminent in one branch of medical science which Dr. Mannheimer has omitted to mention, viz., neurology. It is only necessary to quote the names of Babinski, Déjerine, Pierre Marie, and Raymond—to mention but a few—to understand that nowhere can better work be done in neurology than under the guidance of these great and original teachers. And the great hospital for nervous diseases—the Salpêtrière—affords unrivalled wealth of clinical material.

I may add that I will gladly give all necessary information to any of your readers who intend going in for postgraduate work in Paris.

Charles G. Jarvis, M.D.

81 Boulevard Malesherbes, Paris.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

INTERNATIONAL CONGRESS OF CHEMISTRY—ANTICONSUMPTION LEAGUE—POLYCLINIC—CHRONIC CARDIAC DISEASE—SHOCK—MEDICAL COUNCIL—ITEMS—OBITUARY.

London, May 28, 1909.

Yesterday afternoon the Prince of Wales, accompanied by the Princess, presided over the inaugural meeting of the seventh International Congress of Applied Chemistry. His Royal Highness, as a vice-patron, brought from the King, the patron, a message of hearty welcome to the distinguished delegates from every civilized country and assured them that all must recognize that without a scientific foundation no permanent structure could be raised. "Does not experience teach us," he said, "that the rule of thumb is dead and the rule of science has taken its place?" He then offered cordial greeting to members, earnest hopes that great results may ensue from their deliberations, and declared the seventh congress open.

Sir Henry Roscoe, honorary president, offered a hearty welcome on the part of British chemists to their confrères from all parts of the world and said a formal vote of thanks to their Royal Highnesses was hardly necessary. The great gathering thereupon rose and gave three hearty cheers for the Prince and Princess.

Sir William Ramsay followed with an interesting speech in which he repeated the welcomes to all and, giving brief notices of the previous congresses, seized the occasion to speak of their several presidents and representatives. As to their subject, it was cosmopolitan—science knew no country—and they were favored

with the presence of representatives from every civilized state, and as president he welcomed every one, regarding their presence as proof of friendship to this country and devotion to the science on which they spent their lives.

Representatives of other nations responded in turn to these welcomes and all were received with every token of good will. Dr. Harvey W. Wiley, replying for the United States, spoke of the debt to chemistry of the medical art. Prophylaxis is largely due to chemical science and sanitation, for the most part a chemical problem. In easing suffering, preventing sickness, promoting health, eliminating crime and fraud, science was helping progress, benefiting mankind, and advancing morality.

M. Gautier responded for France, Dr. Witt for Germany, Professor Paterno for Italy, Professor Arrhenius for Sweden, and the proceedings closed by singing "God Save the King."

The British League against Tuberculosis has now been formed as the result of a conference recently held. A strong executive committee has been appointed, as well as a general advisory committee, on which physicians and surgeons are well represented. The League proposes shortly to inaugurate branches in the chief industrial and rural districts of the kingdom. The objects are to instruct the public on the main lines of scientific prevention and treatment by means of demonstrations and lectures and to arouse public opinion on the dangers of communicating disease through meat and milk. Efforts will also be devoted to carry on the propaganda through educational and local government bodies and it is hoped a demand for further legislation will arise.

Dr. J. G. Emanuel of Queen's Hospital, Birmingham, delivered a lecture last week which might well occupy the attention of the new League. "Heredity or infection—which factor is the more important?" he asked, and answered without hesitation, infection. Is consumption always with us because we have an army of tuberculous parents producing tuberculous offspring, or because it spreads from one person to another as cholera, typhoid, variola, etc., are known to do? If by infection it can only be stamped out by destroying the bacillus. Why the hereditary factor, which no doubt exists, falls into insignificance, is difficult to say. It may be that the very prevalence of tuberculosis is a reason. No one talks of hereditary transmission of measles or scarlet fever, though probably these infections have a predilection for certain families. But they are so prevalent that we only concern ourselves with their paths of infection. It may be so with tuberculosis, which may be so prevalent among us that the hereditary factor falls into insignificance. Practically it is the various paths of infection that are of importance to us—not any hereditary predisposition.

You will not suppose that Dr. Emanuel's views will be universally endorsed, for while no one will deny the infectivity of tuberculosis, there are many who still attach great importance to heredity. He is himself conscious of this and mentioned the attitude of life insurance companies on the point. Family history is always carefully scrutinized in proposals for insurance, and certainly there are many instances in which predisposition seems marked, a point, however, which is admitted by Dr. Emanuel. It is in pulmonary phthisis that this is of greatest importance from the insurance and also the preventive point of view. I have known a father to die of phthisis and five out of seven of his children follow him at intervals of one, two, and three years, and house infection could not count, as there had been three removals during the time. The mother lived to old age.

Since I mentioned the troubles of the Polyclinic it seems to have largely overcome its difficulties and is making good progress. At the ninth annual dinner which was held on Monday a cheerful tone prevailed. Professor Howard Marsh occupied the chair and was supported by Sir W. Church, Sir D. MacAlister, Sir J. Hutchinson, and other leaders, as well as by a numerous company. The chairman, in proposing "The Medical Graduates' College and Polyclinic"—to give it its full designation—said it had done much pioneer work and it provided information on subjects which many had not time to work out for themselves. Sir Jonathan Hutchinson, who has all along been the chief pillar of the institution, and who is now giving weekly clinical demonstrations, said he highly esteemed the organization which carried on medical education after graduation, that education could not stop at school or college, was a life-long process, and in a sense only began when the diploma was taken. Captain Hayward Pinch, late Medical Superintendent, was presented with a cheque for 100 guineas and an address numerously signed in recognition of the zeal and ability with which he had served the institution for ten years. A good course of demonstrations and lectures has been arranged for the session, in which the practical clinical reputation of the Polyclinic is sure to be maintained.

The week before the meeting Dr. Wethered gave a lecture on chronic heart disease, in which he laid down, somewhat positively, that all patients who show indications of cardiac failure, though only slight, do so on account of alteration in the walls of the heart. Hence the chief effort should be to sustain the reserve force of the heart's muscle. To do so we need the patient's co-operation, and the question is how far he should be made aware of his condition. Something depends on the personality of the patient. Some who are told they have heart disease become depressed and apprehensive, and Dr. Wethered advised diplomatic reserve and phraseology. As to medical treatment, he said we may sustain the muscular force of the heart by directly increasing the power, by maintaining its nutrition, and by reducing peripheral arterial tension, which is the resistance to the heart. To sustain the force cardiac tonics are less useful than in acute failure and only to be resorted to with caution. We can do better by giving the heart rest—not recommending the life of an invalid, but making the work of the heart more regular. Often irritability is due to irregular cerebral circulation, whether from mental disturbance, anxiety, etc. Some changes in the daily routine of the patient's life may promote the needed rest. To improve the nutrition of the heart it is necessary to insure that the coronary circulation is satisfactory. This also involves a proper regulation of exercise and rest, by stimulating the arterial circulation of all the muscles of the body and so hastening the venous and lymphatic currents, thus activating the whole metabolism, by which digestion and other functions will be improved. With regard to the reduction of peripheral resistance, the lecturer thought this principle had not usually been sufficiently insisted on. Clearly we may attempt to help the heart by reducing its work—that is, by reducing the tension in the peripheral vessels. This has been attempted by drugs, but the action of vasodilators is temporary. Amyl, so rapid and therefore so effective in angina pectoris, has very temporary value and nitroglycerine is not prolonged. When a longer effect is desired sodium nitrite can be given. The lecturer said he had also seen good results from doses of 3 to 5 grains of potassium iodide, combining it with bicarbonate of sodium and potassium and with cardiac tonics. When the tension was high he gave strophanthus. He then reviewed the mechanical treatment by baths and exercises. When faulty digestion is troublesome, he said, beware of the usual "invalid diet," and as to starchy foods mastication is of the first importance. Biscuits help to secure it. If dyspepsia cannot be cured by diet, some drugs must be given. Insomnia sometimes demands hypnotics, but other means are better if they can meet the case. Palpitation may be due to heart or stomach and treated accordingly. The bromides are often effectual in either case.

Shock was lately the subject of a paper at the Medical Society of London by Mr. Malcolm, who agreed with Crile that the tissues were pale, the arteries empty, and the veins dilated, but differed so far as to say the arteries were tensely contracted, while Crile thought the vasomotor centers were paralyzed and the vessels therefore dilated as shock progressed, and should be filled with fluid and if possible contracted. Mr. Malcolm, however, held that the vessels contracted in shock, squeezing out the fluids which were removed in sweat. Hence vasodilators and sedatives were indicated as shock developed and fluids must follow in the stage of recovery. When fluids were withheld after operations patients often remained for hours in profound shock, but since it was recognized that the administration of fluid was all that was needed, recovery has been prompt in uncomplicated cases. When arteries are empty and will not dilate, vasoconstrictors should not be given, but alcohol was useful, the author thought. The better methods of giving anesthetics, the disuse of irritating antiseptics, and the anticipation of possible troubles tended to prevent shock. The greatest danger was in septic cases, in which the vascular changes had begun. Then fluid was urgently required, and that during the operation. It might be given subcutaneously,

even before the operation, to replace lost fluid and fill up vessels that tended to relax.

Mr. Keetley disapproved strychnine injections and said when ether was used shock was less frequent than with chloroform.

Mr. Pearce Gould urged treatment by rest, warmth, and morphia.

Dr. Alex. Morison said the point was to stimulate the heart and recommended amyl nitrite and warmth.

Mr. Warren Low advised saline injections into the veins in bad cases.

Mr. Lockwood considered inhalation of oxygen advantageous.

The General Medical Council has been sitting this week. It began on Tuesday with the usual address of the president, recounting the principal events since the November meeting. Then there was a long discussion on a proposal that an additional direct representative ought to be appointed for England, although the Council is rather numerous and the new universities send new members. Apathy at elections was complained of, but that is only natural while a radical reform is not carried out.

Bristol University is now established, the King having approved the charter, to the great delight of the citizens, displayed by bell-ringing and other demonstrations.

Professor MacAlister of Cambridge spoke at Livingstone College for Training Medical Missionaries. He said it was criminal for societies to send out missionaries to the tropics without some medical training.

Dr. Edward Liveing has resigned the registrarship of the Royal College of Physicians after twenty years' service. A very complimentary resolution was passed recording his zeal, ability, and courtesy.

Dr. Pavy, F.R.S., is receiving the felicitations of numerous friends and pupils on reaching his eightieth year.

Dr. Tatham of the statistical department of the Registrar General's office is to be entertained shortly at a dinner in recognition of his valuable services.

Dr. W. Wotherspoon Ireland has died suddenly at his residence at Musselburgh. You will recognize him as a distinguished alienist, correspondent of your own Medical and Surgical Society, as well as several similar societies in Europe. He was an Edinburgh graduate (1855), served for a time in our Indian army, and wrote a "History of the Siege of Delhi," 1861, followed by "Studies of a Wandering Observer." Later he settled at home and became medical superintendent of the Scottish Institute for Imbeciles, the office which he held for many years. Other appointments also fell to him. He wrote "Idiocy and Imbecility," 1877; "The Blot on the Brain," 1885; "Through the Ivory Gate," 1889; "The Mental Affections of Children," 1900. His literary output also comprised valuable communications to the journals.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 3, 1909.

A Case of Egg Poisoning.—M. V. Tyrode says that some of the cases on record as those of egg poisoning were due to a suggestive element rather than to actual poisoning. He relates the case of a man of fifty-three years who had had severe attacks of toxic poisoning. Similar symptoms followed the eating of eggs. The patient said that the white of an egg when uncooked resembled the juice of an oyster in being slimy and mucilaginous and naturally would poison him, and claimed that he had been thus poisoned many times. The volk never affected him. Upon analysis of the case the author concluded that the patient had had real ptomaine poisoning, from the oysters, but that suggestion and association were chiefly responsible for the subsequent attacks, which increased in intensity and went to another foodstuff, the white of egg, because in the patient's mind it resembled, uncooked, the oyster. The patient was accustomed to follow up these attacks by an alcoholic debauch because whisky had seemed to relieve the first attack of the series. To break up this association of ideas the author made his patient eat for breakfast (after having been for two days on large doses of bromides) a small portion of white of egg, and gradually increased the amount at each subsequent meal for a few days. In two weeks he was apparently cured, but a few months later he had some return of his old trouble.

Extensive Calcification of Pleuritic Exudation Causing Curvature of the Spine.—Thomas Dwight records the findings in a patient who died of uremia, no history being obtainable. A thick layer of adhesions existed between the walls of the chest and the lung, throughout the back, and more or less on the right side of the chest. A flattened piece of what appeared to be bone, some 8-10 cm. long and 1 cm. broad, was found free in the back of the right chest, pressing into the lung. A thin circular bony disk about 2 cm. in diameter was found far forward in the right side of the parietal pericardium, where it was in contact with the right pleura. The chief bar—shown in an illustration accompanying the paper—showed a length of continuous bone of nearly 11 cm. It was flattened with a breadth of 2 cm. at the upper part. It did not lie against the wall of the thorax, but projected inward and it was also convex laterally. When the specimen was fresh, fibers could be seen radiating from the bone in many directions. Examination of the bar showed no true bone, but calcification in dense fibrous tissue. Two smaller pieces of the same material were found free in the chest cavity. Looked at from behind, the right ribs from the third to the ninth were brought near together at their angles and projected strongly backward, while the left ones from the tubercles to the angles extended nearly straight outward, so that the two sides of the chest were extremely uneven. The bodies of the fourth and fifth thoracic vertebræ were much lower on the right than on the left and were fused together. The twisted curvature of the spine was undoubtedly due, in some degree at least, to the pressure of the calcified bar projecting into the cavity of the thorax.

Placenta Prævia.—N. R. Mason and J. T. Williams analyze 155 cases of placenta prævia seen at the Boston Lying-in Hospital during the past thirty-five years. Their conclusions are as follows: (1) Improvement in the results of the treatment of placenta prævia is to be expected not so much from any particular method of delivery as from early delivery. (2) The advantages of early delivery are as great for the child as for the mother. (3) Every patient should be instructed and enabled to notify a competent obstetrician at once of any uterine hemorrhage during pregnancy. (4) Any hemorrhage during the second half of pregnancy demands an immediate investigation of the contents of the lower uterine segment. (5) A routine vaginal examination should be made on every patient at the end of the seventh month. (6) In multiparæ, rapid dilatation, followed by version and extraction, offers a safe and satisfactory method for both mother and child. (7) In primiparæ, at the beginning of hemorrhage, while still in good condition, cesarian section should be the operation of choice.

Exercise in Pulmonary Tuberculosis.—B. Swayne Putts extols the value of "working colonies," such as exist in some of the English sanatoria. The object of these colonies is (1) to bring the patients, under careful medical supervision, to such a physical condition that when they return to work again the change will be so slight that their lungs will not be affected. (2) To instruct many patients in a new (to them) occupation, which they follow after leaving the institution and which promises to be more conducive to health than their previous employment, and (3) to utilize the economic value to institutions by having the patients do work which will bring in returns. In introducing such a system, patients should begin on light work and gradually increase in time spent and in the severity of the work up to the limit of safety. In considering exercise we should consider it with reference to the lungs alone and then with reference to the whole body. We have the right to consider exercise separately, for the reason that we have factors whose effects are limited, essentially, to the movements of the lungs. When we place a patient in bed for a long period we are allowing the muscles to atrophy and are thus interfering with convalescence by destroying part of one of the largest organs and one second only to the liver in the nitrogenous metabolism. Some moderately febrile patients can work with benefit. In some tuberculous patients the heat regulating centers are abnormally sensitive. Besides the actual increase on the lung disease as a cause for fever, we should consider as a potent factor the actual heat produced during exercise by muscular contractions and increased circulation, and as well the chemical changes which normally are the chief source of body temperatures. Each case must be treated individually.

New York Medical Journal, June 5, 1909.

The Flagellation of Leucocytes in the Presence of Chemical Excitants and in Other Conditions.—A preliminary report on this subject is made by E. M. L'Engle, who refers to the recent work of Ross and Macalister. He repeats their technique and confirms their findings. Certain of the cells which, on account of their size and general appearance, are believed to be small mononuclears, may be seen to extrude fine, hair-like projections with a terminal granule. These at first are quite short, but gradually grow longer and are apparently in quite active motion. The length finally attained may exceed twice the diameter of the cell to which they are attached. There may be one or several of the processes on a cell. Ross and Macalister report seeing as many as twenty. The author has not seen more than two on any one cell. This phenomenon may not be seen in every blood smear examined, but one or two, or sometimes more, cells can usually be found in which this process may be followed. The flagella are very easily distinguished from the pseudopodia, which are formed on the ameboid cells. They resemble, in a general way, the flagella seen on bacteria, except in the possession of a terminal granule. After a varying length of time the flagella separate from the cell and swim away as independent bodies. It was not possible in any of his cases to follow the separated flagellum and determine its ultimate fate. Its change of place was very rapid and the gradual drying of the edge of the smear caused disconcerting independent movements of the blood. The occurrences of flagella formation in the blood may be concerned with the formation and multiplication of leucocytes. It may perhaps be a function of certain of the white blood cells in normal or diseased conditions. Ross and Macalister suggest that it may be of some importance in carcinoma, as they have stimulated flagella formation in normal blood by the addition of sera from cases of carcinoma.

Malarial Fever as Seen at Close Range in the Deep Jungle of the Malay Peninsula and in the "Country of the Ghosts."—C. S. Braddock, Jr., believes that the malarial poison is not only inoculated by the bite of the mosquito, but that it originates in water and soil, is carried by the wind and water, and is taken into the system by unboiled drinking water. He bases his views on his experience with the disease in many parts of the world. He has noted that on a jungle trip the men on foot are first taken ill with malarial fever, then the men on horseback, and last of all and very seldom the men who travel on elephants. He attributes this exemption of the men traveling on elephantback to the height they are from the ground. The higher you keep from the ground, whether traveling or sleeping, the more exempt you are from fever. The same varieties of mosquitos exist in the locality where the ordinary malarial fever prevails, as well as where pernicious malarial fever prevails, and as you travel you can smell, without being told by your native guides, the miasma as it rises from the ground, and unless prophylactic doses of quinine are taken you will have fever. Wherever you disturb the earth in the tropics you disturb this great fever giant. This is noticeable in the ruby mines, in the tin mines, and in the digging of embankments and canals, but if you cut off the jungle and let the sun in you can do more good than all the mosquito curtains in the world. General rules for the preservation of health are these: Sleep in the open ground away from the deep jungle. Do not sleep on the ground or near the ground, but as high from it as possible. If wet from tropical rain or fording streams, change clothing as soon as possible. Always drink boiled water. Use a mosquito curtain. Give prophylactic doses of quinine when traveling through the bad districts. If a man will clear away the jungle and let the sun in over one dry season he can dwell with impunity where before was only the trap. If we let the sun in the fever will disappear. The author believes that while the mosquito transmits malarial fever, he acquires it first from the man and the soil. No other explanation can be given for those acquiring it from mosquitoes who have landed on an utterly uninhabited coast where there were no human beings to primarily infect the mosquitoes there, but who have been promptly taken down with malarial fever when they have disobeyed the laws of the jungle, while those who have obeyed these laws have escaped entirely.

Chimaphila in Diabetes.—S. G. Soules highly extols the remedy for the disease named, referring to a previous paper in the *New York Medical Journal* (Vol. LXXXVI., page 929) on the same subject. The dose there published has been found to be too small to produce the best results. Twice as much is infinitely more satisfactory, and an abstract, made by evaporating the fluid extract to the consistency of thick syrup, is the best form in which to give it that the author has found thus far. A dram of this abstract represents approximately four drams of the fluid extract. Of this the dose for an adult is one or two teaspoonfuls twice or three times daily, according to the need of the patient. Of this large dose no one need be afraid: He has frequently taken one-half ounce at a single dose, and twice one ounce in twelve hours, without any inconvenience whatever. He cautions against the "gluten" bread products unless he knows just how much starch they contain. He has seen such bread contain 70 per cent. of starch. He adds a few words about diabetes cramps, which occur usually in the calf of the leg, and before arising from bed in the early hours of the morning. In this case the plantar surface of the foot of the affected side should be placed on the footboard of the bed and the patient should press his foot hard against it, when the cramp will disappear at once. Wherever the cramp is, put the affected muscle in action.

Journal of the American Medical Association, June 5, 1909.

Acute Pancreatitis.—W. F. Cheney discusses certain questions regarding this subject. First, how frequent is the disease? To this one can answer it is certainly not rare, although it seems to have gone undiscovered for many years, like appendicitis and cholecystitis. Since first recognized, cases have multiplied, and no doubt, as time goes on, it will be found that it is still commoner than we at present suppose. The question as to its etiology can be answered in one word—infection. This may occur from the intestine or from the gall-bladder or by direct extension of a duodenitis through the wall of the duodenum or by infected emboli carried by the blood streams from distant parts. Most cases have been found associated with gall-bladder disease, the next largest number with gastroduodenitis, especially that due to alcohol. These cases reported as secondary to general or local infections are best explained by transmission of the infection by the blood. The clinical recognition of the disease as shown by all the published reports is made by the sudden violent onset with pain, vomiting, intense tenderness of the upper abdomen, collapse, hiccough, and, later, the symptoms of localized peritonitis with low fever and irregular chills. The laboratory evidence is not diagnostic. There is quickly a high leucocyte count with an increase of polymorphonuclears. The urine rarely shows sugar at first. The absence of indican is an important point in differential diagnosis, and we may have the Cammidge reaction. Taking all the facts, however, there is no absolutely certain way of clinically recognizing pancreatitis. There is no medical treatment for the condition. It demands surgical treatment unless the shock should be considered too risky. Morphine for pain and stimulants to tide over the crisis of imminent collapse may be used in the beginning of the symptoms. While there is no certain diagnosis possible, we can promptly arrive at a conclusion limiting the diagnosis to a few conditions, all of which require operation, and the only question really remaining is how soon to operate. Osler gives the mortality of unoperated cases as 90 per cent., while of patients operated on more than 50 per cent. recovered.

Postoperative Ileus.—W. H. Wathen defines ileus as the operative or postoperative paralytic obstruction of the bowel and says that the word ileus should be eliminated from surgical nomenclature. The primary paralytic form of obstruction may be caused (1) by violent inhibitory impulses transmitted to the muscle walls of the intestine from the central nervous system by the splanchnic nerve through the sympathetics; (2) by impairment or destruction of the nervous and muscular energy of the intestines by the poisonous action of bacterial enzymes from the intestines or peritoneal cavity on the nerves or muscles or bowel walls or from traumatism, or (3) by the combined action of both. The mechanical preoperative and postoperative intestinal obstruction may be caused by adhesions, constricting bands, volvulus, intussusceptions, hernia, etc. Unless it is relieved promptly, the bowel above the obstruction becomes dilated and paralytic, and the ileus caused then be distinguished from the primary paralytic form. He explains in detail the anatomy, physiology, morbid

and bacteriology of the intestinal tract and explains normal and abnormal peristalsis, while shock may have an influence in most cases of severe or fatal paralytic obstruction, this is the result of and is associated with the absorption of bacterial toxic products from the bowel or peritoneal cavity into the intestinal walls and tissues of the body. This is shown by the fact that when we remove the obstruction the patient may collapse from the rapid absorption by the comparatively healthy bowel below, of the toxic substances, the epithelial resistance being quickly impaired. We cannot often decide when an operation is necessary until it is too late to do good, but in such cases as can be diagnosed the obstructing cause, whatever it be, should be promptly removed with as little delay or rough handling of the intestine as possible. In some cases we shall get better results by relieving the distended bowel of its contents by enterotomy or even enterostomy, and a subsequent operation can be performed to remove the obstruction and restore normal conditions. In operations for mechanical obstruction it may be better not to enter the abdomen through the original incision, but to select a point where the obstruction can be reached and removed with the least possible exposure and injury to the viscera, and he gives some special directions on this point. In the absence, however, of any evidence of the seat of the obstruction it is better to enter the abdomen in the median line below the umbilicus. There is no department of surgery for which a knowledge of the embryology, anatomy, physiology, bacteriology, pathology, diagnosis, and surgical technique is needed more than for this, and in addition the surgeon should be a surgical mechanic. In true paralytic postoperative obstruction without peritonitis, surgery is contraindicated, and the treatment should be preventive rather than curative. We may sometimes have a recovery of an apparently severe case without surgical treatment, but in other cases a severe toxemia or general peritonitis may result, resistant to all treatment. Purgation is contraindicated, and neither food nor liquid should be given by the stomach. The general belief that we should give remedies in any form to establish intestinal peristalsis has no scientific basis, and it is positively contraindicated in cases in which there is peritonitis, inflammation of intestinal walls, or injury to the nerve plexus or muscles of the bowels. Such medication could be useful only when the cause of the obstruction is in the inhibitory action of the splanchnics with little injury to the nerve plexuses and muscles of the bowel. We may expect such patients to recover, however, without medicinal treatment if we employ stomach lavage and use saline solution in the colon as recommended by Murphy, or an occasional large enema as the conditions indicate.

Gastric Symptoms of Arteriosclerosis.—H. L. Akin discusses the frequency of this condition and gives the histories of some personal cases. He reviews the mechanism of the production of the symptoms as explained by Pal, Ortner, and others, and states that in making a diagnosis it is of the utmost importance not to be led astray by the patient's complaints of indigestion, pain in the stomach, distention, and belching, and so neglect to make a careful physical examination. He emphasizes particularly the importance of examining the vascular system thoroughly. In treatment he advises a restricted diet, and states that in this, as in all other arteriosclerotic conditions, the iodides are the most valuable drugs.

Cholelithiasis and Pancreatitis.—C. N. Smith states that the prevalence of cholelithiasis and of infections of the biliary tract as the essential feature in the production of pancreatitis demands thoughtful consideration. He enumerates the early symptoms: Pain, shortness of breath, liver tenderness, chills simulating malaria, etc. There is frequently a history of previous typhoid fever. The one great stumbling block in the way of an early diagnosis of gallstone disease, he says, is the allurement of jaundice, which seems to have bewitched the judgment of so many medical men, in that they demand its evidence before admitting the presence of gallstones. Jaundice, however, is an infrequent and inconstant event in gallstone disease, and when present is as a terminal rather than as an inaugural one. Too frequently, indeed, does jaundice announce the advanced stage of a secondary chronic pancreatitis. It is high time that the medical profession should break away from the fetish of jaundice; that it should recognize the presence of gallstones by their inaugural symptoms; that it should appreciate the gravity of gallstone complications and sequels, and that it should forestall such complications and sequels by the institution of operative procedures immediately following the establishment of a diagnosis.

The Lancet, May 9, 1909.

Tracheotomy Cases in the Course of Which There Were Long Periods of Inability to Dispense with the Tube.—Brief histories of three cases are given by D. Forbes and R. M. Courtauld. Feathers were used for the removal of membrane and secretion from the trachea. No case is known of prolonged retention of the tube in which these were avoided and tracheal forceps used. After operation neither feathers nor forceps are likely to be required if a sufficiently large tube is used. The smaller the tube in relation to the lumen of the trachea, the less the effective expulsive power of the cough. The authors say that the cases indicate (1) that considerable patience must be exercised in the treatment; (2) that if the patient remains in hospital there is every chance of his final recovery; (3) that it is doubtful if active interference has any beneficial result; (4) that the amount of obstruction varies from time to time and that the removal of the tube should be undertaken when this is at a minimum; (5) that only occasional attempts to find out the degree of obstruction should be made—not more than once in three weeks or a month in prolonged cases; (6) that the principle of early removal of the tube is right—an attempt to remove finally should be made some 48 to 72 hours after the operation; (7) that the use of feathers should be avoided; (8) that no advantage seems to be gained by the replacement of a metal by a rubber tube; (9) that fenestration of the tube, allowing the passage of air through the larynx, is not found to lead to improvement.

Autoinoculation and Reinfection of Syphilis.—This subject is considered by J. Hutchinson, who says that it would be strange if it were true that autoinoculation was impossible after the sore had existed but a few days. The time limit is probably not more than ten days in this respect and mercurialization of the patient may render autoinoculation, even during this period, impossible. He refers to several instances of autoinoculation by natural contact, as penis and scrotum, penis and inside of the thigh, the two labia majora, etc. Of course, such conditions are explainable on the theory of simultaneous infection in two places by the spirochetes. The author refers to one case which proves that even after secondary symptoms have appeared a typical fresh chancre with bubo may develop. In regard to the question of reinfection, he says that many histories of such an occurrence are lacking in vital features of evidence, so as not to make the stories absolutely credible and reliable, yet he has been able to collect undoubted instances. Some of these he adduces with the following captions: Interval between the two infections seven years; second attack the more severe and protracted, especially the eruption on the skin and mucous membranes; interval less than three years; both attacks mild and amenable to treatment; interval twelve years; second attack the more severe; interval eighteen months, the shortest on record; secondary symptoms in both attacks yielding well to treatment, etc. His general conclusions are as follows: (1) Efficient treatment by a continuous course of mercury for one or two years is the surest way of rendering a patient susceptible to second infection. With this proviso he may contract syphilis again within two or three years of the onset of the first attack. The treatment of the first attack in all the seven cases was by a steady mercurial course lasting from one to three years. (2) The interval between two attacks of syphilis may be so short a time as 18 months, *i.e.* the patient may no sooner have finished his course of treatment than fresh exposure may produce a complete fresh attack. The average interval has been in his experience six years. (3) The second attack may be slighter or more severe than the first; nothing positive can be laid down on this point. If the symptoms on the first occasion have readily yielded to mercury they will probably do so in the second. (4) There is no reason why the same patient should not go through even three attacks of syphilis provided the first two have been well treated.

British Medical Journal, May 29, 1909.

Perforated Gastric and Duodenal Ulcers Treated Successfully Without Suture of the Perforation.—E. M. Corner and W. Bastion relate two cases. They sub-

mit the following propositions: (1) If stitches cut through at an operation, no further time should be wasted in trying to close a perforation. (2) Such perforation should be covered by omentum anchored in place by one or two sutures. (3) A gauze drain should be conducted to the perforation and removed under an anesthetic in forty-eight hours. (4) The chance of recovery under this treatment is unlikely to be less than if the ulcer is sutured. (5) The remote results of these cases as regards pyloric obstruction are no worse than when the ulcer is closed. (6) In these, as in many other cases, a primary gastroenterostomy is unnecessary for the recovery of a majority of cases. Both of the cases described in the paper recovered.

Treatment of Severe Cases of Chronic Colitis.—P. L. Mummery says that cases of chronic colitis naturally divide themselves into two classes: First, those which, if carefully treated by a suitable dietary, proper regulation of the bowels, and perhaps one or more visits to some suitable spa where proper lavage of the bowel can be carried out, get well and stay so, and, second, those in which, in spite of prolonged careful medical and spa treatment, but little if any improvement follows, and in which relapses quickly occur. The latter forms one of the worst classes of chronic invalids and chase after all forms of quackery. The first task of the physician should be to find out the real cause of the symptoms. The term "chronic colitis" should be reserved for those cases in which there is a chronic inflammatory condition of the colon mucosa. They should be made out easily with the sigmoidoscope, as the sigmoid flexure is practically always involved. Such cases do well on lavage and the Plombières douche. In some of the cases with this class of symptoms there is, instead of a lesion of the mucosa, some chronic obstructive lesion, such as adhesions from a previous peritonitis or perimetritis. Cancer of the colon may cause symptoms of chronic colitis. In another group of cases we find a chronically inflamed appendix. In still another group there is no inflammation of the mucosa, but the whole colon is lax and atonic and there is a marked tendency for the upper portions to prolapse into the latter, and there is generally well-marked ptosis of the stomach and the transverse colon. Here lavage would be harmful. Those cases which medical measures fail to relieve may call for appendicostomy. The most difficult cases to treat are those in which there is a general atony of the bowel combined with ptosis of the colon. Stitching up the colon is quite useless, as it is unreasonable to expect stitches to hold up the stomach and transverse colon permanently when the natural supports have not been able to do so. In such instances very satisfactory results follow appendicostomy and the fitting of a belt to support the abdomen. The object of operation in such cases is to prevent the stagnation of the fecal contents of the colon and at the same time by the introduction of peristaltic stimulants to improve and restore the muscular tone of the bowel wall.

The Prevention of Parotitis During Rectal Feeding.—W. S. Fenwick notes that the necessary prohibition of food and water by the mouth after severe hematemesis is often followed four days later by inflammation of the parotid glands, the side first affected being the one most frequently in contact with the pillow. The impossibility of keeping the mouth sterile leads to the infection of the glands through Stenson's ducts. After the usual experience of rectal feeding with large nutrient enemata of peptonized milk and trusting to the usual methods of cleansing the mouth, the author had a very large number of cases of suppurative parotitis. An effort was then made to promote a continuous secretion of saliva, with the object of irrigating the ducts, and thus of preventing an ascending infection, and with this object the patients were directed to chew horseradish, pellitory, or pieces of raw meat at intervals, or to keep a pebble constantly in the mouth. Eventually it was found that an india rubber teat about two inches in length met all the requirements of the case, and that patients were quite content to suck it for hours at a time, with the result that the mouth remained quite clean and moist. When not in use the teat is kept in a weak solution of Condy's fluid. Since this simple device was adopted he has treated more than 300 cases of hematemesis by rectal alimentation, lasting from ten days to seven weeks, without being troubled in a single instance by parotitis. It is only in hospital practice, where the mouth is very foul at the time of admission, that the gland occasionally becomes inflamed before any measures can be taken to prevent it.

Secondary Parotitis Due to Oral Starvation in the Medical Treatment of Gastric Ulcer.—H. D. Rolleston and M. A. Oliver discuss this subject, the former having seen nine cases in eleven years in the course of general hospital practice. In St. George's Hospital there were 1,000 cases of gastric ulcer in twenty years treated by medical measures. In this number there were twenty-three cases of parotitis, all in women. Of these 23, complete oral starvation was employed in 21; the two remaining cases were on rectal feeding, but in addition were allowed to suck ice. In other words, the percentage of secondary parotitis in 470 cases treated by rigid oral starvation was 4.5, while in the 530 cases allowed something, even though only water, by the mouth it was 0.4. Hematemesis had occurred, either before admission or while in the hospital, in 16 of the 23 cases of gastric ulcer complicated by parotitis. It is thus clear that exclusive rectal feeding, or rather oral starvation, is a much more constant antecedent than hematemesis. Attention is drawn to this point because Hone attached more importance to antecedent hematemesis than to oral starvation as a factor in the causation of this form of parotitis. Probably hematemesis is likely to be a factor in the production of parotitis only in so far as it leads to treatment by oral starvation. There is no evidence that secondary parotitis depends on the occurrence in the parotid gland of thrombosis such as might be favored by a posthemorrhagic leucocytosis. In all, the authors collate 34 cases of parotitis and it would appear (1) that secondary parotitis may complicate cases of gastric ulcer treated medically by oral starvation; (2) that it occurs ten and a half times more frequently in such cases of gastric ulcer than in cases allowed fluid by the mouth; (3) that it is an outcome of the dry condition of the mouth, and that mouth washes do not prevent its occurrence; (4) that it is more often unilateral than bilateral; (5) that suppuration occurs in about one-fourth of the cases, and that this constitutes a grave complication.

Berliner klinische Wochenschrift, May 10, 1909.

A Rare Granuloma from a Foreign Body.—K. J. Schopper reports the case of a young man who had a discharging tumor on the eyebrow. It began as a red, painful nodule the size of a pinhead, but rapidly grew to 3 cm. in diameter and broke down. One gland was enlarged. The diagnosis was difficult. Syphilis was considered, but lack of general adenitis spoke against it. The Wassermann reaction was negative and no spirochete could be found. Ringworm was thought of, but no trichophyta could be discovered. Tuberculosis was ruled out. Finally an exploratory incision was made and a fragment of chaff 3 mm. long was removed. This was supposed to have worked out from a straw mattress and to have entered the patient's skin while he slept.

Diazo Reaction in Yellow Fever.—Vargas and Seidelin studied the diazo reaction in twenty-two cases of yellow fever. In nine it was positive, in thirteen negative. The reaction varied greatly from day to day. It was more apt to be positive early in the disease than late. The reaction was of no great value in diagnosis, but was considered suggestive of the disease when occurring early and associated with albuminuria. The authors could draw no definite prognostic conclusions from the reaction. Of the nine positive cases four died, while of the thirteen negative ones two died. The reaction was usually weak, though in one or two cases it was as strong as in typhoid fever.

Munchener medizinische Wochenschrift, May 11, 1909.

Roentgen Rays in Gynecology.—Albers-Schönberg says that in gynecology the following may be attained by the use of the *x*-ray: (1) The cessation of the menses. By this may be accomplished (*a*) reduction in size of myomata. Intramural tumors are more amenable to treatment than subserous or pedunculated ones. Old calcified tumors do not respond to the *x*-ray. In some patients the tumor decreases rapidly, though a complete absorption has not been observed. (*b*) Disappearance or reduction of hemorrhage caused by myomata, both menstrual and intermenstrual. This effect is not immediate with menstrual bleeding. The first effect of the radiation is an increase in the hemorrhage, sometimes with pain, sometimes without. The decrease in hemorrhage comes on gradually. In intermenstrual hemorrhage the initial in-

crease is not seen. (*c*) The relief of pain dependent on myomata. Not only the local pain, but the general discomfort, nausea, vomiting, dyspnea, edema, discharge, and habitual constipation are relieved with remarkable rapidity. (*d*) The relief of preclimateric hemorrhage and pain not depending upon myomata. (*e*) Sterilization for gynecological reasons. (2) The relief of postclimatic hemorrhage. (3) The reduction and cure of the untoward symptoms of myomata without bleeding at the post climateric age. Both the hemorrhage and other symptoms are more amenable to treatment after the menopause than in younger patients. (4) The relief of painful menstruation at any age when possible without sterilization, when not, with sterilization. The author has no personal experiences with this last. He says, however, that with care a permanent sterilization is hardly to be expected in a young woman.

The Effect of the Injection of Salt Solution into the Intestines on the Gastric Secretion.—V. Benczur reports a series of experiments on a dog. He cites the work of Cohnheim and Dreyfuss, who showed that if solutions of $MgSO_4$ or NaCl were injected into an intestinal fistula in a dog, that a test meal placed in the stomach remained there longer than when no intestinal injection was made, and also that the $MgSO_4$ caused an increase of gastric acidity, while the NaCl caused a reduction thereof. V. Benczur raises the question whether these apparent hyper- and hypoacidities are due to an increased or reduced secretion of gastric juice or to a secretion of a gastric juice of an abnormal acid content. He, therefore, repeated the work of Cohnheim and Dreyfuss, except that where they experimented on a stomach containing a test meal he worked with the empty stomach, and so obtained pure gastric juice. His results showed that while the injection of the $MgSO_4$ caused an increase and the NaCl a diminution in the amount of gastric juice in the organ that the acidity per cent. is not altered by either. He, therefore, concludes that the effect of the injection into the intestines of the salts is a quantitive and not a qualitative one on the gastric juice.

Sclerosis of the Abdominal Aorta.—Rossbach reports a case of a woman of 43, who for several years had been ill, complaining of cramp-like pains in the abdomen. This had steadily grown worse, so that she was hardly able to work. The pain was frequent and severe and had no relation either to menstrual period or diet. Further complaint was of giddy sensation, pain in the legs, tiring easily, headache, and occasionally vertigo, black spots before the eyes, sinking attacks, sweating, and great anxiety. She had had nine premature children, but denied syphilis. The patient was under observation for months. Whereas in 1907 the heart was of normal size and the sounds clear, in 1908 the apex was two finger breadths outside the mammary line and had a heaving impulse. Over the aortic area a loud systolic murmur and a snapping second sound developed. The blood-pressure was high. A trace only of albumin appeared in the urine. The abdomen showed nothing abnormal. The patient died of a cerebral hemorrhage. The points of interest in the autopsy were as follows: The heart was generally enlarged. Both ventricles were dilated and the walls thickened; the left atrioventricular orifice admitted two fingers; the ascending aorta and arch were normal; the descending aorta slightly cloudy, and the abdominal aorta below the diaphragm was a rigid tube 3 mm. thick, while the interior and media were calcified. The calcification extended to the superior mesenteric and common iliac arteries. The femorals were normal. Microscopic examination of the kidneys showed no nephritic changes. The heart, liver, spleen, brain, and kidneys showed no capillary sclerosis. The author compares this condition of angina abdominalis with angina pectoris and intermittent claudication. He believes the muscle of the walls of the vessels to be sensitive and that the abdominal pain of the patient to be due to spasmodic contraction of the vessels secondary to the increased blood-pressure, caused by the resistance of the schlerosed and narrowed abdominal aorta. He quotes several authors who consider that hypertrophy of the heart is especially liable to follow schlerosis of the splanchnic vessels.

Deutsche medizinische Wochenschrift, May 13, 1909.

Are There Cases of Dystrophy Which Recover?—Jendrassik raises the question of whether true progressive muscular dystrophy ever recovers. He cites four cases reported by others and then reports in full two cases which he has observed. Case I. A girl of ten when first seen in 1898 had a negative family and personal history. First child and normal birth. She first walked at two years, but fell frequently. Had had no illnesses except dysentery, at one and a half years of age. During the summer of 1898 the gait grew rapidly worse. On October 10, when seen by the author, the diagnosis of dystrophy was definite. The tendon reflexes were absent; there was free movement of all the joints and the spine; the muscles of the legs, especially the thighs, were very weak. The abdominal and back muscles and arms were weak, but the face muscles normal. The generative organs, bladder, and rectum were unaffected. The patient at this time was bedridden. The muscles became flabby, but there was no fibrillary twitching. After six months in bed the movements of the legs improved. At eleven years of age the child was almost completely developed, though menstruation had not begun. The gait was waddling. She could not sit up from the dorsal position. The reflexes were still absent. At twelve the reflexes could be obtained by reinforcing. She was menstruating and looked strong and blooming. From this time on the improvement was steady and the reflexes returned. In November, 1908, the patient was strong, reflexes present, though weak, gait waddling. Pes planus and left peroneous longus still weak. The girl is able to go on long excursions and mountain climbs. In Case II. there was a strong hereditary history, the boy's uncle and sister suffering from typical dystrophy. The symptoms in the boy appeared early. At six he had a tenotomy performed. The course was, however, arrested, not involving the arms, and gradual improvement occurred. The characteristic waddle disappeared, the child was able to rise without help and steadily increased in strength and control. In 1908 there is a slight scoliasis, but the patient appears strong, hunts and walks well. He has just been accepted for military service. Jendrassik considers these two cases to be undoubted dystrophy and therefore concludes that such cases may recover.

Treatment of Laryngeal Tuberculosis by Means of Sunlight.—Theodor Janssen says that during the past ten years our ideas of the prognosis of laryngeal tuberculosis have changed and that an aggressive therapy has replaced the symptomatic and expectant. The inhalation methods are mostly expectant. Surgical methods consist of curetting, caustics, puncturing, and tracheotomy. Specific treatment with tuberculin has been reported on favorably. During recent years, however, the treatment has turned more to the application of the sun's rays. The author reports a series of cases treated at the sanatorium at Davos. Many were completely cured and remained so for years. The patients were placed with their backs to the windows. By a specially devised apparatus, consisting of a mirror on a stand, resembling a music stand, with three-way hinges, the sunlight was reflected into the mouth, and by use of the laryngoscope to the larynx. The patients soon learned to hold the laryngoscope themselves. They knew when the sunlight was falling on the diseased part by seeing in the stationary mirror the image of the larynx. The treatment was kept up from thirty minutes to an hour at a sitting. In the mountains a plane mirror was used, whereas in the lowlands, owing to the weaker sunlight, a concave mirror of a 40 cm. focal length may be used. In order to get the effect of the light rays and as few heat rays as possible the treatments were carried out either early or late in the day.

Method for the Prompt and Easy Demonstration of the Reticular Structure of Nerve Cells.—C. Golgi states that the internal reticular structure of the nerve cells described by him has been little studied hitherto on account of the difficulty of demonstrating it by staining agents. He describes a new method of staining that is easy of execution and gives excellent results, and that has been made use of for a year in his laboratories. It consists of a modification of the silver reduction method. It includes fixation for from six to twenty-four hours in arsenious acid, 1 per cent. solution, using 50 parts of the solution, 40 parts of distilled water, 0.5 to 20 parts of alcohol, and 21 parts of formalin. Next the tissue is placed in 1 per cent. silver nitrate solution for some hours. The third step is to develop it in hydrochinone. Sections are made after embedding in celloidin or parafin. Fixation of the sections in chloride of gold and hyposulphite of soda follows, and the sections are bleached by Veratti's method; successive coloration of the nuclei ends the process.—*La Riforma Medica.*

Book Reviews.

Dr. Jessner's Dermatologische Vorträge für Praktiker. Diagnose und Therapie des Ekzems. 2 Auflage. Diagnose und Therapie der Syphilide. 2 Auflage. Von Dr. S. Jessner, Königsberg i. Pr. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1909.

Dr. Jessner has made his name well known by publishing a series of small monographs on dermatological diseases. The two on eczema and on syphilis appear in second editions. Although questions of diagnosis are considered at sufficient length by the author, most stress is laid upon the treatment of these two diseases, which between them comprise such a large percentage of all skin affections. The therapeutic directions are extremely practical in character, prescriptions, and courses of treatment, such as have proved useful in the extensive experience of the author being given with all detail. We heartily recommend these useful pamphlets to the general practitioners as well as to dermatologists; indeed, the whole series of Dr. Jessner's monographs should prove a useful addition to the physician's library.

The Therapeutics of Radiant Light and Heat and Convective Heat. By William Benham Snow, M.D. New York: Scientific Authors' Publishing Co., 1909.

The use of both light and heat as therapeutic agents harks back to the time of the ancients. But with the discovery of the *x*-rays and their application in treatment, a new impetus was given to the investigation of both phototherapy and thermotherapy. In the present volume there is much of interest and value to one who would keep abreast of the times, even though he cannot secure the facilities for direct study of the observations here recorded. It is worth while to know, however, what can be done without the very great outlay of money which the purchase of appliances in this field demands. To this end the section on convective heat and the application of dry and moist heat is well worth careful study. The poultice, the hot-water bag, the koalin cataplasm, the hot-water bath, the Turkish bath, and the hot box are all agencies which, when properly used, are of decided value. Helpful suggestions are given by the author in applying the above to the treatment of quinsy, felonotitis media, furuncles, inflammatory conditions of the pleural and abdominal cavities, etc. This volume will prove an addition to the rather small amount of comprehensive literature dealing with light and heat therapy.

A Textbook of Genitourinary Diseases, including Functional Disorders in Man, by Dr. Leopold Casper, Professor at the University of Berlin. Translated and Edited with Additions, by Charles W. Bonney, B.L., M.D.; Assistant Demonstrator of Anatomy, Jefferson Medical College, formerly Surgeon to the Southern Dispensary, Philadelphia, etc. Second edition, revised and enlarged. With 230 illustrations and 24 full page plates, of which 8 are in colors. Philadelphia: P. Blakiston's Sons & Co., 1909.

Those whose knowledge of German does not suffice for studying the original of this work certainly are under obligations to Dr. Bonney for his most excellent rendition thereof into English. The book, however, is singularly incomplete in some instances, as, for example, in the technique of cystoscopy. In this connection no mention is made of the fact that Casper was the first to devise a method of giving the urethral catheter the necessary varying curves within the bladder, to render practicable ureteral catheterism in almost all cases. Without this enormous advantage, for which Casper paved the way, ureteral catheterism might still be the rather crude process it was when first attempted. It therefore seems false modesty that Casper did not emphasize his epoch-making improvement in this work. Serious exception may be taken to the fact that only thirty pages are devoted to nonspecific and gonorrheal urethritis, to chronic gonorrhea and its sequelæ. In this curt disposal of the disease which causes 80 per cent. of all affections of the genitourinary apparatus, the question of the marriage of gonorrheics is discussed in but three paragraphs. In these it is held inacceptable in practice to deny permission to marry while the last remnant of discharge persists. It is declared (p. 99) "if we were to forbid all such to marry, they certainly would not obey us; and if they did, the number of unhappy mortals would be greatly increased, the list of neurasthenics and hypochondriacs would become larger, and mankind would be in danger of extinction." Anglo-Saxon mode of thought shrinks at the idea of exposing an innocent girl to matrimonial infection, rather than that the man who, though infected, would marry her, become an unhappy mortal, a neurasthenic, or a hypochondriac. While it is true that many women seem to be immune to gonorrhea, and consequently escape infection, the gynecologists' sad records warn against assuming the risk. The paragraph in which the momentous question is discussed conclude with: "If all examinations are negative, the urethra is irritated by natural and artificial means (cohabitation, free use of strong alcoholic beverages, irritant injections like nitrate of silver), if the increased secretion thus produced shows no gonococci, then marriage may be permitted. Possibly this course may result in an occasional mistake, but in the present state of our knowledge we possess no other criteria of infectiousness, and so are obliged to choose the lesser of two evils." Were this teaching not offered by so eminent an authority as Casper, it might be passed without heed, but coming in a work of such transcendental importance to the general practitioner and specialist, it demands at least passing comment. It is unlikely that any American practitioner will recommend coitus with all its moral and physical risks, for the purpose of irritating the urethra, so that the results may be used to decide upon the propriety of the applicant's marriage. There are also among us many who would refuse to attempt provocation by the free use of strong alcoholic beverages; this, however, is less a question of morality than of personal sentiment, and to be governed by the feasibility of such course in each individual case. The reviewer would warn the practitioner, however, against dispensing with all tests to determine the safety of marriage to a man who harbors residual gonococci, because "the course advocated may result in an occasional mistake." We can but use the justifiable means to this end that are within our knowledge.

Despite the shortness of the division on gonorrhea, the author has at least mentioned all the means and instruments employed in its treatment, and has carried it to so late a day as to depict and describe Frederick W. Robbins' ointment applicator, demonstrated at the June meeting, 1908, of the American Urological Association. One of the especially fine chapters in the book is that on stricture. In the author's terse way he has managed to give a thorough, albeit brief, conspectus of all the general practitioner needs in an up-to-date treatise on the subject, which the translator has faithfully reproduced. The author emphasizes that more than 90 per cent. of strictures are of gonorrheal origin, and that (p. 142) "gradual temporary dilatation is the proper procedure for nearly all strictures." Fully one-third of the book is occupied by diseases of the bladder and prostate. No attempt to review these 200 pages could do them justice. It may suffice to say that almost every line thereof contains an important lesson. The publishers present the work with an elegance suitable to the valuable text.

Rotunda Practical Midwifery. By E. Hastings Sweedy, M.D., F.R.C.P.I., Master of the Rotunda Hospital, and G. S. Wrench, M.D., Late Assistant Master. London: Henry Frowde and Hodder & Stoughton, Oxford University Press, 1908.

This book does not pretend to compete with the larger works on obstetrics. It has been written for the practitioner and student who have not had the advantages of a practical obstetrical training. All theoretical discussion has been omitted, and the authors have limited themselves to the consideration of the conditions which the practitioner is likely to encounter. They have mentioned only the treatment which they have found most efficacious in the management of their cases at the Rotunda Hospital, Dublin. Although we do not agree with them in every particular, yet their methods of treatment are in most cases similar to those which we in America are accustomed to. We would take some exception to their treatment of eclampsia. To control the convulsion, Dr. Sweedy gives hypodermic injections of morphine sulphate grain ½, with atropine sulphate grain 1-200. If necessary, the injections are to be repeated every two hours, as much as two grains being administered in twenty-four hours. He claims that chloroform depresses the heart, so he does not use it. Neither does he use chloral or the bromides. We on the other hand place a good deal of dependence on chloroform and chloral to control the eclamptic convulsions. The nomenclature of the presentations is different from ours. For instance, L.O.A. is called vertex number 1; R.O.A., vertex number 2; R.O.P., vertex number 3; L.O.P., vertex number 4. The other presentations are designated in the same way, as breech number 1, etc. The chapters on the symptoms, signs, and diagnosis of pregnancy, and the treatment of the normal labor and puerperium, are excellent. There are short chapters on the care of the healthy baby, on the care of the unhealthy baby, and on the insanities of the reproductive period.

Society Reports.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

223d Regular Meeting, Held April 2, 1909.

DR. E. G. JANEWAY, PRESIDENT, IN THE CHAIR.

Caisson Disease.—Dr. M. ALLAN STARR read this paper. (See page 1047.)

Dr. E. G. JANEWAY said that several years ago he reported a case of gas emboli following the use of hydrogen peroxide. His patient was a man whose pleural cavity was being irrigated with the substance and on one such occasion he fell suddenly unconscious and developed hemiplegia and aphasia. He recovered completely after a long illness. Dr. Janeway thought that the oxygen liberated from the hydrogen peroxide was in some manner carried to the brain in this case and produced a condition quite similar to caisson disease. French writers had reported a number of such instances. Of course, instead of oxygen of the hydrogen peroxide it might have been plain air that caused the mischief, for the tearing of some adhesions in the pleural cavity could have allowed the air to enter the blood-vessels, as the full inspiration which the patient is apt to give and the presence of blood in the pleural washings suggests.

Fibrosarcoma of the Eyelid in a Child.—Dr. CHARLES S. BULL reported the case of a boy, aged nine, whom he first saw on March 8, 1909. There was a tumor of the left upper lid, extending from the ciliary margin of the lid upward to the superior orbital margin, and involving the outer half of the lid. The skin was freely movable over the growth, but the tumor itself was firmly attached to the tarsus at its base. It was slightly lobulated, quite hard to the touch, and entirely painless and non-sensitive. The eyelid covered the entire eye and sagged outward toward the temple. The mother had noticed, when the child was about two years old, a small pimple or swelling in the lid. This remained unchanged in position and size until about eight months ago, since which time it has grown rapidly, but has occasioned no discomfort except a feeling of weight in the lid. On March 12 the tumor was removed. An incision was made horizontally through the skin and the skin and fibers of the orbicularis muscle carefully dissected from the surface of the growth. It was found to be encapsulated and firmly adherent to the tarsus at its base. It was very hard, so that a sharp hook could with difficulty be forced into it. The cavity was carefully irrigated and the wound in the skin closed by five small sutures. It healed promptly and the boy was discharged on the third day.

The tumor was given to Dr. George S. Dixon, the pathologist of the Eye Infirmary, who reported as follows: "The tumor removed from the lid of the boy proved to be a fibroma growth with a large number of spindle cells, and a little glandular tissue on one edge. The blood-vessels were comparatively few in number and all had very thin walls; even the larger ones carried but a single layer of endothelial cells. There were no signs of irritation and no indications of rapid growth present. It was encapsulated, but the capsule was very thin. Diagnosis: Fibrosarcoma; large spindle-cell variety."

Prostatectomy and Calculi of the Bladder.—Dr. L. B. BANGS showed forty-four uric acid calculi removed from a patient's bladder. The patient had an enlarged prostate and catheterized himself frequently. A cystoscopic examination showed the presence of three stones and a fourth one was suspected. Curiously enough, another physician to whom the patient went after being cystoscoped by Dr. Bangs likewise saw three stones and was somewhat doubtful of the existence of the fourth. Prostatectomy was done and, the number of stones found behind the prostate at the operation simply showed that most of them were hidden from the cystoscope by the upper layer. Another feature of the case was that the patient had no pain whatever, and beyond the cystitis and the recent appearance of blood in the urine, no symptoms were caused by the stones.

AMERICAN MEDICAL ASSOCIATION.

Sixtieth Annual Meeting, Held at Atlantic City, N. J., June 8, 9, 10, and 11, 1909.

(Special Report to the MEDICAL RECORD.)

SECTION ON MEDICINE.

(*Continued from page* 1044.)

Diverticulum at the Pylorus.—Dr. ALLEN A. JONES of Buffalo reported the case of a young man aged 21. When 18 years old he had attacks of severe pain in the stomach after eating. When Dr. Jones saw him he complained of pain two inches above the umbilicus, radiating a little to the left. There was no history of vomiting of blood. Free hydrochloric acid was found to be present, and after considerable retching there came through the stomach tube a small quantity of blood-stained water and a fragment of mucous membrane. There was no food stagnation. After several months of complaining, vomiting, gastric pain, flatulency, loss of weight, etc., operation was decided upon. Adhesions were found about 4 cm. from the pylorus on the anterior stomach wall, between it and the transverse colon and gastric omentum. Between this point of adhesion and the pylorus, just inside the pyloric ring on the stomach side, was a diverticulum consisting apparently of serous and mucous membranes only. Recovery was uneventful. It was probable he had had a gastric ulcer when 18 years old, and this ulcer destroyed the muscular coat of the stomach, and in healing this coat was not restored, the pyloric wall in that region consisting chiefly of the serous and mucous coats, the latter having undergone regeneration. This thin and weak portion of the pylorus gradually stretched and formed a diverticulum.

Diet in Typhoid Fever.—Dr. WARREN COLEMAN of New York read this paper, and said that the conclusions he had reached concerning the food requirements of the typhoid fever patient were based upon studies on the protein metabolism of the disease which had been carried out in collaboration with Dr. P. A. Shaffer during the last two years. He believed that the essential problems of the typhoid fever diet would be found in the correct answers to two questions: (1) Shall the typhoid fever patient be given enough food to meet his energy requirements? (2) How much food might be considered necessary to fulfill these requirements? The history of diets in typhoid fever clearly indicated a steady, but very slow, tendency to increase the amount of food allowed to the patients. There was strong experimental and clinical evidence in favor of giving typhoid patients sufficient food to meet their demands for energy. The loss of weight in typhoid fever had been attributed to two causes, to the temperature, and to the so-called toxic destruction. The loss in both of these causes they found could be prevented by a high-calorie carbohydrate diet. The diet they used consisted in the main of milk, cream, milk sugar, and eggs. In addition they allowed small slices of stale bread or toast, with as much butter as the patient wished. The daily quantities of these foods were about 1½ quarts of milk, 1 to 2 pints of cream, ½ to 1⅔ pounds of milk sugar, and 3 to 6 eggs. He believed that the foods men-

tioned must form the basis of the ideal diet for typhoid fever patients, but much remained to be done in working out details. In conclusion he said: (1) The practice of partial starvation, at present followed in the treatment of typhoid fever, was highly detrimental to the patient's welfare. (2) It was not only desirable but necessary that the typhoid patient be given sufficient food to cover his energy expenditures. (3) The amount of food required for this purpose would vary with the different patients, but might be estimated approximately on the basis of 40 calories per kilogram of body weight per day.

Dr. Clayton of Washington said that for the past five or six years he had been feeding his typhoid fever patients, and he agreed with Dr. Coleman that if one once watched the effects of feeding these patients one would never go back to the starvation diet. He believed the patients were more apt to make a recovery if fed. They were made happier; one of the most trying experiences one had in dealing with this disease was with hunger. Instead of being reduced to skin and bones, they were in good condition and were able to return to work much earlier, a very important thing to the working man. As a result of feeding he had not seen a larger number of cases of hemorrhage or perforation than when he employed the starvation treatment.

Dr. Arthur K. Stone of Boston reported a series of 50 cases of typhoid fever treated last Summer on the so-called Shattuck diet with but one death.

Dr. A. Jacobi of New York thought that Dr. Coleman should be congratulated upon his results which Dr. Jacobi said he would not expect with such a diet. It was impossible to expect a healthy person, far less a typhoid fever patient, to digest so much milk and cream. He had never seen more disorders of the intestines, with indicanuria, acetone, and diacetic acid in the urine, than he had in patients, or at least in persons, who had consumed a great deal of fat in that shape. It was impossible for the average stomach to digest an unmixed cream to that extent. An adult or child, healthy or diseased, would tolerate milk that was diluted with cereals better than when not so diluted, especially in fever cases where the gastric secretion was lower than in health. He did not believe that most of them would be willing to give fat in that quantity unmixed, or even raw milk in that quantity. He cautioned those present that they should be very careful with fat feeding to the extent that Dr. Coleman had proposed to them.

Dr. James M. Anders of Philadelphia thought it was a significant sign that the general profession no longer advocated the starvation diet. Dietetic principles should be kept in mind in dealing with typhoid fever patients, more particularly since the lesions were situated in the intestinal tract. All the energy represented by protein substances was not utilized by the system. Too much proteid in the food favored putrefaction in the intestinal tract, and, so greatly increased the gravity of the case, especially in the direction of local symptoms. On the other hand they should recollect that the energy represented by carbohydrates and fats were utilized in their entirety within the system. It should be remembered that one object of the dietetic treatment was to preserve the tissues of the body and to prevent more or less emaciation, which otherwise would occur. Fats did not preserve the proteid constituents of the body, but carbohydrates did. He believed the secret of Dr. Coleman's success was in allowing the use of carbohydrates which were easily digested, and particularly the use of milk sugar which he recommended. Preservation of the tissues of the body could only be done by the use of available carbohydrates.

Dr. Walker of Philadelphia was much interested in Dr. Coleman's paper, because he felt that this increased feeding of typhoid fever patients had gone too far. He was pleased with Dr. Coleman's suggestion, but he accepted Dr. Jacobi's criticism. Although Dr. Coleman's results were thoroughly honest and true, yet he did not believe that so much cream should be allowed. He advocated the use of calves' foot jelly, and protested against too liberal feeding in typhoid fever.

Dr. Parker of Detroit said that they should get back to the natural mode of living, in so far as the patient's condition would permit. Salt should be given, and more time should be allowed between feedings.

Dr. Woods Hutchinson of New York said that Graves' epitaph was "He fed fever." Before Graves' time very little food was given patients, they were deprived of water, even cold water was not allowed; they were bundled in blankets, and the windows were shut. The sufferings of the patient were as much due to the treatment he received as to the disease itself. Ten years ago he had an opportunity of treating a number of cases of typhoid fever; the patients were placed upon more liberal feeding, and the results obtained were similar to Dr. Coleman's, although he did not go to the extreme. He gave an abundance of meat jellies, crackers, ice cream, etc., and the results were excellent, not only as to keeping up the weight but also the strength of the patients, preventing the condition of collapse and the violent appetite, that terrible craving for undigestible articles of food. With regard to the damage to the intestine, he thought they thought too much of typhoid fever as an intestinal disease exclusively; it was a general disease.

Wednesday, June 9—Second Day.

Observations on Indicanuria and Its Significance.—Dr. Judson Deland of Philadelphia stated that indicanuria was the presence of a perceptible quantity of indoxyl sulphate of potassium, not merely a trace, in the urine. It was derived from anaërobic bacterial putrefaction of proteins. Normally from five to 20 milligrams of this substance were excreted daily and abnormally from 50 to 150 milligrams. After having tried most of the tests recommended for the determination of the presence of indican in the urine the test advised was to filter 10 cc. of urine, add a 1 per cent. solution of postassium chlorate, then 5 c.c. of chloroform and lastly 10 c.c. of pure hydrochloric acid of a specific gravity of 1.19. After thorough mixing the indican thus set free was dissolved in the chloroform, to which it had imparted a blue color. The maximum coloration was secured in ten minutes. Clinically, a quantitative idea of the amount of indican present might be obtained by noting the depth of the blue color of the chloroform. If the urine contained iodide the chloroform would be colored violet; this color might be removed by adding a 5 per cent. solution of sodium thiosulphate. In order, therefore, that indican might not be overlooked, it was necessary to obtain urine for examination at different times during the day or week, or under conditions produced by variations in food and exercise or during the presence of the most marked symptoms. The urine first passed upon retiring and rising, as well as that taken from a 24-hour specimen, should always be examined. Sometimes indican was only observed after the ingestion of certain articles of food. Clinically, indicanuria might be mild or severe, acute, chronic, or recurrent and occurred as an independent affection or as a complication of other diseases. Indicanuria was significant of the absorption of the products of putrefaction, which was usually situated in the intestinal tract, but under exceptional circumstances might be situated in other parts of the body. The test for indican was so simple and that for other putrefactive processes so difficult, that indican had assumed the position of an indicator of absorption, not only of indoxyl, but of any one or any combination of the bodies produced by the decomposition of proteins. Indicanuria might be absent

when protein decomposition was present, and it was conceivable that intestinal toxemia occurred in the absence of indicanuria. Indicanuria, clinically, occurred more readily when the hepatic function was disturbed. It was unsafe to assume in the light of our present knowledge that indicanuria produced no harm when symptoms were absent, conservative prudence dictated the prevention of its formation. The conditions which favored indicanuria were numerous. They might be morbid conditions of the teeth, oropharynx, nose, and sinuses connected therewith. The production of indol might be due to simple excess of proteins in gourmandizing, insufficient mastication, too rapid eating, paralyzing or lessening gastric, intestinal, or colonic peristalsis, or interference with the normal secretions of the stomach, intestines, pancreas, or liver. Hernia, ileus, appendicitis, local, general, acute, or chronic peritonitis, and intestinal stenosis also favored the growth of putrefactive bacteria. Indicanuria had been observed in nearly all pathological conditions of the intestinal tract and deep importance was attached to its recognition in typhoid fever. After thoroughly discussing indican as an indicator of toxemia, Dr. Deland discussed in turn the various effects of toxemia. These results were manifested in the blood and might be the remote cause of arterial sclerosis. Chronic intestinal toxemia might induce or complicate cases of neurasthenia and again toxemia was a common complication of mental disease. Attacks of intestinal toxemia frequently interrupted the favorable course of many cases of tuberculosis. It aggravated catarrhal inflammations of the respiratory tract and the amelioration of this symptom greatly benefited eczema, pruritis, acne, rosacea, and malodorous perspiration and breath. Intestinal toxemia was a common disease and its removal was very frequently followed by remarkable and prompt amelioration or disappearance of many distressing symptoms.

The Diagnostic Value of Stained Specimens of Stools in Cancer of the Stomach.—Dr. Philip King Brown of San Francisco said that they were continually confronted with the accusation that they did not send cancer cases to the surgeon soon enough, but he had made the mistake of sending cases to the surgeon with the diagnosis of cancer when no cancer was found. The differential diagnosis of these cases was very difficult. He said he had seen four cases of single or multiple ulcer of the stomach, in all of which the ulcers had undergone cancerous degeneration; in all of these the stomach contents did not indicate the ordinary conditions appearing in cancer at all. The total acidity was practically normal in two of the cases, while free hydrochloric acid was present in all. The stools were examined in all the cases and were gram-positive; this was the only clinical sign by which the condition of cancer might have been surmised. The test was so easily made that it should be used more often.

Resorption of Proteins, Fats, and Carbohydrates in the Chronic Alcoholic.—Dr. Alexander Lambert of New York presented this paper, in which were reported the results of an examination of a series of cases of chronic alcoholism with regard to their resorption of protein, fat, and carbohydrates. The changes which took place as the result of chronic intoxication with alcohol were those which induced a catarrhal condition of the stomach, usually with increasing anacidity, accompanied by cirrhotic conditions of the pancreas, liver, and small intestines; not infrequently the kidneys were affected with interstitial changes. Hence it seemed not improbable that a careful examination of resorption and excretion might be useful from a diagnostic point of view. In all the cases examined hitherto the loss of fat by the feces did not fall below 5 per cent. Most investigators of resorption in pathological conditions had found difficulty in fixing normal standards, but one found that with certain exceptions the loss of nitrogen in the feces rarely exceeded 10 per cent. The fat loss varied greatly, but on general diet did not as a rule exceed 7 per cent. The loss of carbohydrates had not been studied so carefully, but such as had been given lead one to induce that, with ordinary diet, there was a loss of about 3, or at highest 4 per cent. The patients examined were placed on a diet which Dr. Lambert had tabulated in detail, and which consisted of 23.8 nitrogen, 177.5 fat, 237. carbohydrates, and amounting to 3091 calories daily. The urine and stools were collected each day, separation of the stools at the beginning and end of the experiment being effected with charcoal. Nine experiments in all were made, extending over from five to six days. The results of the resorption tests were given in tables showing the percentages resorbed and the percentages lost. A remarkably good resorption was shown in all cases, and in one case it was distinctly better than the average in normal cases. In no case was the carbohydrate resorption at all impaired, a condition which one would not suspect from the supposedly catarrhal condition of the intestines. The percentage of loss of nitrogen ranged from 6.1 to 8.9, except in one case in which it was 3.3, while the normal loss of nitrogen was 10 per cent. The normal loss of carbohydrates was 4 per cent., while in this series it varied from 0.6 per cent. to 1.3 per cent. The loss of fat varied in the cases examined from 1.9 to 7.8, while the normal loss was 5 per cent. It was a matter of interest to note in this series that on the diet given very notable quantites of nitrogen were stored up. The tabulated results showed that the balance stored up ranged from 14.4 to 43.1 per cent. except in one case in which it was but 0.9 per cent. In every case the patients gained weight on the diet, though on the whole they were not in a state of undernutrition when the experiments were begun. Another method which appeared to promise something toward the diagnosis of obscure affections of the digestive system was that of testing the hourly excretion of nitrogen. In a patient receiving an adequate amount of food a large quantity of nitrogen in the form of meat was given at a definite time, and every hour thereafter the urine was collected separately and the samples analyzed for total nitrogen. Although experiments on normal persons were not very numerous, they knew that after the injection of 500 grams of finely minced meat the height in the curve of elimination was reached about the seventh hour after the intake of food. Experiments of this type were performed on these patients and in no instance did the curve of excretion correspond with the somewhat regular steep steps which were observed in normal subjects. It appeared that in the curve of digestion a delay occurred leading to gradual ascent in the course of the excretion of the nitrogen. In this respect the chronic alcoholic reacted in an abnormal manner. Much credit was to be given Dr. C. G. L. Wolf of Cornell University for what he had done in assisting with this work.

Dr. E. P. Joslin of Boston said that absorption in alcoholics was good, a very important thing for them to remember. Lack of assimilation was only a catch phrase and would not hold water. Most of these patients were starved and it was necessary that both the acute and convalescing alcoholics be fed. They should not be discharged from the hospital until they had recovered from their delirium; they should be kept in the hospital and fed up just as one would in typhoid fever convalescence. He thought that both Dr. Lambert and Dr. Wolf were to be congratulated upon the work they had done.

Dr. John A. Lichty of Pittsburg said that absorption must have been very good in Dr. Lambert's cases, cases which were supposed to have a very much disordered digestive system.

The Uses and Limitations of Examinations of the Stomach Contents.—Dr. Charles G. Stockton of Buffalo read this paper. He stated that the stomach tube

should not be too small; for an adult it should be from 30 to 35, French scale. It should be capable of supporting its own weight when held in an upright position for the length of twelve inches. It should have as large a calibre as possible without being liable to bend sharply at an angle when pressed upon. It should be about 54 inches long and have no pumping apparatus connected with it. If there was temporary delay in introducing the tube one might expect to find either cardiospasmus or stricture at the cardia. If, after passing the tube about 14 inches, portions of the test meal returned and the food was unmixed with gastric juice there was some kind of obstruction at the cardia. If, in pressing the tube onward, it stopped at the cardia or was held fast, stricture or spasm at the end of the esophagus might be inferred. The best reflow was obtained at a distance of from 21 to 22 inches from the teeth, provided the patient was of ordinary stature and his stomach in normal position. If, after aspirating the stomach contents found at from 20 to 22 inches and pressing the tube further on, after a little resistance, it apparently got into another cavity from which stomach contents of a different character were removed an hour-glass stomach might be suspected. If, after passing the tube the usual distance an unusually large amount of the test meal was obtained, moderate motor insufficiency was indicated. If a large quantity of the test meal was found undergoing fermentation and having a musty odor with a large quantity of bacteria and few lactic acid bacilli, there was indication of benign obstruction at the pylorus. If stagnating food of foul odor was found, either with or without free hydrochloric acid, with lactic acid present and Opler Boas bacilli malignancy and obstruction were suggested. The finding of too little of the test meal at the usual time with the presence of gastric juice suggested excessive motor activity. If little of the test meal and no gastric meal were found, excessive motor activity was indicated. A conclusion should not be reached by a single examination. If, on one day, there was an absence of gastric juice, and on the next an excess, on one day food retained too long, and on the next passed on too quickly, they might conclude that the patient was the subject of nervous disturbance. When an acidity above 60 was habitually present hyperchlorhydria might be suspected. This condition was not to be determined, however, by a fixed standard. There were cases of practical suspension of gastric secretory function with symptoms of hyperchlorhydria; these were probably instances of chronic glandular gastritis with exacerbations accompanied by symptoms of irritation. The following findings were given: Over-acidity with delay in digestion of starch was indicative of hyperchlorhydria; a low total acidity suggested a defect in secretion of enzymes; a high total acidity suggested an active secretion of the enzymes; a mass of nummular sputum indicated that the mucus had been swallowed and was not of stomach origin; occult blood was evidence of hemorrhage; blood with mucus and pus cells suggested ulceration or degeneration of the gastric mucosa and probably malignancy; food remaining after washing for a considerable time was evidence of tony and probably dilatation; the stomach holding a large quantity of fluid was indicative of dilatation. The slow change of albumin showed that the gastric digestion was retarded. The presence of the odor of fatty acids was evidence of fermentation. Too much importance should not be attributed in stomach examinations to the disturbances in secretion. The greatest importance should be attributed to evidence of disturbance in motion. The diagnosis of stomach disease should not be made solely by examination of the stomach contents, but by the results of this method considered in connection with the symptomatology and with the estimation of all the facts in the case. The stomach tube was important in diagnosis; in treatment it was often useless or harmful.

X-Ray Evidence in Gastric Cancer.—Dr. A. W. CRANE of Kalamazoo, Mich., said that the diagnostic factors presented were size, form, position, clearance, and indication of pain-marker. The form of the stomach might be designated as normal, tubular, globular, drain-trap, and deformed (indentation, adherent, and contracted). An analysis of these diagnostic factors presented by stomach skiagram showed that three of five major factors might give information concerning gastric cancer. They were form, location of lead marker, and clearance. In the case of ulcer the alteration was confined to the contracted type; the indentation stomach was the type distinctive of cancer. The problem of differential diagnosis might require a careful consideration of all available evidence in the case. When they found a deformed gastric outline they had to discriminate between an indentation from the pressure of other organs or growths, a local contraction of the stomach wall, an invasion of the stomach wall by a growth, and the presence of adhesions, due to disease of contiguous organs. Also, when they found low clearance and a globular form and established the fact of pyloric narrowing, they then had to discriminate between the narrowing due to the scar tissue of ulcer, that due to growths in the walls of the antrum or pylorus, that due to the pressure of growths of glands outside the pylorus, and that due to the binding of adhesions. In order to make these discriminations they should study the stomach under normal conditions so as to be able to recognize a departure from normal outlines. Air or bismuth within the stomach gave certain outlines. The following points should be considered: Patient, position of the body, degree of stomach distention, contents of stomach and immobility. Bismuth: kind of salt, quality, how suspended, how taken, how distributed. Time of day for exposure of plates: relation to meals, time elapsing between ingestion of bismuth and exposure of plate, number of plates and time between.

The Determination of Trypsin in the Stomach Contents After Oil Test Meals.—Dr. CLIFFORD B. FARR of Philadelphia read this paper. The experiments reported were based on the work of Boldireff and Volhard. The former in experiments on dogs found that the introduction of oil into the stomach caused regurgitation of duodenal contents, in which the presence of pancreatic ferments could be demonstrated; the latter devised a new method for demonstrating the presence of trypsin and applied Boldireff's discovery to clinical uses. His first object was to substantiate the observations of others as to the ease and frequency with which duodenal contents might be obtained after the oil meal. The second was to decide which of the methods proposed was best suited for detecting trypsin in the specimens secured. The third was to discover what, if any, clinical value was to be attached to the findings thus obtained. The following conclusions were deduced: (1) The duodenal contents might frequently be obtained after the oil test meal, though sometimes there was doubt as to the character of the fluid aspirated. (2) On this account it might be possible to exclude atrophy of the pancreas, but only under very unusual conditions could they demonstrate its presence. In a number of diseases the examination had yielded suggestive results. (3) The observation of Boldireff was of mere interest from the point of view of pathological physiology than of diagnosis, for example, in gastric ulcer and in achylia. (4) The casein method of Volhard was a delicate qualitative test for trypsin, but for this purpose needed simplification. (5) The regurgitation of the alkaline intestinal juice induced by oil might explain the therapeutic value of the latter in some cases of hyperacidity.

The Diagnostic Importance of Examination of the Feces.—Dr. CHARLES P. EMERSON of Clifton Springs, N. Y., gave a brief review of all that might be learned of a case from careful study of the stools, and told of the

methods which were of value in clinical work. He made a plea for gross and microscopical examinations at the bedside whenever possible, and gave a review of the importance of information which could be gained in this way.

Oration in Medicine: Tropical Diseases; America's Opportunities and Obligations.—Dr. James B. McElroy of Memphis delivered this oration. He said that the race for empire from its beginning had suffered more from disease and pestilence than from the implements of war, and this fact had furnished many examples of stimulation to medical research. None was more striking than that given to the study of the diseases of warm climates as a result of the struggle for the possession of the tropics. The discovery by Ross of the mosquito as the intermediate host of the malarial parasite might be said to have stimulated renewed interest in the onslaught on tropical diseases. Sir Patrick Manson had pointed out that the "peculiarities of tropical diseases were etiological rather than pathological." Passing certain conditions which were the direct result of climatic and meteorologic influences found in warm countries, certain diseases were encountered which were the result of toxic substances taken in with the food, peculiar to these climates. As examples of these might be mentioned ergotism, lathyrism, pellagra, and possibly beriberi. In the list of tropical diseases it was customary to include certain bacterial infections, such as Malta fever, bubonic plague, leprosy, bacillary dysentery, and cholera; these diseases, however, could flourish in any climate and had no real claim to be regarded as strictly tropical diseases. Certain pathogenic agents either required high atmospheric temperature for their successful passage from host to host, or required an animal intermediary which flourished only in high temperatures. In view of the extensive use of the proverbial "hoe-cake" as food in the South, it was rather surprising that pellagra should have so long escaped the notice of physicians. The report of its epidemic occurrence in some of the Southern States made the study of the disease a matter of great importance. The specific cause of beriberi remained unknown. The clinical syndrome, which was commonly known as dysentery, had been shown to be due to three distinct diseases, amebic dysentery, bacillary dysentery, and catarrhal dysentery. Studies on Malta or Mediterranean fever had shown that this disease had a wider distribution than was formerly supposed. It had been shown that the *Micrococcus miletensis* was constantly present in the blood of patients suffering from this disease; that it escaped from the body chiefly through the urine; that it was found at times in the urine of perfectly healthy individuals. The march of the "black death" had advanced and was now lodged in Asia, Africa, Europe, Oceania, North and South America. Fifty-one countries of these continents had been infected and millions of lives had been destroyed. The Plague Commission which was sent out in 1905 gave the following conclusions: (1) Pneumonic plague was highly contagious, but being rare (less than 3 per cent. of all cases) played a very small part in the spread of the disease. (2) Bubonic plague in man was not infectious and was entirely dependent on the disease in the rat. (3) The infection was conveyed from rat to rat, and from rat to man, solely by means of the rat flea. (4) Plague was usually conveyed from place to place by rat fleas brought by people in their baggage or on their persons. The outbreak of plague on the Pacific Coast in 1907 was suppressed by the efficient work of those under the direction of Dr. Rupert Blue. One of the most far-reaching results which had come about as a result of the increased interest in tropical diseases was the importance which attached to protozoology and helminthology as fundamental medical sciences. Among the most interesting advances were the discoveries which had removed trypanosomiasis far beyond the mere economic importance which it hitherto had maintained. The discovery of a peculiar, wormlike, actively motile body in the blood of a patient by Forde in 1901, and named *Trypanosoma gambiense* by Dutton, stimulated investigations with respect to this organism as a pathogenic agent. The spirochetæ, a genus closely allied to the trypanosomidæ, had been the subject of much study. Malaria, of all tropical diseases, was the most widespread, the most disastrous in its effects, and the one concerning which their knowledge was most complete. It should be noted, however, that the introduction of eosinated methyl azure stain and thick dehemoglobinized smears had facilitated the diagnosis of malaria. The results of the researches of the Medical Commission of the United States Army to investigate the cause and mode of transmission of yellow fever were well known, and the application of this knowledge had been successful in the control of many outbreaks of the disease. Dengue was probably dependent on the mosquito for its spread. The work on hook worm disease had only begun. The establishment of a biological laboratory in Manila as a part of the Government Laboratory, and the high class of work which had eminated therefrom, had reflected great credit upon American medicine. The record of ten years of sanitation in the Philippines justified the statement of Musgrave that "America has made Manila one of the cleanest and healthiest and most attractive cities under the flag." As regards the triumph of America in the canal zone it had been said that "of one credit history can not rob the United States." The names of no greater heroes than the names of Reed, Carrol, and Lazear would be recorded in the annals of American history. With regard to amebic dysentery, the record of the Johns Hopkins Hospital showed that 182 cases had been in that institution from 1889 to 1908, the vast majority coming from the State of Maryland. The large number of cases of abscess of the liver in some Southern hospitals indicated its wide prevalence. This furnished a rare opportunity for investigation. It had been shown that the prevalence of malaria cost the State of Texas in 1900 in loss from labor alone $533,320. In the United States it was estimated that malaria produced 12,000 deaths and 3,000,000 cases of fever annually. The recent researches of Stiles had shown that 12.6 per cent. of the employees of the cotton mills of the South were affected with uncinariasis; that of this class, 13 to 15 per cent. of those of maternity age were in a condition which prevented them from properly nourishing babies; 5.8 to 20 per cent. of those of possible military age were in a condition which would materially decrease their military efficiency; 48.1 per cent. of the children were suffering from an anemia producing disease which would naturally inhibit their usual capacity for study. As a natural corollary it followed that the present and growing opportunities for the study of tropical diseases must impose the obligation of affording better facilities for teaching them and research work in them. The growing sentiment in this country of the obligations of the Federal Government to the public health was propitious, and this sentiment needed the fostering care of physicians more than any other class.

Transmission of Malarial Fever in the Canal Zone by Anopheles Mosquitos.—Dr. Samuel T. Darling of Ancon, Canal Zone, Panama, read this paper and emphasized the following points: *Anopheles albimanus,* the common white hind-footed anopheles, was the host for estivo-autumnal and tertian malarial parasites in the Canal Zone at this time. *A. malefactor,* notwithstanding its name, did not transmit malarial fever. *A. pseudopunctipennis* was only slightly concerned in the transmission of malarial fever. In the efforts at mosquito destruction, the extermination of *A. albimanus* was of paramount importance. Patients having crescents or tertian gametes in their peripheral blood should not be discharged from the hospital, nor should treatment be discontinued until gametes had

been reduced to a noninfectious minimum. The destruction and prevention of development of the sexual parasites in man was of great importance and might be accomplished by (1) appropriate quinine treatment for all gamete carriers entering the hospital; (2) by the occasional quinine treatment to destroy latent malaria; (3) by the periodical blood examination of laborers in quarters where there was a high malarial rate for the destruction of gametes carriers and latent malaria in order to carry out appropriate treatment; thirty grains of quinine sulphate in solution daily was an efficient dose for the purpose.

The Present Status of the Serum Therapy of Epidemic Cerebrospinal Meningitis.—Dr. Simon Flexner of New York said that it was now about three years since the serum was first introduced and used therapeutically in this country, and gradually its employment had extended until now it was being used in Great Britain, France, and Germany, as well as in the United States and Canada. He presented a tabulation which had recently been prepared based on 712 cases of the disease, in which the bacteriological diagnosis was made and which were treated with the serum. In the first table the cases were subdivided according to certain age periods; in the second table the total cases of each age period were further divided according as the serum was injected in the three arbitrarily chosen periods of duration of the disease. The first table brought out several points of interest. The highest mortality was shown to have occurred in the first two years of life. But contrary to the rule under the older forms of treatment in which the mortality was 90 per cent. or over, in this series it was 42.3 per cent. The second period was from 2 to 5 years, in which the mortality was 26.7 per cent. The third age period embraced children from 5 to 10 years of age, and gave the lowest mortality of all, namely, 15.9 per cent. The next period, from 10 to 15 years, gave a mortality of 27.7 per cent. The next period, of from 15 to 20 years, showed a considerable rise in mortality, 32.7 per cent. The second table was instructive in bringing out the importance of early injections of the serum. The results in the first two years of life were especially noteworthy. The extraordinary figures given under the first period of injection, namely in the first three days of the disease, could hardly be maintained. But the influence of period of injection was shown by the rapid rise in mortality in the subsequent two periods. The rule of the effects of early injection was preserved in the age periods up to the period of from 15 to 20 years, when it disappeared. The total figures did not, however, fail to indicate that the early injections were more effective than the later ones, as was shown by the percentage mortality in the first to third day period of 25.3, in the fourth to seventh day period of 27.8 and the period later than the seventh day of 42.1.

Dr. Thomas Morgan Rotch of Boston reported his experience with the disease in his wards at the hospital during the past ten years averaging 20 cases a year. The cases treated were in the first 12 years of life. During the years 1902, 1903 and 1904 the treatment was by repeated lumbar punctures and the mortality continued from 60 to over 70 per cent. During the year 1905 all the cases were treated with diphtheria antitoxin, with a mortality of about 80 per cent. During the year 1906 the patients were treated with vaccines, and the mortality still remained up to about 80 per cent. From November, 1906, to November, 1907, the Flexner serum was employed and the mortality immediately fell from 80 per cent. to 18 per cent. Since then the mortality had never gone above 25 per cent.

Dr. Philip King Brown of San Francisco told of the remarkable results obtained in some of the smaller towns of California by the use of the Flexner serum.

Dr. William Litterer of Nashville, Tenn., said that there had just been an epidemic of cerebrospinal meningitis at Nashville, the cases numbering 20, all confirmed by bacteriological examination. The first three cases in which the serum was not used properly died. Out of 17 cases in which the serum was used, 10 recovered and 7 died, and two of these were in a moribund state when injected.

The Retention of Alkali by the Kidney, with Special Reference to Acidosis.—Drs. Herman M. Adler and Gerald Blake of Boston undertook certain investigations in order to determine, first, whether any variations occurred in acidosis between the amount of ammonia and the amount of base excreted; secondly, whether such variations, if they occurred, would give information in regard to the acid-neutralizing power of the organism; thirdly, whether the method employed was of sufficient accuracy to make it of use in the clinical laboratory. The following were the conclusions: (1) The amount of base excreted in the urine in acidosis, while following in general the variations in the amount of ammonia, might show differences which were of importance in estimating the power of the organism to resist intoxication. (2) Whether the amount of base excreted varied with the amount or not, it was important to determine both quantities as they represented two distinct mechanisms of defense. (3) The method employed in this investigation was of such simplicity as to recommend itself as a valuable aid to the clinician.

Amebic Dysentery.—Dr. Sidney K. Simon of New Orleans said that in certain regions of the South conditions were almost ideal for the prevalence of amebic infection. During the past two years he had been able to collect 50 cases from New Orleans. The average duration of all the cases was about nine months. The average age was 37 years. There were 42 whites and 8 negroes. Only 6 of the 50 cases were females. Among the cases, 25 were common laborers, 3 were farmers, 4 merchants, 2 bakers and 1 was a rabbi. Fifty per cent. of the cases were born in Louisiana and had never lived in any other State or country. The longer the infection had continued, the greater probability there was of serious complication. Seventeen, or 28 per cent., of the 50 cases died. Extensive ulceration of the bowel was found in practically all, but in nine instances this was found to be the sole cause of the fatal termination. There were six cases of liver abscesses recorded, five solitary and one multiple. With regard to treatment he said he had been impressed by the weight of high authority, especially that born of long experience, and ventured to employ ipecac in his cases during the past two years and he was ready to acknowledge now his thorough conversion to the sanguine views of Manson and other English authorities. The drug should be exhibited in pill form, coated to the extent of about an eighth inch with salol. The patient must be put to bed for the first two weeks' treatment and his diet restricted to liquids or, at least, light solids. Castor oil might be given as an initial purgative and then each evening, after a three hours' fast, the salol-coated pills were administered. A start might be made with 40 or 60 grains, depending upon the length and severity of the infection, but each subsequent evening the dose was reduced five grains until the limit of 10 grains was reached. Following this he had been in the habit of continuing with 10 grains for the next two weeks. Opium was no longer required. The modus operandi of ipecac had never been satisfactorily explained. Bowel flushes might or might not be employed in connection with the ipecac treatment. The comparatively simple operation of appendicostomy had found many advocates in this country in recent years.

Dr. T. B. Futcher of Baltimore said he had collected 119 cases that had been in the Johns Hopkins Hospital; of this number 95 had never been out of the State of Maryland. There were 27 cases of amebic abscess of the liver, 22.6 per cent. Nine of these liver abscesses ruptured into the lung, causing pulmonary abscesses; one of these subsequently ruptured into the pleura, producing a pyopneumo-

thorax. Three of the liver abscesses invaded the inferior vena cava, and one was quite remarkable in that a thrombus extended into the right auricle; this case had been reported by Dr. Flexner. In three cases there was a perforation of the bowel and peritonitis. He thought these cases were more prevalent than generally suspected. They could only be recognized by a careful and systematic examination of the stools.

Dr. George Dock of New Orleans said that the geographical distribution of amebic dysentery was certainly great, and south of the latitude of Louisville it was a common disease. The disease should be looked for in every case where there was a chronic disturbance of the intestines. He called attention to some of the details in the practical examination of such patients, and especially of the examination of the stools. He agreed with what was said in regard to the ipecac treatment according to the method of Roberts.

Dr. H. A. Hare of Philadelphia said that recently he had received from Dr. Rogers of the British Medical Service a paper which practically reiterated the facts already published in regard to the value of ipecac not only in curing amebic dysentery, but as a prophylactic against amebic abscess of the liver. Jefferson Hospital in Philadelphia, one of the largest in the country, had received but three cases of amebic dysentery in eighteen years, the time Dr. Hare had been connected with it. It seemed strange that they had so few cases compared to Johns Hopkins Hospital which was only distant 100 miles.

Dr. Hugo A. Freund of Detroit, Mich., said he wished to bear witness to Dr. Simon's statement regarding the widespread prevalence of amebic dysentery in this country.

Dr. James P. Tuttle of New York said he would not recommend the operation of appendicostomy until they had tried ipecac, Epsom salts, etc. He did not advise operation until local treatment had failed. In New York they had treated 125 cases of amebic dysentery with but one death; this man died of acute miliary tuberculosis after appendicostomy. An appendicostomy opening he never closed under six months, and, in the majority of cases, he left it open permanently. Operation he advised only as a last resort.

SECTION IN SURGERY AND ANATOMY.

Wednesday, June 9—Second Day.

Analgesia and Anesthesia by Means of the Electric Current.—Drs. Dudley Tait and Raymond Russ of San Francisco read this paper. They described its effect as noted on rabbits, dogs, and man. There was a different reaction in each. The chief difficulty had been in adjusting the electrodes properly so that there should be a constant resistence, for sudden changes of potential were dangerous. The size of the electrodes should be the same, viz., about that of a silver dollar, and they were most satisfactorily plunged into wet clay, which had previously been applied to the shaved part. The instrument was patterned after that of the French experimenter, and everything possible was done to make the current constant and give the method a fair trial. There were in general three stages observed—irritation, anesthesia, and death, or at least, electrocution. In man the results had been unsatisfactory. In 24 cases there had been one good result. It was in this series early demonstrated that respiration was dangerously interfered with if the positive pole were put lower than the nape of the neck. Sensations in the head of a most disagreeable kind frequently terminated the experiment at its very beginning. Any sudden break resulted in great shock and was to be carefully avoided.

Dr. Geo. E. Brewer of New York said that the results accorded closely with those obtained two years ago at the Surgical Research Laboratory of Columbia.

Dr. Louise G. Robinovitch said that when repeating some phases of her experiments on electric anesthesia, Drs. Tait and Russ worked in the face of difficulties that they did not suspect; the interrupter that they used the speaker had discarded three years ago as a dangerous instrument; the motor they used should never find its way into a laboratory where electric anesthesia was practised; the electric source they used (mercury batteries) should never be used in this work; accumulators of large capacity and voltage should be used. She hoped her colleagues would repeat these experiments, using the proper apparatus.

The Operative Treatment of Fractures.—Mr. W. Arbuthnot Lane of London, England, read this paper. He said that a long study of the joint and other disabilities resulting from the invariable malposition after the usual method of treatment had led him to the positive conclusion that, with but very few exceptions, all fractures, whether open or not, should be treated by open operation and the application of metal splints. Pegs and all other methods were futile; traditions should be broken loose from and the entire matter of fractures both as to treatment and as to teaching should be reviewed. As to technique, it required admittedly a certain moiety of manual dexterity, but this could be acquired by anyone. The locality of the incisions was of much greater import in the upper than in the lower extremity, for here the soft parts were much more easily injured. Not even the gloved hand should be allowed to touch the wound, for in the presence of the foreign body the most absolute asepsis was imperative. All the instruments were made with long shanks, so as to keep the hands isolated.

Operative Treatment of Fractures.—Dr. William Darrach of New York read this paper. He said that the report comprised the work of the late Dr. C. P. Flint and members of the staff of Roosevelt Hospital, as well as his own. It also included the fracture cases observed during the past five years which were too bad to expect any treatment to be followed by a good result. He classified the fractures regionally and gave the indications for and against operation in each. The most disappointing series was that in which there was fracture of the upper shaft of the humerus, accompanied by dislocation of the head of the bone. Sixteen fractures of the olecranon had been sutured with excellent results. The condition was comparable to the patella. Of the 174 cases there were 2 deaths—each from delirium tremens; there were seven infections. As to appliance, good results had followed the use of phosphor-bronze wire as well as the medullary aluminum dowels. The best results were obtained if opertion were not postponed beyond seven to ten days after fracture.

A Plea for the More Careful Diagnosis of Fractures and Their Treatment.—Dr. E. D. Martin of New Orleans read this paper. The bad results which undoubtedly did follow the usual treatment of fracture were attributable to two factions. First, it was wrongly taught in the medical schools, and second, it was assigned to the young and incompetent hospital interns. As a matter of justice to the public and safeness to the profession in the matter of suits for malpractice, this should cease. The orthopedic men should be called upon to prevent deformity rather that to correct it; it was high time they had the entire care of fractures; the general practitioner and the operating surgeon should at once cease to take part in the treatment of fractures.

Dr. Scudder of Boston, in opening the discussion, said that all observers believed in the operative treatment of some fractures, and it seemed probable the union was in some way promoted by operation, and it resolved itself into the difficult question. When to operate? He could not agree with Mr. Lane that this was easily answered, for it was not to be doubted that in the hands of competent men, even bad fractures could be so treated by the accepted

methods as to give both functionally and anatomically good results. He thought the importance of anatomical results were exaggerated, for indeed, it was the functional rather than the anatomical return which was most to be sought.

Dr. Wills of California exhibited a new silver-plated Lambotte fixation apparatus, which he had used successfully.

Dr. Ochsner of Chicago agreed that the results after fracture were, up to date, bad. The results of Lane's operative treatment were, in his hands, wonderfully good. Fractures on the whole were placed in inexperienced hands for treatment, but if accepted principles were properly followed the results would uniformly be good.

Dr. Freeman of Denver showed an external bone clamp of steel, wood-lined, which was of the Lambotte type.

Dr. Murphy of Chicago spoke of the importance of reduction in Colles fracture.

Dr. Powers of Denver gracefully acknowledged the indebtedness of the section to Mr. Lane for his able presentation of the operative treatment of fractures. It would undoubtedly result in the broader application of the technique. At the same time he thought that the utmost conservatism should be employed for the results of properly treated, ordinary closed fractures were undoubtedly good. He agreed with Scudder and Ochsner that there had up to date been too much attention paid to abdominal work and too little to fractures. Operations on long bones should be exceptions rather than the rule.

Dr. Estes of Pennsylvania said that the middle course, as usual, was the safe and wise one. An observation of 2,000 cases had taught him always to operate on the shaft of the tibia, and also over the course of the musculospiral nerve.

Dr. Matas of New Orleans said that we should be careful not to go to extremes. What was to be done in case of lack of union where perfect apposition had been maintained? He had had welcome results from the use of orthopedic splints and medical therapy.

Dr. De Forest Willard of Philadelphia said that the *x*-ray only added to the danger of malpractice suits, for the public now expected cosmetic as well as functional perfection. The *x*-ray was only a shadow and could lie as well as any other shadow. He advised ivory screws, which were absorbed and eventually replaced by bone. They were really not a foreign body.

Dr. Thomson of Scranton said that had Mr. Lane used the same skill in non-operative work as he had in the operative, his results would surely have been quite as good as those he had demonstrated by *x*-ray. He considered Buck's extension the worst device imaginable. In some cases of long bone fracture, which would not be held, he allowed some time to elapse and then used the callous as a splint.

Dr. Robert F. Weir of New York said that the usual methods had in his hands given very good final functional results, and he thought too radical treatment should not be rushed into without full deliberation.

Dr. Binnie of Kansas City said that the result of the meeting would undoubtedly be to increase the number of operations on bones. Lane was a master mechanic and possessed an almost miraculous touch in the management of broken bones and the application of his splints that no ordinary surgeon could hope to approach.

Mr. Lane, in closing, said that the prognosis of fracture depended on whether or not you studied your own results or those of others. The treatment of all fractures except by operation he considered very unsatisfactory.

Dr. Darrach, in closing, said that in the studies of old fractures in the anatomical department of Columbia, less than 100 serious deformities had been encountered in a study of many thousand cases of fracture. So far as indications went for operating, the results so far obtained in 174 cases at Roosevelt Hospital, and which had been most carefully selected from 3,500 cases had shown operation to be indicated in a very small class of cases only.

The Hypophysis Cerebri; Clinical Aspects of Hyper- and Hypo-Secretion of the Gland.—Dr. Harvey Cushing of Baltimore read this oration. The present knowledge of the ductless glands was in large part a triumph of the experimental methods in medicine, although other branches had contributed their share. He reviewed the anatomy and embryology of the hypophysis, stating that since 1839 it had been known to consist of an anterior or epithelial part, an intermediary part, and the posterior lobe of neutral origin. Physiologists had shown that the secretion of the gland entered the body through the tubular connection with the third ventricle. The secretion contained a blood-pressure raising element which was also diuretic and which in some ways was akin to adrenalin. Repeated injections had been shown by Crowell in the Hunterian Laboratory at Hopkins finally to produce a fall in the blood-pressure. Boiling did not influence the action so that extracts might conveniently be sterilized. The posterior lobe secretions if injected continuously produced characteristic changes in the liver and other organs, and this was a warning that organo-therapy should be very carefully undertaken. As for the technique of hypophysis removal, it was most conveniently practised via the lateral subtemporal route in the dog and transsphenoidally in man. Age had a marked influence, for young individuals survived total ablation better than adults. Total removal led to death, which was preceded by a train of peculiar and very characteristic symptoms. Did these come from the anterior or posterior lobe secretions? The posterior lobe could more easily be removed. The anterior had to do with the deposition of fat, and probably exercised important control over sexual organs both as to growth and to function. A most important consideration in all these matters was the close interrelationship of all the ductless glands, what affected one usually affected all. The clinical symptomatology. Acromegaly might be considered as definitely shown to be due to hypersecretion, and two recent surgical human cases added strength to this belief. The condition may be regarded as a manifestation of gigantism development late in life. Hypersecretion was accompanied by a small stature; by infantile genitalia and by unusual deposition of fat. Some dogs after removal had gained one-third original weight in fat, and had suffered diminuation in size of external genitals. As for therapy, at present the crude measures of surgery only were available because organotherapy was not yet standardized. Neither were the differing secretions of the two lobes as yet separated. In operating, just as in the case of the thyroid, it was necessary to do only a hemisection of the anterior lobe. Without doubt there were many cases of primary disease of the gland, but as yet lesions were recognized only in conjunction with associated cerebral tumors.

The Pseudoperitoneum.—Dr. A. F. Hertzler of Kansas City read this paper. The peritoneum was not a lymph space, and is in no sense the mesentery. Peritoneal adhesions were of several types and were absorbed or were permanent according to the character of the primary deposit.

The Early Symptoms of Upper Abdominal Disease.—Dr. J. B. Deaver of Philadelphia read this paper. He said that the physiology of the parts had only just been made clear. A careful history was of the greatest importance. Gallstones were really never quiescent, only we had as yet failed to diagnose gallstones, they being usually mistaken for dyspepsia. Early diagnosis in all three upper abdominal lesions was the only hope for progress.

Dr. Haggard of Tennessee spoke of the great frequency of these lesions—that too often no diagnosis was made.

Pancreatitis.—Dr. A. J. Ochsner of Chicago read

this paper. He emphasized the importance of relative lesions in the galliducts and stated that acute hemorrhagic pancreatitis was usually accompanied by an injection of infected bile. Cammidge's test was of use only in the hands of a trained chemist. As to symptoms, he said duodenal ulcer might be ruled out by the relation of pain to eating. In pancreatitis there was sometimes subscapular pain, as was shown by Fitz twenty years ago. As to treatment, it was compassed in one word—drain. This was the last and final conclusion of all studies in pancreatitis.

Dr. Gilbride of Philadelphia said that the Cammidge reaction was positive in 25 per cent. of all cases of pancreatic disease. Some form of permanent drainage was absolutely necessary.

Hypertrophic Stenosis of the Pylorus in Infants.—Dr. Stanley Stillman of San Francisco read this paper. The frequency of the condition was much greater than generally supposed. Pylorospasm was to be strictly differentiated from hyperplasia, for it represented an effort on the part of Nature to keep the bowel empty, and this should not be defeated by the performance of gastroenterostomy. The condition was undoubtedly a truly congenital one—was accompanied by a palpable tumor, which should be sought for under an anesthetic. The operation of choice was posterior gastrojejunostomy and the results of surgical treatment if instituted before the child was moribund from starvation was infinitely better than those reached by medical treatment.

Report of Twenty Cases of Perforated Gastric and Duodenal Ulcer.—Drs. J. H. Gibbon and F. T. Stewart of Philadelphia read this paper. Twenty-two cases were reported; 15 on the anterior wall of the stomach and 7 on the anterior wall of the duodenum. All perforations were probably minute to start with, enlarging gradually. The symptoms were always urgent—pain and board-like scaphoid abdomen. There was no distention at first. The pain may spread to the lower abdominal quadrant as peritonitis progresses. Collapse is not important, being of too variable occurrence. The same was true of arrested peristalis. Leucocytic count was variable and of no value. Vomiting and gas eructions were very important signs; the age and sex had no bearing—men happened to predominate in this series. Success of treatment depended on time elapsed from perforation to operation. All had died when operated on after 24 hours. No ulcers had been reached, but simply turned in and sutured. Drainage was necessary at site of perforation and at the pelvis as well.

Dr. W. J. Mayo of Rochester, Minn., in opening the discussion, said that the lesson to be learned from these papers was that mortality arose, not from the operation *per se*, but from delay in performing it. Posterior gastroenterostomy was undoubtedly the operation of choice in infantile pyloric stenosis. There were two types of ulcer, but the acute was almost unknown. Refractions were best treated by simple suture without gastroenterostomy. Perforating ulcer nearly always was self-healing.

Dr. Jos. C. Bloodgood of Baltimore spoke of the usefulness of the low median incision as an aid in diagnosis. Certain lesions, fat necrosis for example, were more easily distinguishable here than in the upper quadrant. A further point was that in traumatic perforations of the stomach a double lesion was common and the division of the transverse mesocolon was useful both to afford a view of the posterior gastric region and to permit of pancreatic drainage as well.

SECTION ON DISEASES OF CHILDREN.

Wednesday, June 9—Second Day.

The Relation Between the Science and Art of Infant Feeding.—Dr. Henry Dwight Chapin of New York read this paper. He stated that there was a great deal of discussion during the past few years relative to what had been considered scentific infant feeding. Much that had been written referred more to the art rather than the science of infant feeding. The art of infant feeding consisted in the various manipulations required to make the different milks acceptable to the infant's stomach. Before any of these details were accepted as scientific rested entirely as to whether they were in accordance with biologic laws. Biology finally decided the possibilities and limitations of every method that was advanced.

Heubner's System of Infant Feeding, Expressed in Calories and Energy Units.—Dr. E. Lackner of Chicago presented this paper. He said that normal feeding in children was established between the fourth and sixth week. The amount of protein ingested depended on the individual infant, its peculiarities and needs. Cow's milk was hard to digest, since it contained nitrogenous substances. This system of feeding infants served as a check toward overfeeding, and was beneficial in controlling the weight and development of the child. The average food values were established by weighing the child before and after feeding for four months, as the actual number of calories required were only determined by this procedure.

Infant Mortality: The Factors Which Compose It and How These May Be Influenced.—Dr. L. Emmet Holt of New York presented this communication, which was based upon a study of the subject of mortality occurring in infants in the large cities of this country and Europe. His conclusions were as follows: (1) The greatest reduction in the mortality had been in children under five years of age. (2) During the past twenty-five years there had been a marked reduction in the mortality of infants. (3) Sixteen per cent. of all deaths within the first year of life were due to prematurity of birth. (4) Artificial feeding was still the most important factor. (5) Among the diseases, gastroenteritis caused more deaths than any other affection. (6) Tuberculosis played a much larger part than was generally supposed. (7) The most important agency in reducing infant mortality was education of the medical profession on the subject of infant feeding and infant hygiene.

A Convenient Method for Determining Calorie Values of Formulas Based on Percentage Feeding of Infants.—Dr. Henry J. Bowditch of Boston read this paper. He said that a more convenient method of feeding was formed by a combination of the caloric system and the percentage system. By this plan he claimed it was useful in computing the caloric value of foods used in any formula employed in infant feeding. He stated that methods of infant feeding were by this arrangement much easier understood by the student body.

The Transmission of Bovine Tuberculosis to Children.—Dr. Henry L. K. Shaw of Albany read this paper, and concludes as follows: (1) There were two types of the tubercle bacillus, human and bovine. (2) The statement made by Koch in 1901, and reiterated in Washington last fall, that the human race was but rarely infected by the bovine type raised a momentous question. (3) A study of the literature seemed to sustain Koch's decision. (4) An authenticated instance of pulmonary tuberculosis due to the bovine bacillus had not as yet been reported. (5) The bovine type of the bacilli had been found in tuberculous lymph nodes, and that this was of great importance in early childhood. (6) He claimed that a determination of the type of bacillus was necessary in every case where heredity and environment were excluded as etiological factors.

Dr. William H. Park of New York said that the records showed that the annual mortality from bovine tuberculosis in children under five years in the city of New York was one and one-half per cent.

History of Two Cases of Congenital Pyloric Spasm, with Remarks on the Treatment and Etiology of the Condition.—Dr. D. J. M. Miller of Atlantic City presented this paper. He said that this condition comprised about one-half of 1 per cent. of all the diseases of children,

and believed that many cases of supposed ordinary spasm were in reality congenital in origin. The principal symptom observed in the two cases reported was vomiting after the ingestion of food, next to which was gastric distention. This type of pyloric spasm was caused by a congenital defect of the circular fibers of the pylorus. The treatment consisted in the withdrawal of all milk mixtures. To control the acidity, lime water was used. Drugs accomplished very little. Regulation of the diet was the most important factor in the treatment, and feeding was permitted only when the stomach was empty. Rarely it was necessary to advise surgical interference.

The Treatment with Living Lactic Acid Bacilli of Summer Diarrheas Due to Intestinal Fermentation.—Dr. Carles Hunter Dunn of Boston read this paper. His classification of summer diarrheas was: (1) those caused by nervous influences, (2) those caused by indigestion, (3) those caused by bacterial fermentation and (4) those caused by bacterial infection. He stated that the lactic acid bacilli were antagonistic toward the organisms in fermental diarrhea. He had studied 120 cases of diarrhea and the treatment consisted in feeding the patients unpasteurized buttermilk which contained large quantities of living lactic acid bacilli. The result was that 74 out of the 120 cases showed marked improvement, the diarrhea ceased and the patients gained in weight.

Dr. Thomas Morgan Rotch of Boston said that the use of unpasteurized buttermilk in the diarrheas of children was a step toward lessening one of the great causes of infantile mortality.

Dr. John Lovett Morse of Boston thought it was not wise to employ the form of buttermilk unless the exact nature of the cause of the diarrhea were known, and, advised that a careful study of the stools was necessary.

"Post Hoc Ergo Propter Hoc"; Cases in Children Illustrating Conditions Mistakenly Attributed to Injuries.—Dr. J. P. Crozer Griffith of Philadelphia presented this paper. His article detailed a number of cases of different conditions, in which the symptoms at the outset seemed undoubtedly the result of injury, but in which on further study it was evident that trauma had no bearing. He emphasized the necessity of care in determining conclusions regarding the influence of injury, as many of these cases were quite misleading. He cited several examples of such cases that had lately come under his attention.

The Treatment of Epidemic Meningitis with the Flexner Serum.—Dr. Frank Spooner Churchill of Chicago presented this paper which was based upon a study of 41 cases. He summarized as follows: (1) In all suspected cases lumbar puncture was advised. (2) If the fluid withdrawn was turbid 30 cc. of the serum was at once injected. (3) It was useless to give the serum subcutaneously. (4) The serum was not intended for any form of this disease except the epidemic type. (5) The dose was repeated every day in severe cases for about four days. The patient was then allowed one day's rest and treatment was again instituted as before. (6) Epidemic meningitis was best treated in hospitals. (7) Results of treatment were favorable and limited the duration of the disease.

The Treatment of Anemia in Infancy with Citrate of Iron Subcutaneously.—Dr. John Lovett Morse of Boston read this paper. He said the subcutaneous administration of iron in infancy was superior to the usual method of having it administered by the mouth. It prevented gastric disturbances and acted more promptly. The dose was 3/4 of a grain of the citrate of iron in an aqueous solution and it was given every other day.

Sea-Water Treatment, Given by Subcutaneous Injection, with the Results Obtained in Children.—Dr Theodore Le Boutillier of Philadelphia presented this communication. He stated that the administration of sea-water subcutaneously was superior to ordinary saline solutions. The water was obtained from the Atlantic Ocean, and when ready for use consisted of 83 parts of pure sea-water to 190 parts of sterile water. The dose was from 10 to 60 c.c. and it was usually administered subcutaneously over the gluteal region. Three doses were given weekly and continued for several weeks. The treatment was indicated in all forms of disturbed nutrition, such as marasmus, inanition, etc. The series of cases treated by this method showed a gain in weight of about one ounce daily.

Middle-Milk Mixtures.—Dr. Alfred F. Hess of New York read this paper. He said that he employed this modification of infant feeding for the past year with success and concluded as follows: (1) Experiments proved that in bottled milk bacteria not only rose with the cream, but that they were present in greatest number in its uppermost layer. (2) The upper two ounces of cream were therefore discarded, and, in this way many pathogenic bacteria were removed. (3) Milk deprived of the upper two ounces was called "middle-milk" and the preparations obtained from such milk were termed "middle-milk mixtures." (4) By this method the same fat and protein percentages were now prescribed as in the popular "top-milk" preparations.

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

Wednesday, June 9—Second Day.

The Pathology of Eclampsia and Toxemia of Pregnancy.—Dr. J. E. Welch of New York City discussed the condition in the light of fourteen cases in the New York Lying-In Hospital, that came to autopsy. Four of the cases were diagnosed clinically as toxemia of pregnancy and ten as eclampsia. The essential symptoms of the eclampsia cases were the convulsions, which were not present in the toxemia cases in which nausea, vomiting, headache, etc., were more prominent. In the two sets of cases the pathology was extremely similar. There were hemorrhages into the liver lobules, necroses of the liver cells, thrombi in many other organs, edema of the brain, hemorrhages into the brain, general bodily edema, and all common to both conditions; so that it seemed fully justifiable to consider the two as one disease, having a group of symptoms represented by the headache, visual disturbances, petechiæ in the skin and mucous membranes, nausea, vomiting, jaundice, and edema. The blood examination showed a reduced hemoglobin (50 to 60 per cent), red blood cells down to about 3,000,000, leucocytes about normal. There was a distinct hemolysis; the blood pressure was usually increased, the coagulation time was normal. To take one case of toxemia as an example, the patient had complained of dizziness, headache, and then suddenly developed coma, which steadily deepened until death. On examination the brain showed the ventricles full of fluid and a hemorrhage into the brain substance. The liver showed hemorrhages into and about the portal spaces. The kidneys showed sloughing of the epethelium of the lobules of the cortex; there was a very mild jaundice. The hemorrhages into the liver, which have been considered characteristic of the conditions, were no more constant than the hemorrhages into the other organs, and seemed dependent on cell destruction in the endothelium of the blood vessels, and that was only a part of a general cell destruction. There was a marked hemolytic effect of the blood serum. The cerebrospinal fluid did not have the same action. The headache and eye symptoms seemed dependent on intracranial lesions. The petechiæ were due to destruction of the blood-vessel walls. The nausea and vomiting might be explained either as due to elimination through the stomach or irritation of the vomiting center. The edema was due

to the blood-vessel or blood cell destruction or irritation, and the jaundice to the destruction of the liver cells and increase in the bile pressures. The whole condition then seemed dependent on the autolysis of the body cells, and this was probably due to some enzyme in the blood.

A Study of Eclampsia, with Results in Two Hundred and Fifty Cases, from the Wards of the Lying-In Hospital of New York City.—Dr. Ross McPherson of New York City brought out the extensive mortality of eclampsia and the unsatisfactory methods of treatment. The author considered eclampsia as a toxemia of convulsive type. In the hospital cases it occurred in one out of every sixty cases, which was due to the fact that those particular cases were sent to the hospital. In the out patient department of the same hospital it occurred only once in a thousand labors, and the later was nearer to the conditions of private practice. Convulsions appeared antepartum in 56 per cent of the eclampsia cases, postpartum in 34 per cent., and intrapartum in 10 per cent. It was more frequent in primipara. The maternal mortality was about 31 per cent. and the fetal about 44 per cent. Of the deaths, 62 per cent. were in the antepartum cases. 31 per cent. in the postpartum, and 7 per cent. in the intrapartum cases.

The treatment of the eclampsic condition should be primarily only prophylactic. In the cases of headache and dizziness, where there was faulty elimination, but the patient was up and walking around, elimination should be aided in every way, and if the condition grew worse or a single convulsion appeared the uterus should be emptied immediately. Every convulsion decreased the chance of recovery of the patient, for the convulsions did not appear until the absorption of the toxines was greater than the elimination. All expectant treatment was useless. The method of emptying the uterus was the only point left for consideration. In the cases where version was performed, the maternal mortality was 35 per cent., the infantile great. In the deliveries by forceps the maternal mortality was 20 per cent., the infantile 44 per cent. When labor was induced, 42 per cent. of the mothers and 28 per cent. of the children died. The best results were gotten from the abdominal cesarean section, where 28 per cent. of the mothers were lost, but none of the children. The mortality was high not merely on account of the eclampsia, but largely on account of the delay in emptying the uterus. The vaginal cesarean section had its good points, but was not as safe as the abdominal section. After the uterus was emptied it was time to control the convulsions and increase elimination. For the control of the convulsions chloroform was used, and also scopolamine and morphine. Elimination was increased by rectal irrigation.

Dr. Wetherill of Denver said that he did not agree that the eye changes could not be relied on, but thought that the ophthalmoscope showed great changes, and allowed the diagnosis to be made at an early stage. That a neuroretinitis or hemorrhages appeared before other symptoms in many cases. He also objected to the use of chloroform to control the convulsions, since it had been shown that the late effects of chloroform were just those characteristic of eclampsia, and the chloroform would augment the trouble already present.

Dr. Cohen of Buffalo agreed with Dr. Welch as to the cause of eclampsia, and it made little difference just what the nature of the toxine was, there was the constant autolysis of all the tissues. No matter just what the source of the toxine was, it was dependent upon the presence of the living fetus *in utero*, and whether the toxine came from the fetus, the placenta, the fetal products in the uterine cavity, or the liver of the mother, in any event the autolytic products caused the general cytolysis. Even in the early cases inefficient working of the liver could be demonstrated in the mother, and the only satisfactory treatment was the early emptying of the uterus.

Dr. Lawrence of Columbus told of two cases of eclampsia, both with marked anemia as an early sign. He thought that an early blood count would be a great aid in diagnosis.

Dr. Frederick of Buffalo said that, while he believed fully in prompt emptying of the uterus, that before such could be done at times it was necessary to control convulsions, and for such he had found chloretone most efficient. At times, too, it had to be used after the uterus was emptied before efficient elimination had been established. He objected to the use of chloroform, and had found chloretone very satisfactory given in thirty grain doses dissolved in oil per rectum, or, if the patient was able to swallow, in fifteen grain doses by mouth in water.

Dr. Bacon of Chicago thought we ought to consider eclampsia as a disease preceding convulsions and having the convulsions only as a crisis. The early diagnosis was not satisfactory if dependent on the urine examination alone or on the eye symptoms. He considered general edema of the body as very significant, and the blood pressure as the best criterion. He had never seen a case with a blood pressure below 160 millimeters of mercury, and most of the cases had a pressure above 180. He considered that one indication sufficient evidence to warrant inducing labor. He did not believe in treatment by vaginal cesarean section.

Dr. Fry of Washington, D. C., said he considered the treatment of eclampsia just as imperative as that of placenta previa. In both cases the mother's life was threatened in the one by hemorrhage, in the other by toxemia. He would not have anything delay the emptying of the uterus, which was the only method of treatment that gave results with a maternal mortality below 10 per cent. That this was the most rational mode of treatment was confirmed by the mortality statistics. The lowest death rate was in those cases with convulsions coming on during labor. If the convulsions came on before labor the mortality was highest. The convulsions coming on after labor also had a somewhat higher mortality than the intrapartum cases, but here the death was due to changes that had already started before labor. The text books were very far behind the times in not urging the emptying of the uterus as the only cure of the condition. As to the method of emptying the uterus, the abdominal cesarean section was excellent for the child, but the maternal mortality was high. The vaginal section was better, but more difficult to do, and also should be done by a surgeon.

Dr. Peterson of Ann Arbor approved of the vaginal section, but did not think it adapted to the use of the general practitioner. However, the country practitioner in cases of eclampsia with an undilated os had to do something immediately, and could not wait for a surgeon miles away. Manual dilatation of the cervix was to the country practitioner a prolonged operation, very liable to add infection to the existing trouble, and the vaginal hysterotomy was certainly no more dangerous. It was easier than a high forceps extraction.

Dr. Welch, in closing, said that the unsatisfactory results of ophthalmoscopic examinations were based on the statement of Dr. Knapp of New York, who had examined fifteen cases for him. The urine examinations did not give a satisfactory diagnosis. The albumin and urea examinations often led to unnecessary production of abortion. The nitrogen content of the urine also was not a safe criterion on which to base an abortion; neither was the presence of leucin and tyrosin. The blood pressure usually had been high, but was not always above 160. An early and certain means of diagnosis was urgently needed. He thought the obstetrician should be a man of great experience, and that this society should do what it could to stop the practice of allowing midwives to be the judge as to when so many of the cases needed the attentions of a physician.

Dr. McPherson, in closing his portion of the discussion, said that he objected thoroughly to the use of chloroform, and that scopolamine also was objectionable. He did not agree that edema was a critical condition, for he had seen many cases with general edema go through labor without bad effect. The vaginal cesarean section he did not consider difficult if the physician knew the technic of the operation, but most men did not understand the operation, and the bleeding was often extensive and the upper sutures hard to place, so that he did not believe in its indiscriminate use.

A Method of Complete Nephroureterectomy in Women.—Dr. Bovée of Washington, D. C., described an operation devised by the author, which insured rapidity of procedure, facility of drainage, and a minimum amount of traumatism. It consisted in primary vaginal incision in the vaginal wall at the interuretal ligament. The terminal portion of the diseased ureter was caught in a hook and pulled down, then cut free from or excected from the bladder, its end tied and the bladder sutured by one or more layers of catgut. The patient was then put in the supine position and a transverse incision made in the loin after the method of König. The ureter was then dissected free by the finger and could easily be pulled into the wound and removed *in toto* with the kidney. In the cases where it was necessary, drainage gauze was pushed from the kidney incision out into the vagina and pulled out through the vagina later. If it was also thought desirable to drain the kidney bed, such was done by a stab wound posteriorly and the loin incision closed completely. The author reported four cases operated on by this method.

Some Factors Which Contribute to Low Mortality in Abdominal Surgery were described by Dr. Simpson of Pittsburg. He said that to induce a patient to submit to operation the surgeon should be able to promise that there would be no excessive danger, complete relief from the condition, that no other line of treatment or operation would give better results, that no other disease would be substituted for his present one and that the result would compensate for the risk, time, cost, etc. To attain this end it was essential first to know the pathology of the condition and the course of the disease, to determine the patient's margin of reserve strength, to adapt the time of the operation to the individual needs of the case, to use the minimum quantity of anesthetic through the coworking of a skilled anesthetist, and to attain the greatest possible speed of operation consistent with precision by working with the same set of assistants and under the same surroundings so as to develop the most efficient team work. He considered that 30 per cent. of his mortality had been due to anesthetic conditions, including the postoperation metabolic disturbances. He considered that rigid asepsis was essential for the best work and without it no elective operations should be undertaken. He believed in the use of sterile gloves and constant uniform cleanliness of the hands. By working always in the same surroundings it was possible for the operator to devote all his attention to the one part of the operation.

Dr. Reed of Cincinnati said that operative celerity was of tremendous importance and that this association should publicly express its disapproval of leisurely operating, and thus avoid the additional metabolic disturbances of the anesthetic. All unnecessary time spent in operating only gave an added danger to the patient.

Dr. Carstens of Detroit emphasized the importance of keeping the patient busy until the hour set for the operation, then bringing the patient quickly to the anesthetic room and promptly putting her under gas. Such an expeditious course saved a great deal of shock because the patient had gone to sleep before she had time to think and be frightened. Personally he believed that speedier work could be done without gloves than with them. So he kept his hands always clean, never allowing them to come in contact with any contamination and wore gloves for all work that might lead to the soiling of his hands.

Dr. Boldt of New York believed in making a most careful diagnosis before operation. He had ceased to give operative surgical clinics and taught his students only surgical diagnosis. The treatment would follow after the diagnosis.

Dr. Bacon of Chicago said that recently legislation had been attempted providing a special examination for all operators who certainly needed special technical training. The question remained only how to frame a law to cover these cases.

Dr. Lawrence of Columbus endorsed all suggestions tending to care in diagnosis and speed in operating. One factor contributing largely to sepsis was trauma such as was gotten by rubbing gauze over the peritoneum or using heavy retractors. It would be much wiser to work as if the patient were conscious of all that went on and felt the pain caused by the rough manipulations. He personally rarely needed retractors in the wound. To develop an infection, devitalized tissue was necessary so that it was always desirable not to lower the vitality of the tissues. Germs also needed moisture to grow in. Hence it was always desirable to work in a dry field.

Dr. Robert T. Morris of New York City said that surgery had now passed through the heroic and anatomic stages, was completing the pathologic stage in which the aim of the surgeon had been to remove diseased tissue and was entering on the stage of physiologic surgery, which aimed to conserve all the natural resistance of the body and make it cure itself by its own opsonius and normal methods. Therefore it was essential to avoid shock which inhibited the production of the protective bodies—to avoid multiple incisions, gauge packings, etc. In the septic cases there was still a great deal of time frittered away in attempting to avoid infection. His technique would be different in fixation of a floating spleen from what it was in opening an appendix abscess. In the clean case all must be kept aseptic. In the abscess it made less difference whether the surgeon's hands were clean than whether the patient's protective powers were kept at their best. In every case it should be remembered that there were two parties to the operation—the surgeon and the patient.

To be continued.

High Death Rate in Diphtheria.—The Department of Health of Chicago gives three major causes for the present high death rate from diphtheria—delay in seeing the case, too small a dose of antitoxin, and neglect of an early repetition of antitoxin.

Tonsillitis in the Navy.—Past Assistant Surgeon B. F. Jenness (U. S. N.) has called attention to the prevalence of tonsillitis in the navy, and recommends that "all cases of tonsillar hypertrophy in recruits should be treated by tonsillotomy or by freely opening the crypts, depending on the amount of enlargement."

Arthritis Deformans in a Child.—A. S. Hershfield reports the case of a girl of ten who had always been well until five years of age, when, after sleeping on the moist ground, had pain and gradual swelling of the right ankle. After four weeks the acute condition subsided, but left the ankle enlarged and disabled. The right ankle soon followed the same course, and for three years the inflammation was frequently repeated in one or the other joint. At eight years of age both wrists became involved, as did various knuckles. The elbows and knees were painful, but not swollen. On examination the heads of the ulna and radius were enlarged. The wrists were much enlarged and crooked. There was enlargement of nearly all the joints of the fingers, and the little fingers were contracted. The case differed from those described by Still in having no enlargement of the spleen or lymph glands. The hip joints were not involved. The knees and ankles were much swollen and contained fluid. The author thinks that the history suggests a neurotic origin to the condition.—*Pediatrics.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Illinois State Board of Health.

January 18-20, 1909.

ANATOMY.

1. What are the Graafian follicles? What is the discus proligerus?
2. With what bones does the inferior turbinate bone articulate?
3. Give origin, insertion, action, and nerve supply of the brachialis anticus muscle.
4. What is the commencement of the innominate artery? What is its length? Where and into what does it bifurcate?
5. In the adult, which is the smallest and which is the largest branch of the celiac axis artery?
6. In "Pott's fracture" you will find the foot everted. What muscle produces the eversion?
7. Name the openings in the diaphragm. What nerves supply the diaphragm?
8. How many pairs of cranial, and how many pairs of spinal nerves are there?
9. Briefly describe the ventricles of the brain.
10. Name the muscles attached to the lower end of the femur.

PHYSIOLOGY.

1. Discuss sleep.
2. Trace the blood from the time it enters the heart from the vena cava until it leaves by the aorta.
3. Define reflex action. Describe a reflex arc.
4. Name the important centers in the medulla.
5. How would digestion be affected by obstruction of the ductus choledochus communis?
6. Explain why the gastric mucous membrane is not digested by the gastric juice. Give the constituents of gastric juice.
7. Describe the disturbances of function of the digestive system produced by excessive use of alcohol.

NEUROLOGY.

1. Give diagnosis and treatment of chorea.
2. From what artery is cerebral hemorrhage most likely to occur?
3. Give differential diagnosis between the coma of opium poisoning and that from cerebral hemorrhage.

MATERIA MEDICA AND THERAPEUTICS.

1. Write a prescription for an alterative, and give indications for its use.
2. Write a prescription for a cardiac stimulant and another for a cardiac depressant, and give the indications and dangers of each.
3. Name the preparations, therapeutic indications, doses, and dangers of belladonna.
4. To what class of remedies does nux vomica belong? Give preparations, doses, therapeutic indications, and dangers.
5. Define antiperiodic, and give example with dose and indications for use.
6. Name one or more internal antiseptics, and give dose, mode of action, and uses.
7. Define antipyretic, and give two examples, with dose, mode of action, and uses of each.
8. Define diuretic. Give two examples. Explain the physiological action of one, with indications for use.
9. Define oxytocic. Give example with dose and use.
10. Name one diaphoretic, and give physiological action in detail.

CHEMISTRY.

1. Describe a process for the manufacture of sodium carbonate or *soda*, as commonly called.
2. What do the following formulæ represent?

KNO_3; K_2CrO_4; $K_2Cr_2O_7$; $KMnO_4$; HCN.

3. Complete the following equation. Give name of compounds and resultant compounds:

$$NaNO_3 + H_2SO_4 =$$

4. Describe chloroform, giving its formula and the preparation on the large scale.
5. Briefly discuss chemical action in general.

ETIOLOGY AND HYGIENE.

1. Give etiology of neurasthenia.
2. Give etiology of mitral incompetency.
3. Give etiology of angina pectoris.
4. Discuss the prophylaxis of malarial fever.
5. How are impurities in water classified? How can they be detected, and why is the presence of organic material in drinking water considered deleterious?

PHYSICAL DIAGNOSIS.

1. Give the etiology, pathology, and symptoms of spastic paraplegia.
2. Differentiate incipient phthisis from bronchitis.
3. Give the etiology, symptoms, and pathology of tabes dorsalis.
4. Give the etiology, pathology, and symptoms of edema of the glottis.
5. Differentiate between herpes zoster and prurigo.

OPHTHALMOLOGY AND OTOLOGY.

1. Give treatment of chronic otitis media.
2. Give the symptoms, etiology, and treatment of optic neuritis.
3. Give your treatment of contused wounds of the eyeball.

PEDIATRICS.

1. Give the dose of the following drugs for an infant three months old: tinct. aconite, phenacetin, strychnine, morphine, antifebrin, quinine.
2. Give the symptoms and treatment of diphtheria.

PATHOLOGY.

1. Give a description of progressive muscular atrophy, with its pathology.
2. What pathological changes take place in urinary stricture from a prostatic enlargement?
3. What tissue changes characterize interstitial nephritis?
4. Define the term general anasarca, and give the pathology of the lesion which most frequently gives rise to it.
5. Discuss the pathology of cirrhosis of the liver.

BACTERIOLOGY.

1. Give a method for staining the gonococci. How do they appear under the microscope?
2. Describe and give characteristics of bacteria especially connected with pneumonia.
3. What is the method of staining the bacillus of tuberculosis?
4. Describe the comma bacillus, and give manner of its introduction into the system.
5. Describe the microorganism associated with malarial fever.

PRACTICE.

1. Should you be called to attend a case of diphtheria, and find that other children in the family have been thoroughly exposed, state fully what you would do for the patient, the other children, and to protect the public.
2. Suppose you are called to see a case of valvular disease of the heart with broken compensation, what would you do, what would you give, and why?
3. Give the etiology, symptoms, and treatment of peripheral neuritis.
4. Outline the management and treatment of chronic constipation.
5. Give the etiology, symptoms, and treatment of cystitis.
6. Give the symptoms, diagnosis, and treatment of hyperchlorhydria.
7. Give the etiology, symptoms and signs, and treatment of lobar pneumonia.
8. Give the diagnosis and treatment of chronic nephritis, late stage.
9. Give the causes, symptoms, and treatment of ascites.
10. Give the treatment of chronic furunculosis.

OBSTETRICS.

1. Describe the chief differences between the female pelvis and the male pelvis.
2. Give the various diameters of the inlet and outlet of the pelvis.
3. Give a full description of the uterus.
4. Describe the treatment of a lacerated perineum. When would you institute the treatment?
5. What changes take place in the ovum after fecundation?
6. Describe the placental circulation.
7. Discuss the management of brow presentations.
8. Discuss briefly dystocia due to the fetus.
9. What is the uteroplacental souffle? What is the funic souffle?
10. Describe in detail the contents of a well equipped obstetric bag.

SURGERY.

1. Describe and give the varieties of pus. What are the symptoms of suppuration?
2. Describe traumatic gangrene, and give treatment of same.
3. Give the means and agents for the production of local anesthesia?

4. Give the symptoms, diagnosis, and treatment of intracapsular fracture of the femur.
5. Give the symptoms of strangulated inguinal hernia. Describe in detail herniotomy by the method you prefer.
6. Describe the sutures most commonly used, giving their preparation.
7. Enumerate the symptoms of cerebral compression, and outline proper treatment.
8. Give the etiology and symptoms of cystitis of the urinary bladder.
9. Describe the affections of the skin due to syphilis.
10. Give the etiology of aneurysm.

GYNECOLOGY.

1. What is vicarious menstruation?
2. How may vaginismus be recognized, and what is the treatment?
3. Discuss the treatment of tumors of the mammary glands.
4. Describe fully the two varieties of ovaritis.
5. Give the etiology and treatment of an acute general cystitis.
6. Discuss the advantages and disadvantages of the vagina as compared with the abdominal routes in surgical operations.

LARYNGOLOGY AND RHINOLOGY.

1. Give the appearance and effects of the destructive action of syphilis on the larynx.
2. Give the pathology of acute rhinitis.

MEDICAL JURISPRUDENCE.

1. What post-mortem changes occur in the tissues?
2. Describe rigor mortis.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

ILLINOIS STATE BOARD OF HEALTH.

January 18-20, 1909.

ANATOMY.

1. The *Graafian follicles* are little follicles or sacs which contain the ova. They are found embedded in the stroma of the ovaries.

The *discus proligerus* is the heaped mass of cells immediately surrounding the ovum; it is, of course, inside the Graafian follicle.

2. The *inferior turbinate bone* articulates with: The ethmoid, lachrymal, palate, and superior maxillary bones.

3. The BRACHIALIS ANTICUS MUSCLE. *Origin*: Lower half of outer and inner surfaces of the shaft of the humerus, covering insertion of the Deltoid, and intermuscular septa. *Insertion*: Rough depression on the anterior surface of the coronoid process of the ulna. *Action*: Flexor of the forearm. *Nerve supply*: Musculocutaneous and musculospiral.

4. The INNOMINATE ARTERY *commences* near the beginning of the arch of the aorta; its *length* is from an inch and a half to two inches; it *bifurcates* at the upper border of the right sternoclavicular articulation, *into* the right subclavian and the right common carotid arteries.

5. In the adult, the gastric is the smallest and the splenic is the largest of the branches of the celiac axis.

6. The Peroneus longus is the muscle producing the eversion of the foot in Pott's fracture.

7. The *openings in the diaphragm* are: The aortic, the esophageal, for the inferior vena cava, right crural, and left crural.

The *nerves which supply the diaphragm* are: The phrenics, the lower intercostals, and the phrenic plexus of the sympathetic.

8. There are twelve pairs of cranial nerves and thirty-one pairs of spinal nerves.

9. The ventricles of the brain are five distinct cavities, between the first four of which there is an intercommunication. The first two, called the right and left lateral ventricles, are situated within the substance of the cerebral hemispheres; they are separated by the septum lucidum, and communicate with the third ventricle by the foramen of Munro. The third ventricle is situated between the optic thalami, at the base of the brain; it communicates by the aqueduct of Sylvius with the fourth ventricle. The fourth ventricle is between the medulla and cerebellum.

The *lateral ventricles* of the brain are bounded: *Above*, by the corpus callosum. *Below*, by the caudate nucleus of the corpus striatum, the tenia semicircularis, part of the optic thalamus, choroid plexus, and fimbriated edge of the fornix. *Internally*, by the septum lucidum.

The *third ventricle* is bounded: *Above*, by the fornix and velum interpositum. *Below*, by the lamina cinerea, tuber cinereum, infundibulum, corpora albicantia, and posterior perforated space. *In front*, by the anterior commissure and the anterior pillars of the fornix. *Behind*, by the posterior commissure, the iter a tertio ad quartum ventriculum. *Laterally*, by the optic thalami and the peduncles of the pineal gland.

The *fourth ventricle* is bounded: *Above*, by the valve of Vieussens and the cerebellum. *Below*, by the pons and medulla. *Laterally*, by the superior peduncles of the cerebellum, restiform bodies.

The *fifth ventricle* is between the two layers of the septum lucidum, and is therefore between the two lateral ventricles. It is covered over by the corpus callosum.

10. The *muscles attached to the lower end of the femur* are: Gastrocnemius, Plantaris, Popliteus.

PHYSIOLOGY.

1. Sleep is a condition of partial or complete unconsciousness, during which the brain and body can recuperate. Metabolism in general is diminished, anabolism is (relatively) in excess of katabolism. During sleep the respirations are slower and deeper, most of the secretions are diminished, the pulse is slower, the eyeballs roll inward and upward, and oxidation in the tissues is decreased. The cause of sleep is not known. Bradbury (in *Allbutt's System of Medicine*) gives the following as hypotheses as to the causation of sleep: (1) Cerebral anemia; (2) chemical changes in the brain cells or neurons, such as an exhaustion of their intramolecular oxygen, or an accumulation of fatigue products; (3) contraction of the dendritic processes and a consequent break in the transmission of nerve impulses; (4) expansion of the neuroglial cell processes, insulating the nerve processes and producing the same effect; (5) loss of consciousness apart from any physical or chemical change; (6) the most probable hypothesis is that of an altered metabolism of the cerebral cells dependent upon exhaustion and diminished influx of stimuli. Quite recently two new theories have been promulgated; one attributes the causation of sleep to an internal secretion of the pituitary body; the other makes it due to osmosis.

2. The course of the blood is: From the venæ cavæ into the right auricle; through the right auriculoventricular opening into the right ventricle; thence through the pulmonary artery to the lungs; thence by the pulmonary veins to the left auricle; thence through the left auriculoventricular opening into the left ventricle; then through the aorta.

3. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve.

Example: The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

4. The important centers in the medulla are: (1) Center for mastication; (2) for secretion of saliva; (3) for sucking; (4) for deglutition; (5) for vomiting; (6) for voice; (7) center for expression; (8) cardiac centers; (9) respiratory centers; (10) vasomotor centers.

5. Owing to the loss of bile to the intestinal contents, fermentation and putrefaction are much increased, and emulsification of fats is considerably impaired. Peristalsis may be much accelerated, and diarrhea, with increased amount of fat in the stools, ensue.

6. *Why the gastric mucous membrane is not digested by the gastric juice* is not known, and consequently no explanation can be given. The following "hypotheses" have been given from time to time, but are all unsatisfactory: (1) The "vital principle" in living tissues; (2) the epithelium protects it by preventing the absorption of the gastric juice; (3) the mucus similarly protects it; (4) the alkalinity of the blood.

The *constituents of gastric juice* are: Water, proteid, mucin, pepsin, rennin, hydrochloric acid, salts (sodium and

potassium chlorides, and calcium and magnesium phosphates).

7. Excessive use of alcohol causes an increase in the saliva (both in amount and in total solids; in the gastric juice the acidity, quantity, and total solids are all increased; pepsin is precipitated, albumin is coagulated and proteid digestion is retarded or inhibited; the movements of the alimentary canal are accelerated; vomiting and diarrhea may be produced.

NEUROLOGY.

2. The artery from which cerebral hemorrhage is most likely to occur is one of the lenticulostriate branches of the middle cerebral artery.

3. In *cerebral hemorrhage* there are generally paralysis of the head and upper limbs, and in left-sided lesions there may be aphasia; the pulse is slow and full; the respirations are at first slow, regular, and stertorous, later on becoming of the Cheyne-Stokes type, the pupils are dilated.

In *opium poisoning* the pupils are contracted; there is no sign of paralysis; both respirations and pulse are slow and full.

CHEMISTRY.

1. Sodium carbonate can be manufactured by the Leblanc process, as follows: (1) Sodium chloride is converted into sodium sulphate by the action of sulphuric acid:

$$2NaCl + H_2SO_4 = 2HCl + Na_2SO_4.$$

(2) The sodium sulphate is then mixed with charcoal and calcium carbonate and heated; the sodium sulphate is first reduced to sodium sulphide:

$$Na_2SO_4 + 4C = Na_2S + 4CO.$$

Double decomposition then takes place between the calcium carbonate and sodium sulphide, and sodium carbonate and calcium sulphide are produced:

$$CaCO_3 + Na_2S = Na_2CO_3 + CaS.$$

(3) The product is then purified.

2. KNO_3 represents one molecule of potassium nitrate. K_2CrO_4 represents one molecule of potassium chromate. $K_2Cr_2O_7$ represents one molecule of potassium dichromate. $KMnO_4$ represents one molecule of potassium permanganate. HCN represents one molecule of hydrocyanic acid.

3. $NaNO_3 + H_2SO_4 = HNO_3 + NaHSO_4$. The compounds, in order, are: Sodium nitrate, sulphuric acid, nitric acid, and monosodic sulphate.

4. CHLOROFORM. *Formula*: $CHCl_3$. *Properties*: It is a colorless liquid, volatile, with a sweet taste, and agreeable odor. It is heavier than water; is a good solvent for fats and other substances; it mixes with alcohol and ether, but not with water; when pure it is not altered by exposure to light; it ignites with difficulty.

It is *prepared on a large scale* by the action of bleaching powder upon acetone:

$$2CO(CH_3)_2 + 6CaCl(OCl) = 2CHCl_3 + 2Ca(OH)_2 + Ca(CH_3.COO)_2 + 3CaCl_2.$$

5. By *chemical action* is meant the mutual action of substances upon each other when they are brought in contact under proper conditions. When this occurs, certain changes in composition ensue; the first substances disappear and new substances take their places. The kinds of chemical action are:

(1) *Combination*, or *synthesis;* as when $2H_2 + O_2 = 2H_2O$.

(2) *Decomposition*, or *analysis;* as when $2HgO = 2Hg + O_2$.

(3) *Double decomposition*, or *metathesis;* as when

$$BaCl_2 + H_2SO_4 = BaSO_4 + 2HCl$$

(4) *Atomic rearrangement;* as when ammonium isocyanate is converted into urea:

$$(NH_4)\,CNO = CO\,(NH_2)_2.$$

ETIOLOGY AND HYGIENE.

4. *Prophylaxis of malarial fever.* Individuals should use mosquito netting round their beds and wire gauze in doors and windows, so as to keep out the mosquitos as much as possible. During residence in malarial districts quinine should be taken every morning before breakfast. All pools, stagnant water, etc., where *anopheles* may breed, should be removed. All mosquitos, larvæ, etc., should be destroyed as far as possible. By staying indoors during dusk and darkness, opportunities for infection may be avoided. Occasional fumigation with formaldehyde or sulphur is also efficacious.

PHYSICAL DIAGNOSIS.

2. In *incipient phthisis* "there is no expectoration, and probably no hemoptysis, but a persistent dry, hacking cough, possibly with a slight afternoon rise in temperature and occasional feverish attacks ascribed to colds or influenza; there is slight loss in body weight, and the general health is suffering. The physical signs are mainly defective entry of air into one lung, probably at the apex; slight prolongation of expiration, possibly cogwheel respiration, perhaps impaired movement of the chest on one side, and it may be very slight dullness if the deposit be near the surface. Rapid breathing and a persistently frequent pulse are suggestive of early tubercle. The injection of tuberculin giving pyrexia may be tried as a diagnostic reaction. The *x*-rays, using the screen, may quite early show a lagging of the diaphragm on the affected side."

In *bronchitis* "the temperature does not show in the same way an afternoon rise; one apex does not show more physical signs (crepitations) than the other; there is no dullness; crepitations may extend to the bases, and these are often dissipated or altered by repeated coughing."—(From *Aids to Medical Diagnosis.*)

3. TABES DORSALIS. *Etiology*: Tabes dorsalis is a disease of adult life; is more common in men than in women; is more common in cities than in the country; syphilis is believed to be the most frequent direct cause; alcoholism, injury, exposure to cold and wet, have all been urged as causes, but they are not now assigned so important a place as etiological factors as was formerly the case.

Symptoms: Loss of coordination; characteristic and unsteady gait; tendency to stagger when standing up with feet together and eyes closed; sharp and paroxysmal pain, called *crises;* girdle sensation; loss of knee-jerk and other reflexes; Argyll-Robertson pupil.

Pathology: Tabes dorsalis is a condition in which the posterior columns and nerve roots of the spinal cord are degenerated, and which is characterized by incoordination, loss of deep reflexes, and various disturbances of sensation and nutrition.

The posterior columns of the cord are gray and shrunken and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upward from the lumbosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent. Some of the cranial nerves may also atrophy, notably the optic, but also the motor oculi and vagus.

The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion; the spinal ganglia may be affected.

5. *Herpes zoster* is a nerve lesion; follows, as a rule, the course of a nerve (generally one of the intercostals); is generally unilateral; is characterized by pain and vesiculation.

Prurigo is a local disturbance of the skin; does not follow the course of a nerve, but can occur anywhere; is not unilateral; is characterized by itching rather than pain and papules; it is generally found on the extensor surfaces of the extremities.

OPHTHALMOLOGY AND OTOLOGY.

The *treatment of contused wounds of the eyeball* is thus given by Gould and Pyle: Careful disinfection, the application of ice, eserine or atropine, a bandage, and rest in bed. A bruised iris must be carefully excised. The various complications should be treated as they arise. If there is an extensive rupture of the sclera, conjunctival and scleral sutures may be necessary to prevent complete prolapse of the vitreous. Nothing can be done for iridodialysis except iridectomy. A dislocated lens must sooner or later be removed. Hemorrhage into the anterior chamber and subconjunctival hemorrhages will usually absorb without treatment.

PEDIATRICS.

1. The *dose for an infant three months old* of tinct. aconite, is ♏ 1/10; of phenacetin, is gr. 1/6; of strychnine, is gr. 1/600; of morphine, gr. 1/250; antifebrin should not be given; of quinine (sulphate), is gr. 1/4.

PATHOLOGY.

5. There are two important forms of chronic interstitial cirrhosis of the liver—hypertrophic and atrophic. The following table (from Thayer's *Pathology*) will assist in distinguishing them:

Synonyms. Charcot's Hypertrophic, Unilobular, Hepatogenous, Biliary.	Laennec's, Atrophic, Multilobular, Hematogenous, Hob-nail liver.
Jaundice. Early and marked, bile often absent from feces.	Late and slight, bile usually present.

Ascites. Late and unimportant.	May be early; often enormous.
Spleen. Enlarged early and markedly.	Late and less.
Alimentary hemorrhage, piles. Not common.	Common.
Liver. Large, smooth, mottled, green.	Small, rough, pale or yellow.
New fibrous tissue. In fine lines and strands between acini and cells, involving all parts equally.	In broad bands, making prominent islands in which the single acinus may appear nearly normal; distributed irregularly.

BACTERIOLOGY.

1. To demonstrate the *gonococcus*: On a cover-glass make a smear with the discharge as thin as possible and let it dry in the air; cover it with a freshly made solution of anilin-oil-gentian-violet for one or two minutes; wash it in distilled water; leave it in Gram's solution for two minutes; wash it in 95 per cent. alcohol until decolorized, wash it in distilled water; counterstain with a dilute carbolfuchsin without heat, or with a saturated aqueous solution of Bismarck Brown; wash in distilled water, dry with filter paper, mount, and examine with an oil-immersion lens. The gonococci will appear as *diplococci within the leucocytes,* which have been *decolorized by Gram's stain,* and have taken the counterstain.

3. To demonstrate the existence of *tubercle bacilli* in the sputum: The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin, red rods, while all other bacteria will appear blue.

OBSTETRICS.

1. The chief differences between the male and female pelvis are thus tabulated in *Morris's Anatomy*:

MALE.	FEMALE.
Bones heavier and rougher.	Bones more slender.
Ilia less vertical.	Ilia more vertical.
Iliac fossæ deeper.	Iliac fossæ shallower.
False pelvis relatively wider.	False pelvis relatively narrower.
True pelvis deeper.	True pelvis shallower.
True pelvis narrower.	True pelvis wider.
Inlet more heart-shaped.	Inlet more oval.
Symphysis deeper.	Symphysis shallower.
Tuberosities of ischia in flexed.	Tuberosities of ischia everted.
Pubic arch narrower and more pointed.	Pubic arch wider and more rounded.
Margins of ischio-pubic rami more everted.	Margins of ischio pubic rami less everted.
Obturator foramen oval.	Obturator foramen triangular.
Sacrum narrower and more curved.	Sacrum wider and less curved.
Capacity of true pelvis less.	Capacity of true pelvis greater.

2. The pelvic diameters.

	Antero-posterior.	Oblique.	Transverse
Inlet	4 inches.	4½ inches.	5 inches
Outlet	5 inches.	4½ inches.	4 inches

3. In the nulliparous adult the uterus is about three inches long, about two inches wide at the upper part, and about one inch thick. The uterus lies between the rectum behind and the bladder in front; it is below the abdominal cavity and above the vagina. Its position is one of slight anteflexion, with its long axis at right angles to the long axis of the vagina. The anterior surface of its body rests on the bladder, and the cervix points backward toward the coccyx. The uterus is not fixed, but moves freely within certain limits.

9. The *uteroplacental souffle* is a rhythmical, soft, blowing sound, synchronous with the maternal heart beat. It is due to the passage of blood through the enlarged uterine arteries.

The *funic souffle* is a sharp, whistling or blowing sound, synchronous with the fetal heart beat. It is caused by some interference with the circulation in the umbilical arteries.

10. The contents of the obstetrical bag will vary with the requirements and experience of its owner, and the preparations already made by the patient. In any case the following articles should be taken by the accoucheur to a confinement: Tablets of bichloride of mercury, or some other material for making antiseptic solution; forceps; ether or chloroform, with inhaler or mask; fluid extract of ergot; hypodermic syringe, with tablets of strychnine, morphine, etc.; needles, sutures, and needle holder; nail brush and nail cleaner; umbilical scissors; carbolized vaseline; stethoscope; male catheter (rubber); a 1 per cent. solution of nitrate of silver, with eye dropper.

In addition to the above some would also include: A sterile apron or suit; a Kelly pad; solution of cocaine; soap, boric acid, and gauze, all sterilized; absorbent cotton, iodoform gauze; choral hydrate; dilators, and other instruments.

GYNECOLOGY.

1. "*Vicarious menstruation* is a flow of blood from some organ (other than the uterus), recurring at the monthly periods and taking the place of menstruation. It may occur from the hemorrhoidal vessels, the lungs, the skin, the nails, the mammary glands, ulcerated surfaces, and many other parts."—(King's *Manual of Obstetrics.*)

2. *Vaginismus* is a condition of painful and spasmodic contraction of the vaginal orifice, which renders coitus either painful or altogether impossible. The slightest touch causes painful spasms, and examination may be impossible without an anesthetic. Its *causes* are irritable hymen, ulcer, or fissure anywhere in the immediate vicinity, urethral caruncle, caruncle myrtiformes, a long perineum with vaginal orifice placed too anteriorly. The *treatment* consists in removing the cause when possible, tonics and general constitutional treatment, dilatation of the vaginal orifice; local application of a 5 per cent. solution of cocaine will relieve the hyperesthesia and allow coitus. The condition is sometimes incurable.

3. Simple benign tumors of the mammary gland should be enucleated as soon as discovered; malignant tumors require complete removal of the gland with all lymphatics connected, unless the general condition of the patient is such that she cannot stand the shock of the operation, or the diseased condition is too advanced.

5. ACUTE CYSTITIS. (*a*) *Etiology*: Various pathogenic bacteria, foreign bodies, traumatism, retention of urine, unclean catheters, cold.

(*b*) *Symptoms*: Frequent urination, with tenesmus and a burning sensation in the urethra; later on pain in the bladder, hematuria, and the urine contains pus and epithelial cells. Chills, rapid pulse, fever, and headache may also be present.

Treatment: Rest in bed; the imbibition of plenty of milk and water, and the avoidance of all highly seasoned food; laxatives; diuretics; sitz bath; irrigation of the bladder with an antiseptic solution; hot fomentation and vaginal douches are often helpful; sometimes intravesical medication is necessary.

6. The relative advantages and disadvantages of the abdominal and vaginal routes in pelvic surgery are thus summarized by Dudley (*Diseases of Women*):

Advantages of the abdominal route: (1) A larger field is open for operation; (2) the operator may see what he is doing instead of depending largely on touch; (3) diagnosis of unsuspected conditions and complications is much easier; (4) the abdominal section is adapted to large tumors and pus sacs, and to conditions high in the pelvis; (5) the appendages may be removed with better chance of avoiding rupture of a pus sac; (6) there is less danger of wounding intestines, bladder, or ureters and greater facility in the control of hemorrhage; (7) the frequent concurrence of appendicitis and other abdominal lesions with pelvic disease and the impossibility of reaching them by the vagina; (8) it gives more light and more space for conservative work.

Advantages of the vaginal route: (1) It gives better drainage, and is therefore specially adapted to cases of vesical or intestinal fistulæ; (2) it avoids abdominal scar and risk of ventral hernia; (3) it is suitable for cases of small tumors without high adhesions; (4) when properly performed it lessens the danger from shock, and is therefore suitable to cases of extreme pelvic infiltration which are inoperable, because too dangerous, by the abdominal route; (5) it involves less handling of the intestines, and therefore less consequent danger of intestinal adhesions; (6) recovery is less complicated and more rapid.

Unfortunately, the vaginal route is, for at least a very large proportion of cases, impracticable. The long, narrow virgin vagina or the vagina which has become contracted from senile atrophy may render the field of operation almost inaccessible. A very large uterus with exceptionally short, thick, broad ligaments and greatly enlarged appendages, with adhesions extending beyond the reach of the finger, may also be difficult or impossible to manipulate through the vagina. Under such conditions the abdominal route is much safer.

MEDICAL JURISPRUDENCE.

1. The *postmortem changes occurring in the tissues* are: Rigor mortis, lividity, muscular relaxation, change in temperature, formation of adipocere, decomposition.

2. *Rigor mortis* is the condition of rigidity or contraction into which the muscles of the body pass after death. It begins at a period varying from about fifteen minutes to about six hours. It usually begins in the muscles of the eye, neck, and jaw; then the muscles of the chest and upper extremity, and last of all those of the abdomen and lower extremity are affected. It passes off in the same order. It is said to be due to the coagulation of the muscle plasma.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	July 13
Arizona*	Ancil Martin, Phoenix	Phoenix	July 5
Arkansas*	P. T. Murphy, Brinkley	Little Rock	July 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	Aug. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	July 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 13
Delaware	J. H. Wilson, Dover	Dover	Dec. 14
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	July 13
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 10
Georgia	E. R. Anthony, Griffin	Atlanta	Oct 12
Idaho*	W. F. Howard, Pocatello	Boise	Oct. —
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	July 13
Iowa	Louis A. Thomas, Des Moines	Des Moines	June 22
Kansas	D. P. Cook, Clay Center	Kansas City	Oct. 12
Kentucky	J. N. McCormick, Bowling Green	Louisville	July 6
Louisiana	P. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct. 1
Maine	Wm. J. Maybury, Saco	Augusta	July 1
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 14
Massachusetts*	E. B. Harvey, State House, Boston	Boston	July 13
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 12
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 5
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 12
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Sept. 20
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 5
Nebraska	E. J. C. Sward, Oakland	Lincoln	Aug. 3
Nevada	S. L. Lee, Carson City	Carson City	Nov. 1
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	June 29
New Jersey	J. W. Bennett, Long Branch	Trenton	Oct. 19
New Mexico	J. A. Massie, Santa Fe	Santa Fe	July 12
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York; Albany; Syracuse; Buffalo	June 22
N. Carolina	B. K. Hays, Oxford	Asheville	
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	July 6
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 14
Oklahoma*	F. P. Davis, Enid	Guthrie	July 13
Oregon*	B. E. Miller, Portland	Portland	July 6
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia; Pittsburg	June 22
Rhode Island*	G. T. Swarts, Providence	Providence	July 1
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota*	H. E. McNutt, Aberdeen	Watertown	July 14
Tennessee	C. A. Abernathy, Pulaski	Memphis; Nashville; Knoxville	May, —
Texas	C. B. Foscue, Waco	Cleburne	June 22
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	July 5
Vermont	W. Scott Nay, Underhill	Burlington	July 13
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	K. Turner, Seattle	Seattle	July 6
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	July 13
Wisconsin	J. V. Stevens, Jefferson	Madison	July 13
Wyoming	S. B. Miller, Laramie	Laramie	June 23

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Oklahoma.—The State Board of Medical Examiners of this State will not, in future, issue a license to practise medicine to any person who is suffering from pulmonary tuberculosis. As noted in another column, the House of Delegates of the American Medical Association has seconded a protest against this cruel and absurd piece of phthisiophilic legislation.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending June 12, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	527	180
Diphtheria	270	32
Measles	1,431	39
Scarlet Fever	246	27
Smallpox	2	..
Varicella	197	..
Typhoid Fever	27	4
Whooping Cough	88	7
Cerebrospinal Meningitis	12	2
Malarial Fever	..	..
Totals	2,800	291

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending June 11, 1909:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES			
Alabama, Birmingham	May 15-22	1	..
California, San Francisco	May 15-22	4	..
District of Columbia, Washington	May 22-29	1	..
Georgia, Macon	May 16-30	13	..
Illinois, Chicago	May 22-29	2	1
Danville	May 23-30	5	..
Springfield	May 21-28	1	..
Indiana, Indianapolis	May 23-30	1	..
South Bend	May 15-29	7	..
Iowa, Cedar Rapids	May 1-31	3	..
Davenport	May 23-30	2	..
Kansas, Kansas City	May 15-29	7	..
Wichita	May 15-29	11	..
Kentucky, Lexington	May 15-29	3	..
Louisiana, New Orleans	May 15-29	14	..
Maine, Van Buren	May 15-22	3	..
Massachusetts, Northfield	Apr. 1-24	2	..
Michigan, Grand Rapids	May 15-29	8	..
Saginaw	May 8-22	6	..
Minnesota, Duluth	May 20-27	2	..
Missouri, Kansas City	May 22-29	2	..
Neosho	Mar. 15	6	..
St. Louis	May 22-27	1	..
Montana, Butte	May 20-27	1	..
Ohio, Ashtabula	May 22-29	1	1
Cincinnati	May 14-27	11	..
Columbus	May 22-29	1	..
Tennessee, Nashville	May 22-29	3	..
Texas, Fort Worth	May 1-26	20	1
Galveston	May 21-28	1	..
San Antonio	May 8-29	13	1
Utah, State of	Apr. 1-30	81	..
Washington, Spokane	May 8-22	15	..
West Virginia, Wheeling	May 22-29	1	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Apr. 17-24	13	..
SMALLPOX—FOREIGN.			
Brazil, Bahia	Apr. 16-30	5	1
Canada, Halifax	May 15-22	4	..
China, Amoy	Apr. 17-24	..	Present
Canton	Mar. 27-Apr. 17	20	..
Tientsin	Apr. 17-May 1	8	..
Egypt, Cairo	Apr. 29-May 6	4	9
Great Britain, Bristol	May 8-15	2	..
Cardiff	Apr. 24-May 1	..	1
India, Bombay	Apr. 27-May 4	..	17
Calcutta	Apr. 19-24	..	131
Madras	Apr. 24-31	..	5
Rangoon	Apr. 17-24	..	2
Japan, Formosa	Apr. 24-May 1	1	..
Java, Batavia	Apr. 17-24	4	1
Mexico, Chihuahua	May 9-23	2	..
Mexico City	Mar. 27-Apr. 17	..	93
Monterey	May 16-23	..	3
Russia, Moscow	Apr. 24-May 8	46	29
Odessa	May 1-8	1	..
Riga	May 8-15	2	..
St. Petersburg	Apr. 17-24	22	7
Siam, Bangkok	Apr. 1-30	6	2
Spain, Almeira	Apr. 15-30	..	6
Barcelona	May 10-17	..	6
Valencia	May 1-8	8	1
Uruguay, Montevideo	Mar. 1-31	..	8
CHOLERA—INSULAR.			
Philippine Islands, Provinces	Apr. 17-24	17	30
CHOLERA—FOREIGN.			
India, Bombay	Apr. 27-May 4	..	18
Calcutta	Apr. 17-24	..	98
Siam, Bangkok	Apr. 1-30	1	1
Straits Settlements, Singapore	Apr. 8-24	..	5
PLAGUE.			
Azores, Fayal	Mar. 1-31	..	Present
Terceira	Apr. 1-30	2	1
China, Amoy	Apr. 17-24	..	Present
Canton	Apr. 3-17	20	13
Chang Poo	Apr. 26—	..	Epidemic
India	Apr. 17-24	4,681	4,007
Bombay	Apr. 27-May 4	..	430
Calcutta	Apr. 17-24	..	117
Rangoon	Apr. 17-24	..	24

Medical Record

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Original Articles.

THE CLINICAL DIAGNOSIS OF TUBERCULOSIS OF THE TONSILS.

By LEE M. HURD, M.D.,

NEW YORK.

WITH SOME REMARKS UPON THE MICROSCOPIC DIAGNOSIS.

By JONATHAN WRIGHT, M.D.,

NEW YORK.

The evidence of the physiological relation between the faucial tonsil and the lymphatic glands situated at the angles of the jaw anterior to the sternocleidomastoid muscle, has been proven. [1], [2], [3]. When these cervical glands are enlarged there is always evidence of disease in the corresponding tonsil. This glandular enlargement is due to septic absorption or to the absorption of the tubercle bacillus. Personally, I believe that all these cases of glandular enlargement start from septic absorption, and after the tonsillar resistance has become weakened by disease it easily allows the tubercle bacilli to gain a foothold and soon invade the cervical lymphatics. I also believe that at times this takes place without leaving much evidence of their passage through the diseased tonsil. This has not yet been established as a fact, but the following analogous facts tend to lead me to believe it may be true:

Wood's experiment of once rubbing tubercle bacilli upon a pig's tonsil, later finding tuberculous lesions in its lymph gland, but none in the tonsil.[4] The experiments of Calmette and Guerin on goats[5] showing that tubercle bacilli can pass through the intestinal walls without leaving lesions, and even through the mesenteric lymph glands, making themselves first known in the pulmonary apex.

The clinical diagnosis of primary tuberculosis of the tonsil was made in these selected cases on the condition of the lymph gland that drains the tonsil, as well as the condition of the tonsil.

The faucial tonsils may be divided into two classes clinically. *First*, those that are enlarged, somewhat pedunculated, and most of the tonsil hanging free into the fauces. Such large tonsils are the ones that are usually removed. They are also the tonsils that cause the least systemic harm. True, they interfere with free breathing to a certain extent, but the children that have this class of tonsils are more inclined to be healthy and robust. It seems that the larger and freer the tonsil, the more it resists the invasion of harmful microorganisms; also it is exceptional to find associated with them much enlargement of the lymphatic glands.

The *second* class consists of those tonsils which are more or less buried beneath the tonsillar pillars, and which are prone to chronic inflammation rather than to acute inflammation, although they may have acute exacerbations of the chronic condition. This class causes more systemic effect. These tonsils, when diseased, will regularly cause enlargement of the glands in the deep cervical chain. The children are not robust, but are more inclined to be anemic and languid, and it is in these patients that we find the proper soil for the invasion primarily of the tonsil, and then the cervical gland, with tuberculosis.

On casual examination, these submerged tonsils appear small and insignificant, because the greater portion is in the space between the pillars and crowds upward, sometimes half an inch, above the highest visible portion of the tonsil. It is in this buried portion that the tuberculous evidences are usually found, closely bordering upon the tonsillar capsule. Dr. Wright examined sixty tonsils for tuberculosis, in the days when it was considered necessary to remove only the protruding portion. He did not find it in a single case [5], [6]. This seems to prove two things: First, that the protruding tonsil is rarely attacked by tuberculosis; second, that if it is attacked the lesion is nearly always found just beneath the capsule, at the bottom of the tonsillar crypts.

The tonsil in which we find evidences of tuberculosis is usually pale, the crypts contain cheesy detritus, the edge of the anterior pillar may have a passive hyperemia, and the associated lymphatic gland is usually much enlarged and hard. From this early stage it may progress until any number of glands are involved. The question has been put to me—If the tuberculosis has reached the cervical lymphatics,* why remove the tonsil? There are two very good reasons. First, such a tonsil is allowing microorganisms to take the same route as the tubercle bacillus did, and I believe that this makes it still harder for the lymphatics to overcome the tuberculosis, which they have a fair chance of doing with the tonsil out. This is easily shown by the fact that after removal of the tonsil the lymph glands begin to subside, and if only enlarged from septic absorption will entirely disappear; and in tuberculous adenitis there will be a rapid diminution in the size of the glands to a certain point, which I believe was the increased load placed upon the glands from draining a generally diseased tonsil. Also, when the tuberculous cervical glands are removed, the tonsil remaining is liable to reinfect the remaining glands, as in case No. 2. The most frequent site for enlargement of the cervical glands is at the angle of the jaw and in recognizing the tonsil as the portal of infection, its prompt removal will abort many cases and perhaps other more remote tuberculous lesions.

I would here like to digress long enough to state

*Read at a meeting of the Medical Society of the County of New York, May 24, 1909.

*An enlarged lymphatic gland is not necessarily tuberculous.

that the tonsil must be removed *in toto* in order to get out the tuberculous portion, and also that the stump of a partially removed tonsil is quite as liable to tuberculous infection as if originally submerged. This is probably due to the fibrous cicatrix closing up most of the crypts.

All the tonsils reported in this article were of the submerged variety. From my observations, I would say that the inflammatory enlargements—both septic and tuberculous—of the lymph glands that drain the tonsil, are nearly always associated with the submerged tonsil. The tonsils removed from cases of slight glandular enlargement usually showed microscopic evidences of chronic inflammation, but in one of this class the tonsil was typically tuberculous. The tonsils from cases in which clinically the glands were considered tuberculous or bordering on that condition, had the diagnosis of tuberculous tonsil confirmed by the microscope in eight out of the eleven cases.

I am unable—and this paper is not intended for that purpose—to show the percentage of tuberculous tonsils to the total number removed during the same period. All the cases have been selected with the tuberculous and chronic inflammatory changes of the tonsil in view, and outside of the throat and neck showed no other signs of tuberculosis.

CASE I.—J. H. Male æt. 25. June 29, 1908. Many carious teeth. Large submerged tonsils, with hard enlarged glands at angle of jaw. Clinically considered tuberculous. No other evidences of tuberculosis.

CASES IN WHICH THE TONSILS WERE CLINICALLY CONSIDERED CHRONICALLY INFLAMED BUT NOT TUBERCULOUS.

No.	Age	Sex	Condition of Tonsil	Condition of Neck	Microscopical Findings	
1	23	F	Submerged	Slightly enlarged and soft	Nothing noteworthy	—
2	12	M	"	" " "	"	—
3	8	M	"	" " "	Chronic inflammation	—
4	6	M	"	" " "	"	—
5	6	M	"	" " "	"	—
6	7	M	"	" " "	Some areas of necrosis	—
7	14	F	"	" " "	Actinomycotic-looking bodies in crypts	—
8	6	M	"	" " "	Chronic inflammation	—
9	6	M	"	" " "	Retrograde metamorphosis	—
10	13	M	Submerged, large	" " "	Typical tubercle	+
11	5	F	Submerged	" " "	Chronic inflammation	—
12	8	F	Submerged stumps	" " "	"	—
13	6	M	Submerged	" " "	Simple hyperthrophy	—

that the glands in the neck are tuberculous. Later, 10 more slides were examined. In many of them there was the well-marked identical area of tubercle-granulum and epithelioid cells, and in one of these supplemental 10 slides there was in this area a fairly well marked giant cell. Diagnosis: Tubercle of the tonsil. JONATHAN WRIGHT.

"I avail myself of the report of this case to furnish me with an opportunity of making the remarks upon the microscopical diagnosis of tubercle which have so often formed the substance of our informal conversations in the course of the work with which you have been engaged. As you know, some criticism has been expressed at my unwillingness in many cases definitely to declare there were no evidences of tuberculous processes in a given tonsil submitted to me for examination. It is, of course, a familiar rule in making a negative report on a specimen of sputum to remain on the conservative side by saying that no tubercle bacilli *are found*. The limitations of this negative opinion are well understood, but when I have reported that no *conclusive* evidences of tubercle have been found by me in tonsillar structure, the position assumed has not been understood. It is the purpose of these remarks to explain the grounds of this undesirable but, to me, unavoidable uncertainty expressed in the form of speech I sometimes adopt and which it is often so awkward to use in communicating to friends of the patient the result of the miscroscopic examination. This to uninformed minds seems a sort of

CASES IN WHICH THE TONSILS WERE CLINICALLY CONSIDERED TUBERCULOUS

No.	Age	Sex	Class of Tonsil	Condition of Cervical Glands	Microscopic Findings	72.72% Tuberculous
1	25	M	Submerged, large	About 3 large glands, hard, of several months' duration	Tuberculosis	+
2	19	F	Submerged, large stumps	Has had 11 operations for tuberculous glands	Tuberculosis	+
3	22	F	Submerged	Tuberculous abscess at angle of jaw; opened when tonsil was removed	Tuberculosis	+
4	27	F	Submerged, fibrous, small	Enlarged glands angle of jaw 2½ years. Acute periadenitis	Tuberculosis not confirmed, though suspicious	—
5	12	F	Submerged	Enlarged glands angle of jaw	Tuberculosis not confirmed, though suspicious	—
6	4	F	Submerged	Enlarged glands angle of jaw	Tuberculosis	+
7	8	F	Submerged, small, much cheesy matter	One enlarged hard gland	Tuberculosis	+
8	8	F	Submerged, small	Broken-down gland, ines'd 3 months ago; now several glands matted together	Tuberculosis	+
9	3	F	Submerged, medium size	Slightly enlarged glands	Tuberculosis	+
10	8	M	Submerged stumps	Slightly enlarged glands	Tuberculosis	+
11	7	M	Submerged	Small chain of glands	No tuberculosis	—

Note large proportion of females, 72 per cent.

Microscopic Examination.—"This tonsil is a good illustration of the grounds I have for calling areas in tonsillar section 'suspicious' of tubercle. In one of the three sections there are granular areas where the proliferation of the round cells are becoming granular and taking the stain badly; near by are some old fibrous areas. Another section shows this

mystic shrine from which to expect the infallibility not inherent in scientific terms.

"Now, in my mind there is often a very large addition of doubt in the negative expression of opinion as to the existence of tubercle in the tonsil, which is not attached to the diagnosis of bacilli in the sputum. With me, this arises from the conviction that the cytolytic emanation of the tubercle bacillus which causes the crumbling of protoplasm may not in lymphoid structure give rise to any of the other structural changes thought to be necessary to the satisfactory identification of tubercle by the microscope. These necrotic areas are not infrequently present in the tonsil, and the most diligent search fails to reveal that they are accompained by other areas in which are present giant and epithelioid cells. Now, in well-recognized tubercle, as in this case, the majority of the necrotic areas do not contain these added characteristics. When areas exist side by side, one containing giant cells and epithelioid cells and connective tissue indications, and the others without them, we do not hesitate to ascribe all to the cytolytic activities of the bacillus. I do not hesitate to believe that such areas of simple protoplasm necrosis *may* be the sole evidence of the tuberculous nature of the lesion, but I hasten to add that they cannot be considered as processes exclusive of other origins. This, I believe is the kernel of doubt that lies at the bottom of the differences of opinion as to the frequency of the occurrence of latent tuberculosis of the tonsil.

"I am convinced that if every tonsil removed in our hospital were examined microscopically (I suppose the number would mount into the thousands every year), and if the accepted evidence of the existence of tuberculosis rested only on the presence of the typical tubercle described by the text-books, the proportion of 5 or 10 per cent. would be found to be a gross exaggeration. On the other hand, were we to accept every area of circumscribed granular necrosis as tubercle caused by the action of the bacillus, without a doubt the proportion would be placed at a higher figure.

"While we are upon this aspect of the subject, I might also remark that the word 'latent' tuberculosis of the tonsil is misleading, as it is most frequently used. I suppose the term 'latent tuberculosis of the tonsils,' when originally used, meant a local tuberculosis without systemic clinical manifestation of tuberculosis there or elsewhere. This strict interpretation of the word 'latent' involves the shrinkage in the number of cases observed under the microscope as the acuteness of diagnostic on the part of the clinical observer rises. These cases which we have been observing, many of them, now present to your trained eyes clinical evidences of tuberculosis which a few years ago the microscope would only have revealed as 'latent.' What becomes of our definition, therefore? We expect tuberculous people to have tubercle of the tonsils, but you suspect or tentatively diagnosticate a case as probably having tuberculous foci in the tonsils because you have followed the reports we have sent you, and are able to appreciate shades of clinical phenomena which a few years ago you could not do. This is a fundamental weakness of all statistics, but nowhere so glaringly evident as in discussions on tuberculosis. The importance of the statistical argument pales before the mature entertainment of such considerations.

"Here, confusion in figures as to the frequency of 'latent' tuberculosis depends upon the definition to be applied to a number of ill-defined terms by observers of different degrees of diagnostic acumen. What is *patent* to you is *latent* to some one else. What is 'tubercle' to me is not the only thing that is 'tubercle' to some one else. All these fundamental differences of opinion and capacity are unexpressed in the discussion of the statistics. I think it would be well to give them what prominence we can.

"To return from this quite excusable digression to the subject of the 'tubercle granulum.' As I have said, I know that not all the crumbling areas I see in the tonsil are tuberculous. Some I believe to be due to autolysis, with the transformation of protoplasm into fat or the substitution of fat for the destroyed protoplasm, a process taking place in the retrograde metamorphosis of the tonsil, and an entirely physiological adjustment of the organism.* Some, possibly, may be due to syphilis, though I am inclined to think this very rare. When occurring, the lesion is usually superficial.

"The difference between these effects of cytolytic ferments—that of the bacteriolysin of tubercle and the autolysin—is commonly ascribed to the efforts the organism makes in the former case to remedy the damage, *i. e.* the production of epithelioid and connective tissue cells in and around the necrotic areas, but I know no reason why the organism should always thus respond. It may be that the turbercle bacillus in passing through from the surface to the deeper lymphatics of the neck has left this imperfect trace behind it, because of its temporary lodgment.. The tonsil, no doubt, is the entry port of a great deal of infection, and if all the virulence of the germs were expended there we should have tonsillar lesions far in excess in frequency to all other lesions of the organs of the body.

"Near these spots of granular protoplasm, representing the regression of the tonsil, we have always more or less low grade fibrous tissue, such again as we have around old healed tubercle at the apex of the lungs. Thus you see why it is that I am undoubtedly often in a state of doubt as to how I am to interpret these spots of granular necrosis.

"I am reminded by some recent literature upon the formation of tubercle that in view of your intention to publish the communication I made you in regard to the problem of microscopic diagnosis of tonsillar tubercle, I should briefly refer to the conception at which I have arrived of the usual sequence of events. Virchow and Arnold, and many of the earlier writers looked upon the formation of the giant cell and the appearance of epithelioid cells as the initial tissue change in answer to the insult of the tubercle bacillus. This they supposed to be due to the confluence of the fixed tissue cells into a giant cell, and the alteration of others into the epithelioid cells. This is subsequently followed by the accretion of leucocytes from the blood-vessels with resulting coagulation necrosis. Many others, Koch, Cohnheim, Metchnikoff, Yersin, among them, believe that the nucleated blood-cells are the mother cells of tubercle, and from them are formed the giant cells and the epithelioid cells. So far as the tonsil is concerned, I am inclined to

*In order to avoid repetition of what you may elsewhere find in print, I refer you to the details of the facts upon which this belief was founded originally, remarking that subsequent observation has only confirmed them: "The Fat Contents of the Tonsils," *N. Y. Med Jour.*, Dec 15, 1906; "Cysts in Lymphoid Tissue; an Exceptional Manifestation of Tonsillar Regression," *The Laryngoscope*, Sept., 1905

think the leucocytes from the neighboring lymph spaces and capillaries first form a cluster around the point of irritation, be it bacillus or foreign body, or tissue altered by the influence of either. Epithelioid cells are soon formed, whether from the leucocytes or the fixed tissue cells I am unable to say, but I am inclined to think they arise from the large and small lymphocytes. By this time, and often before the appearance of giant cells, a certain amount of coagulation necrosis has taken place. The giant cells, when I have been able to detect their genesis, have been arising from the endothelial cells of capillaries in accord with the observations of many histologists. By the confluence of these we have a multinuclear cell with feeble cytoplasmic contents. It seems very probable to me that the sequence of events in the formation of tubercle in general is not always the same. The morphological appearances of tubercle differ considerably, and it is quite probable that the giant cell of tubercle is due, like the giant cell of bone, to the confluence of other cells than those of the capillaries, and this may even be the case in the tonsil, but for reasons which I have partly disclosed in my previous letter to you I do not believe that the giant cell is usually the first step in the process in the tonsil—rather the last, or next to the last, fibrosis being more properly a process of repair. It is not necessary to say anything of the view of the fission of nuclei in giant cells as the sole cause of their existence. While nuclei may divide in them, I suppose, I have never detected it, and I am not disposed to think of them as arising in this way."

Case II.—G. McM. Single; age 19. For the past three and a half years has had enlarged cervical glands. Two and a half years ago had first operation on glands. Subsequently has had ten more operations, making eleven in all. Three years ago had first operation on adenoids; again in four months. Two years ago had still another tonsil and adenoid operation. I found this girl on the sidewalk talking to patient No. 3, and on observing large numbers of scars on her neck, induced her to come into the hospital and have her throat examined. I found large submerged tonsillar stumps, flush with the pillars; no adenoids; two distant cervical glands enlarging since last operation, some two months previously. I induced her to have her tonsils out. She rather thought it was hopeless, as this made the fourth try, but on being informed of their relation to the neck condition she consented, and I enucleated them last April. Dr. Wright found typical tubercle in the tonsillar tissue. Her health has improved so that she has gone back to work, which she has not done in two years. The two glands that were showing a tendency to grow, one in the parotid, the other above the clavicle, have receded somewhat. These two glands cannot be directly connected with the tonsillar drainage, but the removal of the primary tonsillar foci seems to have been very beneficial to the girl's general condition.

Case III.—E. McM. Female, age 22; servant. Perfectly healthy except for broken down gland at angle of jaw. Submerged tonsil that looks suspicious of tuberculous involvement. Admitted to hospital; neck abscess opened; also tonsil enucleated. Neck promptly healed, and tonsil showed following condition: "This is lymphoid material with much subjacent fibrous connective tissue. There are typical Langerhans giant cells and tubercle granulum deep down in the lymphoid tissue."

Case IV.—M. N., Irish, æt. 27; June 3, 1908. For past two years has had glands at angle of jaw much enlarged and gradually increasing in size. In last two months mass acutely enlarged to double former size. Tonsils very small (no history of tonsillitis), entirely submerged. The corresponding tonsil enucleated, and submitted to Dr. Wright, who reported "chronic inflammation," but he remarked that if he saw the same masses of fibrous tissue in a section of the lung he would call it healed tubercle, but was not prepared so to state regarding the tonsil. Seven days after the removal of the tonsil the acute swelling subsided, leaving the old tuberculous glands their former size. These tuberculous glands did not diminish in size, and about four months after removal of tonsil they showed evidence of breaking down, and a month later were a fluctuating mass. They were now entirely removed. One had become fluid, and the rest, about six in all, had cheesy centers. Dr. Wright said: "I presume this is a tuberculous gland, but we have been unable to find typical tubercle in the sections examined." I feel tolerably certain that the tonsil was the port of entry, for the glands first affected drain the tonsil, and there is no evidence of secondary drainage into these glands.

Considering the length of time—over two years—between development of the adenitis and examination of the tonsil, it seems to me logical to believe that the tonsillar lesion had healed. The patient had the most pronounced enlargement of the glands, with the longest duration, of any of the cases reported, considerably over two years, she says it might be three, since she first noticed their size, and they had probably then been enlarging for some time.

Case VII.—L. O'R., æt. 8; August 15, 1908. Very small submerged tonsils. Glands moderately enlarged, with tonsillar gland about size of hickory nut. Microscopical report: "Typical tubercle, giant cells, etc." In the six months since operation all the glands have subsided, except the tonsillar, which is hard and about half former size.

February 18, 1909. The tonsillar lymphatic gland removed about 1½ inches in diameter. Its tuberculous condition confirmed by Dr. J. Wright.

Case VIII.—M. V., æt. 8; June, 1908. Three months before operation, tonsillar gland and others in relation broke down and drained. Small submerged tonsils. Dr. Wright found typical tubercle in corresponding tonsil; now, after period of seven months, glands have entirely subsided.

Case IX.—M. D., æt. 3; May 12, 1905. Submerged tonsils, enlarged glands. Tonsils enucleated. Report: "Sections through tonsils show undoubted evidences of tuberculous process. While there are no typical anatomical tubercules, still the presence of masses of epithelioid cells arranged in groups with central coagulation necrosis and proliferating coagulation tissue fibers, the patchy appearance, nuclear fragmentation, makes the diagnosis fairly positive. In addition to this, the presence of tubercle bacilli can be demonstrated, arranged in clumps." This child's health has greatly improved; the glands have receded, until now, after a period of over three years, they are hardly palpable.

Case X.—L. K., æt. 8. On February 4, 1908. Had tonsils removed, that is, down to the pillars, two years ago. This boy has recurrent O. M. S. A., some adenoid; large tonsillar stumps remain that are submerged and partially covered with cicatricial

tissue. The tonsillar neck glands are enlarged from size of hazel nut down. Tonsils enucleated. Dr. Wright reports as follows: "These tonsils have many fibrous bands of large diameter traversing the lymphoid tissue; near them the lymphoid tissue is undergoing coagulation necrosis with much hyperplasia of the epithelial or large plasma (epithelioid) cells. There are no giant cells, and the degenerated areas are so scattered that I am inclined to regard this rather as evidence of a retrograde metamorphosis than of old tuberculous lesions." Supplementary report: "Sections stained for tubercle bacilli show them apparently in the areas of degeneration. I cannot avoid, therefore, regarding this as a tuberculous lesion." In the year since tonsillar removal the boy's health has greatly improved, and the glands have subsided.

I am very much indebted to the laboratory for the work it has done in these cases. It is out of the question to ask them to convert a suspicious tonsil into sections and examine every section. What has been done, however, is to take the most likely portion of the tonsil and make three or four sections. If these look suspicious, but are not positively tuberculous, a few more sections are made; but in this series it has not been difficult to find tuberculous evidences in most of the tonsils in the first few sections.

I wish to express my gratitude to Dr. Wright for the interest and work he has given the subject. Without his help this article would have been impossible. Not my theories, but his facts make it worthy of your consideration.

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ON THE USE OF ATROPINE SULPHATE AND ATROPINE METHYLBROMIDE IN DIABETES MELLITUS.

A PRELIMINARY COMMUNICATION.

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During the past two and a half years I have carried on a series of clinical experiments in the wards of Mount Sinai Hospital and in private practice to determine the value of certain atropine salts in cases of diabetes mellitus. The results of this method of treatment have proved so satisfactory that I desire briefly to record the most striking features in the hope that others may be led to continue these investigations.

No attempt was made to select cases. My series include severe cases as well as mild ones with very varying periods of duration. The ages of the patients ranged from nine to over seventy years. A carbohydrate-free diet was always given at the beginning of the treatment in conjunction with the atropine.

The action of atropine may be summed up under the following heads: (1) Reduction in the amount of sugar excreted; (2) Increase in carbohydrate tolerance.

1. It was uniformly observed that glycosuria disappeared much more rapidly under this combined form of treatment than with the customary antidiabetic diet alone. It is a common experience that while a strict carbohydrate-free diet will usually cause a marked diminution in sugar excretion, traces of sugar will still remain in the urine or appear from time to time. In these cases the use of atropine in sufficient dosage has invariably resulted in a complete suppression of the glycosuria. Interruption in the administration of the drug without change in diet has been followed in many of my cases by the reappearance of sugar in the urine, but this glycosuria could always be made to disappear again promptly by resuming the atropine.

2. The influence of atropine in increasing carbohydrate tolerance is manifested in two ways. I have frequently noted that an amount of carbohydrate sufficient to cause glycosuria in a patient whose urine has become free from sugar but who is not taking atropine, will be perfectly well tolerated as soon as the atropine is administered. Secondly, after the prolonged administration of atropine the tolerance for carbohydrates increases much more rapidly than after a period of antidiabetic diet alone. The appearance of glycosuria in such cases is the signal to resume the atropine, and even without any reduction of the carbohydrates this frequently is sufficient to cause the urine to become again sugar-free.

I have administered the atropine in the form of the methyl-bromide and the sulphate. The former has the advantage of being much less toxic, but its effects are not so prompt as those of the sulphate. Its cost, moreover, limits its use. As the initial dose of the methyl-bromide I have given gr. 2/15 *t. i. d.* to adults, gradually increasing this by gr. 1/15 until gr. 8/15 *t. i. d.* are being taken. In one case three grains were given daily over a short period with no other toxic effect than dryness of the throat. The initial dose of atropine sulphate should be gr. 1/150 *t. i. d.* that may be gradually increased to gr. 1/20 *t. i. d.* Children require a dosage proportionate to their age. My youngest patient, a nine-year-old boy, received an initial dose of gr. 1/250 of the sulphate three times a day, and this dose, in the course of several months, was gradually increased to gr. 1/10 *per diem*.

It is noteworthy that these unusually large amounts of atropine are well tolerated, provided the initial dose is small and the increase gradual. It is not necessary to attain the maximum dose in the majority of cases, however, much smaller amounts often causing the glycosuria to disappear. With the appearance of the first toxic symptom, usually a marked dryness of the throat, the atropine was either stopped entirely, or, more often, the attempt to increase the dosage was temporarily abandoned. It was always possible to resume the drug after a period of rest.

While the tolerance for atropine varies in different individuals, I have not observed a single case in which a peculiar susceptibility totally precluded the administration of one or other of the salts previously discussed. In no instance was an atropine "habit" acquired, nor were there any deleterious effects upon the general health observed from its prolonged administration.

COMPENSATORY ALBUMINURIA;

A CONTRIBUTION TO THE STUDY OF CLINICAL ALBUMINURIAS.*

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Albuminuria is often the only clinical symptom of a functional disorder in some part of the organism. The albuminurias consequential to abnormal function occur without clinically recognizable anatomical changes in the kidneys. That they may ensue in the presence of structurally sound kidneys was conclusively demonstrated by Langstein, who was the first to perform the autopsy of a patient that had been affected with authenticated orthotic albuminuria.†

Ever since albuminuria of the orthotic type was recognized, numerous clinicians deemed it to reflect a peculiar or dormant form of nephritis, while others viewed it as an expression of a transitory disturbance of renal function.

Langstein's autopsy findings have done away with the first assumption for all times; the latter supposition merely substitutes a disturbance of renal activity for an anatomical renal lesion—a very vague conjecture which does not explain anything.

Of course, an albuminuria cannot ensue if the cells of the kidneys are impermeable for the large albumin molecule. That much we know, therefore: The structurally sound renal membranes permit under certain circumstances the passage of albumin from the blood current into the urine. The question now arises: *Is the transudation of the large albumin molecule through the normal kidney membranes to be ascribed to a perverted function or to a compensatory response of the latter?* In other words: *Is the albuminuria due to deficiency or efficiency of renal action, to a renal, mere local, functional incompetency or to ante-renal pathological influences.*

The kidneys regulate the composition of the blood. When their work is not interfered with the amount of the various urinary constituents ordinarily reflects the comparative quantity in which the same substances have existed in the blood. On the other hand, when the renal activity is lowered, be it on account of functional or morphological circumstances, there will be retention of the urine-making substances in the blood-current and a proportional deficiency of them in the renal secretion. Hypertony of the blood plasma in the presence of normally functionating kidneys can only be a transitory occurrence, and if there be a hypotony of the plasma the regulatory function of the kidneys will soon correct it. The kidneys, in other words, endeavor to maintain a more or less definite concentration and osmotic tension of the blood for every period of life. Furthermore, substances contained in excess, or such which are foreign to the blood, always reach the kidneys whence they are eliminated.‡ This fact again demonstrates the blood-regulating ability of the kidneys, and also evinces that the appearance in the urine of certain so-called pathological substances is not due to diseased, but, on the contrary, to healthy and forcefully working excretory organs.

The occurrence of albumin in the urine in the presence of structurally sound and functionally efficient kidneys must be designated as a regulatory act of the latter. By their regulatory capability the renal organs tend to compensate for the insufficiency of those organs which have permitted entrance into the circulation of blood-foreign albumin, or to the incompetency of which is due a peculiar physico-chemical blood composition, demonstrating itself in the deficient power of attaching the absorbed proteid material. In a limited sense, that is as far as the interchange between blood and urine is concerned, we may speak of a regulatory albuminuria; in as far, however, as the blood-foreign proteid or the abnormal blood composition is the outcome of perverse metabolic processes, we are justified in describing the resulting albuminuria as compensatory in character. While, as a matter of course, a non-nephritic albuminuria cannot ensue without renal regulatory activity, the causative factors of compensatory albuminuria are ante-renal in time as well as location, and are entirely independent of the kidneys. The designation "compensatory albuminuria" is therefore much more comprehensive and expressive than either the terms "regulatory albuminuria," chosen by Rosenbach, or "hematogenic albuminuria," propounded by Bamberger. Although regulatory albuminuria corresponds in many respects with compensatory albuminuria, its most distinctive factor is deemed to be the regulatory function of the kidneys, while the conception of compensatory albuminuria sees in the regulatory activity of the kidneys not a selective-voluntary, but rather a compulsatory operation. On the other hand, the rather indefinite so-called hematogenic albuminuria, which does not go beyond an altered condition of the blood as the prime factor in the production of the albuminuric phenomenon, conforms but in few points to the definite and comprehensive scope of compensatory albuminuria.

An albuminuria may be designated to be of a compensatory nature when the quantitatively and qualitatively entirely normal urine contains albumin without the presence of renal inflammatory products, oil globules, connective tissue shreds, casts and of more than a few renal epithelia. The urine in compensatory albuminuria exhibits a normal density and the aggregate of solids eliminated by it is proportional to the intake, if the end-products, which would have been yielded had the albumin not been excreted, be taken into due account. It is evident that the kidneys while responding to corrective demands exert increased activity, and it is also evident that but healthy and strong excretory organs can undertake and perform the task of eliminating unconverted albumin or such which is not sufficiently fastened to the blood. However, if the additional burden becomes too heavy or if the supplementary

*Read at the meeting of the Medical Association of the Greater City of New York, May 17, 1909.

†Die Albuminurien älterer Kinder, Leipzig, 1907.—The patient, a girl ten years old, was under observation from March, 1903, until November, 1905. Although considerable amounts of albumin were excreted, the urine never contained any when the patient remained in the recumbent posture. Renal form elements were never present. Necropsy showed the following: Left kidney, capsule easily striped off, surface smooth, blue-red, tough consistency. Right kidney the same as the left. A few black "Venensterne" on the surface. No pathological changes on the cut surfaces of both kidneys. A most careful microscopical examination of the kidneys demonstrated the absence of any degenerative or inflammatory change whatsoever. A lentil-sized contraction on the surface of one kidney was caused by a relatively fresh infarct which was probably the result of a marantic thrombosis of a small vessel that appeared toward the end of life. A few tubular epithelia, situated in the same area, exhibited minute fatty changes.

‡While water and the normal catabolic products do not alter the constitution of the sensitive renal membranes, blood-foreign material is liable to affect the function of the renal cells and may cause their structural damage if large amounts of it are continuously brought in contact with them through the medium of the circulation.

activity be continued over a protracted period, the kidneys may be rendered functionally insufficient after a time and in some instances may even become structurally affected. The primary changes accruing in the kidneys after excessive renal activity are of a reactive nature, that is, they are due to a more or less marked exhaustion of the secreting apparatus, or, in other words, to trophic disturbances. The excretory work of a set of functionally exhausted kidneys is, of course, proportionally less than that of competent organs. The total urinary solids are diminished to a greater or lesser degree, and this may be also the case with the urinary water. The general relaxation of the secerning renal cells permits the transudation of albumin from the plasma into the urine, an occurrence which prior to kidney exhaustion was accompanied by enforced renal activity.

There may be a period during the enfeebled renal state when the relative and absolute amounts of excreted albumin are actually reduced. This diminution of urinary albumin is generally looked upon as an improvement of the renal condition; in reality, however, it denotes precisely the opposite, *i. e.* renal deterioration. At a later period, when the structural alteration of the kidneys has progressed to a certain degree, the albumin output is again increased, becoming in all likelihood larger than ever before. Still, it is a question whether the structural renal changes following long-continued or excessive excretion of albumin attain the nature of a genuine nephritic process. The inflammatory stage, or what may be considered such, runs very often a mild and rapid course, and the patients may actually feel better while it supervenes than during the period of functional renal insufficiency without organic alteration. It is even plausible that an eventual inflammatory stage after renal exhaustion—a temporary occurrence in many instances—is itself a compensatory process enabling the kidney to resume some of its regulatory activity after the inflammation has run its course.

Alterations in the exchanging membranes in the kidneys may be the mediate result of a protracted compensatory albuminuria, but there is no renal lesion which stands at the foundation of the compensatory albuminuria. The primary cause of the latter is presumably always of a functional nature and is situated in the organs concerned in the general metabolism, and more especially in those participating in the process of blood-making. Elsewhere I have discussed in detail the factors which lead to the compensatory elimination of proteid material by the renal organs. For the present purpose it suffices to know that the immediate cause of the albuminuria is either a surplus of circulating albumin or the inability of the blood to attach to itself certain albuminous material which has entered the circulation. If the binding qualities of the blood for albumin are of a normal degree, and if the albumin is not admitted to the blood-current in too excessive amounts it will be brought to the various tissues whence, after successive stages of oxydation, it will again be taken up by the blood in the form of urea, the normal end product of intrasystemic albumin disintegration. In the majority of instances, therefore, an overabundance of circulating albumin will hardly give occasion to compensatory albuminuria. A peculiar chemicophysical state of the blood, on the other hand, seems to be nearly always the direct cause of the compensatory albuminuric phenomenon. Rosenbach has already drawn attention to this point. Normal blood is unable to bind certain blood-foreign proteids, as egg albumin, casein, albumoses, etc., even if they be introduced directly into the circulation; they are eliminated by the normal kidneys, some quite rapidly, others, like the albumoses, after having accumulated to some degree in the blood. Blood possessing only limited combining qualities for blood-assimilable albumin will lose a portion of it in its native state by way of the kidneys. Such blood cannot transport to the tissues all the albumin which had been admitted to the circulation, although its amount may have been perfectly normal. The natural result of this inability of the blood will be the excretion of a diminished amount of urea, and the urea deficit will be found to stand in close proximity to the amount of urea which would have been yielded by the albumin that transuded through the kidneys in its native state.

There are a number of clinical varieties of compensatory albuminuria, not known as such ordinarily, which bear manifold, often rather vague and meaningless designations. A detailed consideration of these varieties will be found in a forthcoming article.

Compensatory albuminurias are, as a rule, easily recognized and readily differentiated from nephritides. One has to recall that in compensatory albuminuria the excretion of albumin is frequently the only clinical phenomenon, that there are no other exceptional urinary features, and that the physical signs, symptoms and disturbances usually met with in one or the other form of renal disease, are not present. Again, the amount of urinary albumin is not very large; the daily output not exceeding a few grams, hardly ever reaches that noted in the average case of chronic parenchymatous nephritis.

The compensatory phenomenon is of a more or less temporary nature, persisting ordinarily not longer than its underlying causes; it may, however, assume a remittent or intermittent character, especially in its milder forms, but then by the spell-like succession of limited outputs of albumin an apparent chronicity is imparted to it. In nephritic conditions the functional work of the kidneys is more or less interfered with; the renal activity, on the other hand, is not only not lessened in compensatory albuminuria, but ofttimes is even increased. While the hypodermatic introduction of 0.01 gram phloridzin yields a minimum of about 1.6 gram glucose within three and a half and four and a half hours in the presence of normally functionating kidneys, the amount of glucose will be diminished or none at all will be produced, if the renal organs be structurally damaged. In individuals with compensatory albuminuria phloridzin glycosuria can always be induced, and the quantity of glucose often surpasses the minimum amount to a considerable degree. Kidneys rendered less efficient or exhausted functionally by overwork—a condition liable to supervene in protracted instances of compensatory albuminuria—always respond to the phloridzin, but ordinarily yield slightly less glucose and produce it less quickly than do the normal and competent organs. The most potent means of differentiating between a set of functionally deficient kidneys resulting from overwork and one which is structurally affected are the absence from the urine of any specific nephritic elements and the occurrence of a slightly lowered, yet almost minimum phloridzin glycosuria in from five to seven hours.

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THE TREATMENT OF POTTS' DISEASE AT THE SEA BREEZE HOSPITAL.

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Orthopedic surgery in the past has concerned itself too much, perhaps, with details, too much with "straps and buckles," too much with improved styles of braces. It has fixed its attention on the minutiæ of treatment to the comparative neglect of the study of pathology and of the broad underlying principles of procedure.

The mechanical treatment of Potts' disease at Sea Breeze aims at three things: (1) To splint the spine effectually; (2) to keep the children as much as possible in the open air; and (3) to permit them to go about and exercise. We meet these indications almost invariably by two forms of appliance, the Bradford frame as modified by Whitman, and the plaster-of-Paris jacket. All complicated forms of apparatus we have discarded, not so much on account of the trouble and expense inseparable from them, as because we have found them less efficient than the means we have adopted. From what follows it can be seen that there is nothing in the treatment of Potts' disease that prevents its prosecution by any man with an ordinary armamentarium, a little mechanical skill, and a good working knowledge of plaster-of-Paris. This is a great advantage. Children suffering with this disease are usually of the poorer classes, and if they live far from the larger cities must be treated by the local practitioner or not at all. Braces are usually out of the question, and often are worse than useless. They require careful fitting by a skilled mechanic, and frequent adjusting. The need has been for a treatment that can be of general use, and this need our treatment seems to meet.

Recumbency on the Bradford frame. This is our treatment of election for children under three years of age, for those with large deep abscesses or psoas contraction, and for those whose sinuses open in such a manner as to make a jacket impracticable. If the spinal disease be complicated by hip-joint or shoulder-joint disease, the frame will probably be the treatment of choice here also. The child spends the entire twenty-four hours on it, and is never permitted to sit or stand for an instant. Twice a day he is rolled off it on to a table, and his back rubbed gently with alcohol and then powdered. His shirt is the only garment, except perhaps a diaper, between him and the frame. All the rest of his clothes include the frame also. It has an oblong shape, is made from gas-pipe (¼ inch in caliber), and is covered with canvas laced up the back. Its width is the distance between the child's shoulder joints, and its length is the child's height plus about six inches. It is provided with an apron which is buckled to the canvas cover at the sides and holds the child firmly in place, and it is bent backward at the seat of disease in order to superextend the spine at that point. Its head may be rested on a box in order to make it pleasanter for the patient, and if he shows any tendency to roll over and walk off on his hands and knees, a two foot board bound transversely across the bottom of the frame will suffice to keep him quiet. If the medical attendant be at all dubious of his ability with plaster-of-Paris, he can perfectly well keep his little patient on the frame during the entire course of the disease. Children are happy and contented when treated in this way, especially if they have previously had much pain.

Fig. 1.—Frame cases; the patient on the left is A. C., whose history is given below.

In children over three years of age, our customary treatment is by the plaster jacket. If the disease is below the ninth thoracic vertebra and uncomplicated, we usually apply the ordinary jacket, which is too well known to need description here.

If above the tenth, we use the Calot jacket. This jacket was introduced into this country about two years ago, and marks a distinct advance in orthopedic surgery. It is invaluable in the treatment of Potts' paraplegia, is by far the best means of support for upper thoracic and cervical disease, and is excellent in cases of Potts' disease with much deformity. Calot claims that he can reduce the deformity, or cause it to disappear entirely by means of his jacket, but our experience with it has not been long enough to enable us to verify this for ourselves. He claims also that the jacket is very simple of application. Here we differ from him radically. We regard it as by far the most difficult form of plaster dressing. In regard to the manner of applying the jacket, we follow the rules laid down by Calot, with a few exceptions. We found that plaster made with cold water broke down in a few days, and we have substituted warm water. We use also bandages made previously with dry plaster, instead of rolling them in plaster cream. It would be well for anyone who has never applied one of these jackets to follow Calot's advice and practice on a mannikin before putting one on a patient. He will find that three assistants are advisable.

The Calot head sling is a great improvement on the old-fashioned kind, and is made of canvas, six centimeters wide. To a circular piece 168 centimeters in circumference is sewn a tailpiece 15 centimeters long. Measure the child's occipitofrontal circumference and add two centimeters to this. Then measure off this distance on the circular part of the sling and insert safety pins. Into this middle part the child's chin and occiput fit, and the two loops beyond are carried up and hung over the transverse bar. This bar is suspended from a hook and pulleys as in the old-fashioned apparatus, and while the jacket is being applied the child's heels are just pulled clear of the stool on which he stands (see illustration). The tailpiece of the sling starts from the child's occiput and passes up to be attached to the middle of the transverse bar. It keeps the child's head from tilting backward. An assistant holds the child's hands at an angle of 45 degrees with his body.

The patient wears one—or, better, two—buttonless shirts, usually of stockinette, with sleeves. In the "grand" jacket one piece of stockinette reaches up over the head, and has a hole cut for the nose while the jacket is being applied. For the jacket with military collar we sew a collar of corn plaster felt to the top of the shirt. A large triangular pad of cotton batting, about an inch thick, is then held in place by an assistant over the sternum and ribs; the pelvis is also lightly protected with a piece of corn plaster felt, and, if the jacket is to be one with a military collar, one or two plaster bandages are smoothly applied, covering the trunk and shoulders and encircling the neck. The auxiliary pieces are then put on, as described below, and several bandages are applied outside of these. In a "grand" jacket the chin and occiput are also carefully padded, and the plaster bandages include the head also, avoiding the hole left for breathing.

When the plaster has been applied as quickly as possible the surgeon and his assistant give their attention to molding it carefully all over the child's body, especially about the pelvis and shoulders. Through a small triangular opening over the sternum, the cotton padding is then removed and the jacket is trimmed off above and below. Above, with a military jacket, at the junction of the chin with the neck, with the "grand" jacket leaving the ears free and including the chin and occiput. Then the patient may be released from the sling and laid face downward over the edge of a table or bed. A nurse or assistant should watch his breathing for a while to see that it is not impeded. During the next forty-eight hours the jacket should be cut out in front, as shown in the illustration. A window, 6 by 3 inches, should also be cut in the back over the kyphosis, the shirt slit up by two cross cuts, the skin greased with vaseline, and oblong pieces of cotton wadding, a little larger than the window, should be tucked under the shirting, next the skin, by means of a spatula. This drives the kyphosis forward. The shirt is then folded back in place, and the whole thing is held by a bandage—we use several plaster bandages. At intervals of about two months this treatment of the kyphosis may be repeated. A jacket should last about six months.

The auxiliary pieces mentioned above consist of three or four layers of crinoline, impregnated with fresh plaster cream. For the military jacket they

Fig. 2.—Ordinary or old-fashioned jackets. Observe how the jacket on the left fails to control the deformity; both this boy and the one on the right ("Smiling Joe") were afterward put in Calot jackets, and all three have been discharged cured.

are three in number—two aprons, front and back, and a collar; for the "grand" jacket, two aprons, a chin piece, and a piece for the occiput. The aprons are the length of the trunk, plus one-half, and in width are equal to one-half the circumference of the trunk. The anterior one is applied from the sternum to the pubes, and the redundant portion folded up and applied over the lower abdomen. The posterior apron is slit up for almost half its length, making two tails, and these tails are brought over the shoulder and then down in front of the shoulders back under the axillæ. An assistant stands by to nick the aprons with the scissors, if necessary, to make them lie smoothly; and, in fact, the same thing is advisable while the first plaster bandages are being applied. The collar is made about the height of the child's neck, and once and a half its circumference. It strengthens the jacket at this point. The pieces for the chin and occiput in the "grand" jacket should be about 4 by 6 inches, and should run downward from these points.

In disease above the seventh thoracic vertebra, or

in disease at any point complicated by paraplegia, the "grand" jacket is used: in other cases, the jacket with military collar.

Abscesses.—In dealing with these the fact should always be borne in mind that an infected abscess

Fig. 3.—Application of the Calot jacket with "officer's collar"; trimming the jacket. This patient had suffered from paraplegia and incontinence for months, but recovered completely after being put in plaster; he is now almost well and will soon leave the hospital.

means, in the vast majority of cases, the death of the patient—sometimes comparatively soon, sometimes after two or three years with amyloid degeneration and sepsis. They should not be allowed to emerge under Poupart's ligament and enter the thigh. A patient with a psoas abscess should be immediately placed in the recumbent posture on a frame, in order to avoid the effect of gravity upon the fluid. If the abscess be small and high up, it should be left alone, and possibly it may disappear spontaneously. If it be of large size and low down in the iliac region, it should be attacked in this situation and evacuated through a trocar and vacuum bottle. The best place to insert the trocar, the place of election, is just internal to the anterior superior spine and below it. The abscess can be palpated and its location will determine the direction of the trocar. After it has been evacuated, and while the cannula is still in place, about seven to ten c.c of fresh iodoform—ether mixture* should be injected into the cavity by a syringe whose needle is thrust through the cannula. Then a small sterile dressing should be applied to the seat of the puncture. The operation is almost painless. Most children would far rather submit to it under cocaine than to take ether. It should be repeated about every ten days until the abscess ceases to refill. Abscesses in the gluteal region or those that have already entered the thigh are not so satisfactory to deal with, but the earlier they are attacked the better. In all cases scrupulous asepsis should be observed. The instruments should be boiled, the skin should be thoroughly disinfected, and sterile rubber gloves should be worn.

*Olive oil 50, ether 50, creosote 2, iodoform 5.

Our results under this method of treatment have been brilliant. An abstract of the history of the following case illustrates well its advantages.

A. C., seven years, admitted March 15, 1907. She had been under dispensary treatment by us for a year, and during that time had worn ordinary plaster jackets. On admission she was in very poor condition, nervous, fretful, and emaciated. Her gait was unsteady and her knee-jerks absent. Her cervical glands were enlarged. A marked, sharp, kyphosis was present in the lumbar region, and a large abscess could be palpated deep in the right iliac region and above it. On admission her jacket was removed, and she was placed upon a frame, bent backward at the place corresponding to the seat of the disease.

December 1, 1907. Large abscess palpable in

Fig. 4.—Grand Calot jacket. This jacket is not cut out quite enough at the throat, and is too thick about the neck; it was one of our earlier attempts. The patient suffered from cervical Potts' disease and has since been discharged cured.

left iliac region also. General condition excellent. Psoas contraction has disappeared.

September 10, 1908. Child still on frame. Large abscess deep in each iliac region. Abscess on right side aspirated, under cocaine, just below and internal to anterior superior spine. About 100 c. c. thick pus were withdrawn and 8 c. c. of

iodoform-ether mixture injected. From the left abscess about 50 c. c. of pus were withdrawn, through the corresponding spot, and 8 c. c. of the mixture were injected.

September 19, 1908. Abscess on right side aspirated, withdrawing about 65 c. c. of pus; 8 c. c. of usual mixture injected.

October 18, 1908. Right abscess aspirated and 175 c. c. of pus removed. Seven c. c. of usual mixture injected. Left abscess aspirated and 75 c. c. of pus removed. Injected 7 c. c. of usual mixture. Pus somewhat thinner than before.

November 8, 1908. Right abscess aspirated, withdrawing 275 c. c. of pus. Seven c. c. of usual mixture injected. Seventy-five c. c. of pus removed from left abscess and 7 c. c. of mixture injected.

November 25, 1908. A small amount of dark brown fluid withdrawn from left abscess. All these aspirations were done under cocaine.

November 29, 1908. Practically nothing can be felt of either abscess, merely a slight thickening in right and left iliac regions. Calot jacket (military) applied.

December 20, 1908. Child walking quite well. Marked knock-knees. Left abscess barely palpable in iliac region.

March 21, 1909. Child in excellent condition: runs and plays about. Window cut in back of jacket and new padding applied over kyphosis.

Here was an emaciated, cachectic child, with a rapidly destructive process, beginning paraplegia, and a large abscess—about as unfavorable a case as one is often called upon to treat. The prognosis under old methods of treatment was distinctly bad. She is now on the high road to recovery.

We are trying Bier's treatment by passive hyperemia and following Beck's ideas with injection of pastes in some of our cases with discharging sinuses, but we have not yet come to a settled conclusion as to their value.

Only the simplest operations are performed at Sea Breeze. Our facilities for operating are most primitive. For any large operation the children are transferred to some hospital in Manhattan. It is hoped, as soon as our finances allow, to install a modern operating room and outfit, so that the children need not be sent away at all. The operation of "bone scraping" we regard as almost invariably useless. The blind thrusting of a curette into a tuberculous joint and spooning about would not be practised so often were a knowledge of the pathology of joint tuberculosis more widely diffused. The same may be said of scraping tuberculous sinuses. The tubercles are deep in the walls of these sinuses, and the chance of eradicating them with a curette is about one in a million.

In treating Potts' disease one should never forget that he is treating a tuberculosis of the spine and that the mechanical treatment is only part of the problem. These patients need fresh air *all the time*, good food, and careful attention to their general condition. In spite of all that has been said they are still being cooped up in city hospitals, allowed access to a roof once in a while, when convenient, and when the weather is warm and pleasant. Charitable persons are building sanatoria for them which contain beautiful sun-parlors to let in the sun and keep out the air. The lesson has not yet sunk in. It must be emphasized again and again The three essentials in the treatment of tuberculous bone and joint disease are: Proper Surgical Treatment, Fresh Air, and Good Feeding.

THE COMBINED OPERATION FOR THE RADICAL CURE OF INGUINAL HERNIA AND APPENDICITIS.

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The subject of appendicular hernia has been treated exhaustively by several writers, notably Jopson[1], Levy[2], and Jacquemin[3]. Their analyses of statistics demonstrate an important clinical relation between appendicitis and inguinal hernia. According to Kelly[4], the appendix is found in the sac in one to two per cent. of all herniæ. These figures, however, are probably too low. Many herniæ which are reducible, for example, are not subjected to operation. On the other hand, in operative cases, the contents of the sac frequently remain undetermined.

Recognizing the frequency of appendicular hernia and appreciating the technical objections to removal of the appendix through the inguinal canal, Dr. Frantz Torek in 1906 reported an operation that combines the principles and advantages of the McBurney intermuscular appendicectomy with the modern hernioplasty of Bassini. Torek[5] describes the operation as follows:

"An imaginary line is drawn from the anterior superior line of the ilium to the umbilicus. A point on this line at a distance equal to one-fourth of its length from the iliac spine marks the beginning of the incision which is carried down from here to the external inguinal ring. The aponeurosis of the external oblique muscle is exposed throughout the length of the incision. This fascia is now incised in the direction of its fibers as is customary in the gridiron operation for appendicitis exposing the internal oblique muscle; but, the incision is prolonged downward so as to terminate at the apex of the external inguinal ring. The aponeurosis of the external oblique is prepared off from the underlying parts in the usual manner, on the outer side exposing Poupart's ligament. Then the hernia operation is proceeded with up to the point where the sac is cut off. Here the hernia operation is intermitted and attention turned to the appendix. The fibers of the internal oblique and transversalis are separated bluntly in the usual manner, the peritoneum is opened, the appendix removed; then the peritoneum, transversalis fascia, and muscles are closed again: in a word, the appendicitis operation is completed except that the aponeurosis of the external oblique is still left open. We now return again to the hernia operation and suture the internal oblique and transversalis to Poupart's ligament according to any of the approved methods, and finally suture the aponeurosis of the external oblique in the entire extent of its incision, so as to close both the appendicitis and the hernia operation. Lastly, the skin is sutured."

The following history is given in detail to emphasize the value of this procedure and its feasibility in difficult cases:

Mr. N. P., age 40 years. Eight years ago had an attack resembling clinically appendicitis. At the time of examination, on January 20, 1909, he was recovering from a second attack, which was characterized by nausea, initial vomiting, pain in the right lower quadrant, and a slight rise in temperature. When examined, there was no appendiceal tenderness. The tongue was coated, and the breath foul. The right internal inguinal ring was large

and loose; the left inguinal canal was normal. Heart and lungs, negative. Spleen not felt. No rose spots. Diagnosis, catarrhal appendicitis. Right inguinal hernia, indirect and reducible.

Operation was performed on January 25, 1909, by Dr. Frederick-Emil Neef and the writer. The incision was two inches long and coincided with the middle portion of an imaginary line passing from the pubic spine to the inner end of the outer one-fourth of the spinoumbilical line. In making the incision, care was taken not to disturb the relation of the skin to the subjacent fascia.

The aponeurosis of the external oblique muscle was exposed. The lower angle of the incision was drawn downward in the direction of the pubes by means of a narrow sharp retractor until the curve intercolumnar fibers appeared and the external inguinal ring defined. A grooved director was passed upward through the ring beneath the aponeurosis of the external oblique muscle and the aponeurosis slit in the direction of its fibers as far as the upper angle of the skin incision.

The aponeurosis of the external oblique muscle was now lifted away from the underlying internal oblique muscle and was followed down by blunt dissection to the shelving border of Poupart's ligament. The internal ring was next exposed. The sac was readily isolated, secured, and anchored with a clamp.

Attention was then given to the appendix. The transversalis and the internal oblique muscles were separated in the direction of their fibers as performed in the classical McBurney operation. Vertical division of the peritoneum revealed the cecum adherent to the anterior abdominal wall, one-half inch external, while the lower end of the cecum, together with the appendix, were in the hernia sac. The adhesion was separated and appendicectomy done by carbolization of the stump and inversion with a purse-string suture of silk.

The vertical peritoneal incision was sutured and the hernia operation resumed. The closure of the sac was effected with a purse-string suture of silk. The redundant portion of the sac was drawn up between the peritoneal and transversalis to the intermuscular separation and sutured to the muscle. The inguinal canal was restored according to the method of Bassini, without transplantation of the cord. No. II—40 day chromicized catgut was used. After the closure of the intermuscular separation, the aponeurosis of the external oblique and the skin were sutured. On the fifth day after the operation, the sutures were removed, and on the fourteenth day the patient was allowed out of bed. Uneventful recovery.

The incision employed in this operation—two inches long—is somewhat shorter than that outlined by Torek. Poupart's ligament is easily exposed and accessible to safe suturing when the incision is accurately placed as described above.

Those who advocate the removal of the appendix through the internal ring maintain that the appendix is always accessible on account of the low position of the cecum in these cases. While this is true, it does not permit the operator to deal adequately with pericecal and appendicular adhesions. In the patient whose history is detailed above, though the cecum was displaced downward, it was relatively immobilized by firm adhesions which could not have been separated through the internal ring.

That it is not always judicious to ablate the appendix through the internal ring, is demonstrated by an unpublished case mentioned by Hutchinson,[6] in which the operator encountered difficulty in securing the stump of the appendix, and the patient died from fecal extravasation caused by slipping of the stump ligature.

An interesting group of cases of which illustrative examples have been furnished by Coley[7] and Wyeth[8] is that in which chronic appendicitis coexists with an inguinal hernia. It is here that the combined operation finds an ideal application.

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DERMATOBIA NOXIALIS INFECTION:

REPORT OF A CASE CONTRACTED IN SOUTHERN MEXICO.*

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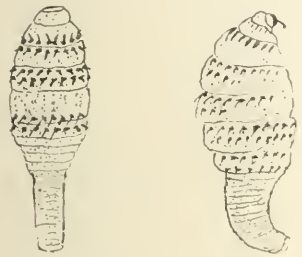
J. A. M., age 38, American, resident of Atlanta. Went to Oaxaca, Mexico, in October, 1907, and enjoyed splendid health until March, 1908, when he left the city of Oaxaca and traveled about one hundred miles east, near the boundary of Oaxaca and Vera Cruz. During this trip, which was about two weeks in duration, he went in bathing nearly every day and while undressed was besieged with gnats and flies of which the country is full. Ten days after the first exposure to the bites of these insects he began to complain of general malaise and to have a slight rise of temperature. As soon as he began to suffer with these symptoms, he took full doses of quinine and kept the bowels moving freely with purgatives. He put himself under a physician's treatment about three weeks after the first exposure, when he began to have sharp lancinating pains in his shoulder and back. The pains were limited to four or five points where were located small discharging lesions resembling furuncles. His physician made a diagnosis of malaria and told him these lesions were the "malaria working out." These pains gradually increased in severity and the patient described them as being similar to pain inflicted by a punctured knife wound. The pain would only last a few seconds, but was so severe that he would jump out of bed at night, or while sitting down talking to a friend, he would have to rise suddenly from his chair. His temperature varied from 99 2-5 in the morning to 101 3-5 in the afternoon, being highest usually at 2 P. M. He was confined to his bed continuously for five days and was under "malarial treatment" and on liquid diet. He would occasionally be entirely free from fever in the morning and several times during the two or three weeks of his illness he would walk downtown and remain out of bed several hours, but would spend part of each day in bed, on account of weakness and fever. He suffered from no headache nor backache, no nose bleed nor abdominal tenderness, and no pain except

*Read at the sixth annual meeting of the American Society of Tropical Medicine, held at the U. S. Naval Medical School, Washington, D. C., April 10, 1909.

that already referred to. This pain was no worse at night than in the day, and he states that rarely was there more than one lesion actively painful at a time.

I saw the patient May 12, 1908, about six weeks after the first exposure to infection. An examination of his blood for the malarial parasite was negative, as was also the physical examination of his chest and abdomen. There were present on his back and arm five lesions located as follows: one on the posterior surface of left arm at upper third, two a little internal to the left posterior axillary fold, one over the left scapula at its upper part and one in the left lumbar region. These were situated as can be readily seen where it would have been very easy for the flies to have bitten the patient. These lesions, except the first ones mentioned, were very similar to a rather large furuncle with considerable redness and swelling, and in the center was a small round hole about the size of a pin's head through which there was a slight serosanguineous discharge. There was not the slightest pain on palpating the lesions, and patient said that when the sharp pains would come he would frequently mash them very hard without pain. The one first mentioned differed from the others in that there was practically no discharge and it had the appearance of drying up. It was hard but movable and about



Larva of dermatobia noxialis; enlarged (after Ward

the size of a buckshot, feeling like a bullet under the skin. This lesion had not given him any pain for ten or twelve days before I saw him. I was unable then to diagnosticate the trouble, but decided that the places should be freely incised and drained, but as the lesion just mentioned was so circumscribed, I decided to excise the entire mass and with cocaine anesthesia I dissected out what appeared to be a small fibrous tumor that was very adherent to the surrounding tissue. Before incising the others I cut open the mass and found a small larva which I decided by comparison later was undergoing a chrysalis formation. The other lesions were then incised and with slight pressure there was easily expressed a motile larva out of each lesion. The other larvæ though different in size had the following appearance: on the pear-shaped segmented bodies, which averaged in size that of a pea, there were three transverse rows of dark hairlike projections. The head, which could be thrust out or drawn in at will, was armed with two branched hooklets which evidently caused the intense pain while the larvæ were in their host. The tail was elongated and formed the stem of the pear-shaped body. This part, I was afterward told, sometimes protruded through the small opening in the skin. My patient had no unpleasant symptoms after the larvæ were removed and in a few weeks made a complete recovery.

After a consideration of this case and the literature at our command it would seem that we were dealing with a case of cutaneous myasis caused by the larvæ of the biting fly *Dermatobia noxialis*.

It appeared worth while to report the case (1) on account of the infection occurring to a citizen of the United States. (2) Because of the acute suffering and systemic effect produced by the lesions. In the literature consulted there was found no case that presented the systemic disturbance and distressing symptoms as did our patient. (3) The means of communication between the United States and other countries are continually improving and the number of people who travel in tropical and sub-tropical lands is increasing year by year, consequently the comparatively rare diseases likely to be contracted in these parts should be better known so that travelers may be warned of the dangers of exposure to biting flies and also that other patients who have contracted cutaneous myasis may be spared unnecessary suffering through failure of physicians to recognize the cause.

This report should have been accompanied by the larvæ that were removed, but unfortunately the specimens were lost. The description has been made by one who lays no claims to be a zoologist; the endeavor having been made to be practical rather than scientific.

I am indebted to Dr. J. E. Paullin for his help in enabling me to recognize the nature of the larva and to Dr. O. T. Logan for suggestions and help in looking up the literature on the subject.

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SOME PRACTICAL POINTS CONCERNING THE TREATMENT OF FRACTURE OF THE LOWER END OF THE RADIUS.

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In large cities like New York, where thousands are employed at manual labor, we are liable to find at least three or four cases of fractured radii among the patients that attend the surgical clinics every week. Naturally this particular form of fracture becomes familiar to the physician in charge, and its treatment simple if not systematic.

The first thing we learn is to look upon all injuries to the wrist, even so-called sprains, as suspicious. How many cases of sprain have been permitted to transmigrate into that vast domain of mal-united fractures simply because the examining physician was so sure of his diagnostic abilities that

not even the ensuing osseous deformity and resulting functional disability were able to convince him of his error! The patient will note the appearance of his useless member and, becoming doubtful of his medical councilor's abilities, will seek out his colleague who must necessarily confirm the patient's doubt.

The greatest lessons have been learned by committing errors. Then why should one error excuse another? An honest error is pardonable, and, if the physician is honest, he will admit that error to himself, and learn thereby.

The simplest mode of gaining a definite and exact opinion of any injury involving bones or joints, is by the use of the *x*-ray. But how many physicians are familiar with the intricacies of the apparatus, its moods and caprices, and how many are able to purchase and maintain one? It is still a luxury to many, and but a toy to others. This paper is addressed to those who practice away from the cities, to those who must render assistance far from the possibilities of the *x*-ray. I do not wish to be understood as though the points to follow will always bring about infallible or perfect results, but they are given with the idea of obtaining functional results, the most important detail to the man who who must earn his bread by the sweat of his brow and the toil of his hands.

The main object to attain is the reproduction of the normal, the natural condition. As nature made man, so he is physically perfect. We cannot improve thereon, but we can imitate. That is the key-note of this treatment, the imitation of natural conditions.

A man has fallen on his outstretched hand. It becomes swollen, painful, and discolored. He is unable to move his wrist, unable to close his hand or rotate his forearm. He is liable to come to the doctor, as is usual, with a home-made diagnosis of "sprain."

Examination is painful and reveals no crepitus. The swelling hides the deformity. If the fragments are impacted, it is sometimes impossible to make a positive diagnosis. Then why make a brutal error when it is possible to circumvent one by being rather too careful than otherwise? Treat the injury as though it were a fracture, and even if it be only a sprain the result will be as good if not better, and the few days more of enforced inactivity will not be counted among those lost. The patient will be grateful for his physician's anxiety, and the physician will only gain by the benefit of the doubt.

Sometimes it is possible to diagnose a fracture of the radius by simply everting the hand, as this procedure will magnify the deformity and facilitates digital examination. If the displacement is marked it can easily be felt on the flexor surface of the radius. Even crepitus may be elicited in this position by using the thumb and forefinger and exerting decided counter-pressure.

The patient should be placed on his back. It keeps him and his body quiet, and precludes the possibility of aerial gymnastics on the part of the surgeon. Let one assistant firmly hold the upper arm down upon the table, exerting counter-extension at the same time. This is most easily done by placing the hand over the shoulder into the axilla, where the fist will act as an efficient lever. The other hand can be used to keep the arm upon the table. The second assistant should hold the thumb and fingers of the patient, having first rotated the forearm so that the palm points upward. This rotation serves two purposes. Firstly, it places the ulna and radius in their natural relations to one another, replacing the radius to the position of its greatest length, parallel to the ulna, and secondly it permits of easier manipulation during the procedure of replacement.

The greatest tension should be exerted upon the thumb, as by its means the direction of the head of the radius is best regulated. The thumb should be held between the crooked first and second fingers, as it can be held more firmly and for a longer time. With the other hand the assistant should adduct the fingers toward the ulna. This maneuver projects the carpus and throws the head of the radius still further forward. Thus sufficient play between the fragments is provided so that there is no great difficulty in restoring the continuity of the bone.

While the assistants continue to hold the arm firmly in the corrected position, a plaster of Paris bandage is applied. Starch bandages may also be used—they are not so heavy— but should be applied rather loosely as they have a tendency to shrink and cause extremely painful edema. The application of cotton or gauze bandages upon the skin is not necessary, but simply facilitate the removal of the dressing later on. There is no danger of pressure gangrene or atrophy if the displacement has been corrected. The edema is caused by the ragged edges of the bone and as soon as the normal condition is restored, the injuries to the soft tissues take care of themselves.

A word as to the length of the bandage. It should reach up as far as the second phalanx of the fingers, and back beyond the olecranon process of the ulna at the elbow. As soon as the plaster has hardened at the wrist, it is advisable to mould the palmer end of the bandage so that the fingers are in a state of semi-flexion. This is the position of the hand and fingers during all states of rest and relaxation, and I find that they are consequently more liable to retain their movability after the dressing has been removed.

This bandage should stay on for at least ten days, when it may be removed and a smaller and lighter bandage applied. Passive motion may be begun after seventeen or eighteen days, and the functional result should be complete four weeks after the date of the injury.

If the patient complains of great pain after the application of the first bandage, the probabilities are that the reduction was only a partial one. This is a valuable sign, and should not be taken lightly. The bandage is to be removed and re-applied.

Of course there are cases where periosteal flaps will intervene between the ends of the bone and frustrate every effort of nature toward complete bony union. Then the only rational thing to do is to cut down and suture the fragments together. Sometimes it is sufficient to suture the periosteum over the divided shaft of the bone, and at other times it is necessary to wire the head to the shaft. It is a lamentable fact that after the removel of the wire suture a local necrosis of bone often persists for a long time, and the question is still a mooted one whether to leave the wire in, take it out, or try strong silk. I distinctly recollect several cases during my activity at the Royal Clinic of Berlin, in which Prof. von Bergmann used strong silk in bone injuries and left them there with excellent result. This matter may be left to the discretion of the surgeon.

An interesting point in statistics may be of value. I have found in all cases of fractures, covering a period of six years, that the typical fracture of the radius is extremely rare in individuals below nine years of age. In children below nine both bones of the forearm are usually broken.

237 East Nineteenth Street.

CONTRIBUTION TO THE STUDY OF THIOSINAMINE IN OTOLOGY.

By FRANCISCO M. FERNANDEZ, M.D.,

HAVANA.

For the past eight months we have been experimenting with thiosinamine in the treatment of chronic adhesive otitis media, and although our experience is short and the cases few, the results have been so uniform that we feel justified in making some remarks about this drug, which has, with or without reason, awakened widespread enthusiasm in several branches of medicine, but especially in otology.

It is well known that to this drug is attributed the power of softening the cicatricial tissue. This was discovered by von Hebra while he was using it in the treatment of lupus. It has been used with regular success at times, in the treatment of cicatricial contractures of the esophagus and rectum and lately it has been tried in urethral stricture.

Tousey in 1897 first used thiosinamine in otology, and Tapia in 1903 made extensive experiments with the drug. This drug does not give good results in any otitis outside of the adhesive variety, but it has been successful in some cases of the adhesive otitis.

We have, however, used thiosinamine associated to antipyrine (according to Mitchel's prescription) in six cases of adhesive otitis, and the results have been far from satisfactory.

The first three cases were in young, robust men, and able to support the drug pretty well at the beginning of the treatment; but there were lancinating pains in the ears and although the suppuration did not return I did not feel justified in using the drug again. These three cases had been for over three months without suppuration and with no symptoms outside of the deafness which was marked in all of them.

The fourth case was that of a lady of advanced age, suffering from adhesive otitis, of a very chronic character. In her case, after three instillations it was necessary to stop the use of the drug on account of the severe pains which it caused.

Case fifth was that of a young man about 30, who had had no suppuration for six weeks previous to the beginning of the treatment. I began to use the drug, taking especial precautions, and after two weeks of instillation I also practised tympanic massage. One week after, the suppuration was reestablished, and I had to stop the use of the drug on that account, and also because there was some pain in the ear.

The last case was almost identical with case fifth, and the patient is at present under treatment for the suppurative discharge caused by the drug.

As I said before, the results in these experiments were not very encouraging. It is asserted, however, that a combination of thiosinamine and sodium salicylate is less apt to provoke these accidents than when thiosinamine is used alone; I propose to experiment with this combination before rejecting the drug altogether.

Dirty Milk.—It has been estimated that each year the inhabitants of Berlin consume more than twenty tons of cow manure in their milk.—*Good Health.*

Blastomycitic Dermatitis in the Philippines.—Blastomycitic dermatitis, first described by Gilchrist of Baltimore and considered a very rare disease, is very prevalent in the Philippine Islands.

Vegetarianism for Inebriates.—In their Home for Inebriates the Salvation Army provides a meat-free diet. It has been noticed there that animal food tends to increase the craving for stimulants, and that the patients do better on a diet of fruits and vegetables.

The Lower Segment of the Uterus.—Cyrille Jeannin distinguishes the inferior segment of the uterus as the isthmus, or lower third of the fundus. It is of great importance pathologically and normally in pregnancy. Its walls are much thinner than those of other portions of the uterus. In front it is thinner than behind. Its lower limit is the internal os. Its thinness predisposes to rupture of the uterus. Its form varies with the presentation of the fetus. During pregnancy it lends itself to the development of the fetus by stretching. By some it is supposed to be the cause of the beginning of labor. Its dilatation by a rubber balloon is a most efficient means of inducing labor. In the early part of labor it contracts, but later remains inert. During pregnancy the implantation of the ovum on this segment is a frequent cause of abortion and of hemorrhage in placenta previa. During labor the adhesion of the ovum to this segment is a cause of very slow dilatation of the cervix.—*La Presse Médicale.*

Diagnostic Importance of Examination of the Feces for Tubercle Bacilli in Infants with Pulmonary Tuberculosis.—Nicolo Serio-Basile notes the difficulty of early diagnosis of tuberculosis, especially in children who do not cough and expectorate. The author has attempted to examine for the tubercle bacillus in the feces of such infants in the hope of obtaining evidence of their presence in the lungs. He finds that in spite of the technical difficulties of such examination, important evidence of the presence of tuberculosis may be obtained from the feces. The bacilli may pass all the way through the intestinal canal without being altered morphologically or pathogenically. They appear in greater numbers when there is a lesion of the intestinal mucous membrane, and in smaller numbers when the lesion is in the respiratory apparatus. The tubercle bacilli may be absent in the feces of infants who swallow the sputum from pulmonary lesions. This method of examination is of diagnostic value in positive cases, but as negative evidence against tuberculosis it is valueless.—*La Pediatria.*

Nongangrenous Fetid Bronchitis.—E. Gaujoux gives two cases of fetid bronchitis in children, one of which was fatal. He believes that this disease in children differs from that of adults in that there is present no gangrene of the lung tissue. The fetid odor of the expectoration is due to the stagnation of the mucopurulent expectoration, there being no elastic fibers found in it. The disease may be mild and subacute or severe, and finally fatal (in young infants). These infants are too young to cough, and the expectoration is swallowed. High fever ensues as a result of toxins produced, and a septic condition develops with emaciation and cachexia. Gastrointestinal symptoms accompany these cases. Researches have not been made to determine whether there is a specific bacterial action to produce the fetidity. The treatment involves facilitating the expectoration by expectorants and the use of balsamics to disinfect the sputum. General tonic measures and fresh air are necessary to obtain a cure.—*Annales de Médecine et Chirurgie Infantiles.*

Pericardial Adhesions of Tuberculous Nature and Cirrhosis of the Liver in Children.—Hutinel describes a somewhat rare condition in which a tuberculosis of the bronchial and mediastinal glands is communicated to the pericardium, producing adhesive pericarditis. Later cirrhosis of the liver follows, accompanied by ascites, and a fatal issue from heart failure ends the case. He calls it cardiotuberculous scirrhosis. It begins sometimes insidiously with bronchitis and wasting. At other times it is more acute, and begins with a pleurisy. Hypertrophy of the liver follows, the consistency of the organ being firm. Then appear circulatory troubles. The lips become cyanotic and the face violet, as in congenital heart trouble. There is dyspnoea, but no cardiac signs can be elicited. The urine is abundant and albuminous. The tuberculous condition has remained latent, and it is the liver signs that attract all attention. The pleura and pericardium are adherent, and the heart apex does not move with the beat. Treatment has so far failed to prevent a fatal issue.—*Le Bulletin Médical.*

MEDICAL RECORD.

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THE WAR AGAINST TUBERCULOSIS IN GREAT BRITAIN.

PROBABLY, although it is practically impossible to obtain absolutely accurate statistics on the subject, there exists more tuberculosis in the British Isles than in any other quarter of the globe. Tuberculosis in all its forms is remarkably rife in the United Kingdom, this condition of affairs being mainly due to the fact that the bulk of the population live in crowded centers, and under circumstances not conducive to the preservation of good health. Urban life is, in the nature of things, favorable to the spread of tuberculosis and when, in addition, ignorance as to healthy living is manifested among the majority of the members of the poor and lower middle classes, as it is manifested in Great Britain, then it can be no matter for wonder that tuberculosis is widely disseminated. While this disease is the cause of a terrible death roll, it cannot be said that British medical men and philanthropists have been unmindful of their responsibilities in this respect. During recent years strenuous efforts have been put forth to stay the course of the disease and, if possible, to stamp it out. The steps taken have been attended undoubtedly with a fair measure of success, but after all it is only a beginning that has been made, and continued and more persistently earnest attempts must be exerted ere the end is in sight.

On June 2, Mr. John Burns, the well-known English cabinet minister, himself born in poverty, and a working man, opened in the East End of London a series of consumption exhibitions, modeled after those with which we are familiar in this country, organized by the National Association for the Prevention of Consumption, which are being held throughout the country for the purpose of educating the nation as to the steps that should be taken to combat the disease. Mr. Burns, who seemed to have the chief details regarding tuberculosis at his fingers' ends, made a telling speech in which he pointed out that during the past forty years the incidence of tuberculosis had decreased some 50 per cent. and that during the past five years the greatest progress of all had been made, by means of the education of the people. Some of the statistics given by the speaker to drive home his remarks to his audience were strikingly illustrative. Among them were the following: Every year the world loses five million people on account of tuberculosis. In London alone there is a yearly death-rate of 9,176, a number larger than the total of the officers and men who fell during the three and a quarter years of the South African War. Consumption preys especially on the lower classes. It is the daughter of ignorance, the offspring of drink, and the product of carelessness. The text of Mr. Burns' speech was that education as to the means of fighting tuberculosis was particularly needed among the poor, and the statement in reference to consumption applies to every civilized country of the world. Mr. Burns said that there were a number of common-sense, homely things which might be done. In the workingman's home his stove register was nearly always shut; it ought to be open to take the air from the floor. In too many houses the windows were never opened. Then there was the enormous danger of the baby's comforter and soother. It was necessary, also, to get rid of the damp and dirty basements which had made so many consumptive servants, and to abolish the one-room tenement.

THE WIDER APPLICATION OF BRONCHOSCOPY.

IN the *British Medical Journal* of May 29 appears some very suggestive correspondence in reference to the application of the methods of bronchoscopy and tracheoscopy for other purposes than for the detection of foreign bodies only, the contributors discussing the value of the procedure in the investigation of cases of limited bronchiectasis of obscure nontuberculous origin. Associated with this is the advisability of making a Roentgen-ray examination of every child presenting limited bronchiectasis. One writer suggests the value of such examination in any case presenting anomalous chest symptoms. Those who have become practised in the use of the new instruments agree in saying that the technique is not difficult to acquire particularly by those accustomed to throat work, needing only a little skill, patience, and attention to details. Perhaps the wish is father to the thought in a statement so phrased, but it is safe to say that the method is not outside the possibility of attainment by the average physician.

One writer calls attention to the fact that a view of the interior of a bronchus by direct inspection affords us much more information than an examination by the indirect method, and he regularly uses the direct method in the investigation of bronchial affections. A case of supposed bronchitis and asthma was thus shown to be due to a new growth. Still another writer says that, rightly or wrongly, some think that no value whatever is to be placed on a negative history as to the ingestion of a foreign body in a young child, and experience confirms this view. Further, many regard it as an axiom in physical diagnosis that in one-sided lung disease with copious foul expectoration (more especially if there are signs of a cavity), the presence of a foreign body in a bronchus or bronchiole should be suspected, and its presence or absence proved by every means available, that is, radioscopy and

bronchoscopy. Some of the conditions in which bronchoscopy has given the greatest assistance, in either diagnosis or treatment, are tracheitis, tracheal papillomata, tracheal and bronchial ulceration and stenosis, adherent diphtherial membranes, inspissated secretions and crusts in the trachea and bronchi, and esophageal growths, aneurysm, thyroid and thymus tumors as causes of dyspnea from pressure on the trachea. A recent case has been reported in which a diagnosis of dilatation of the aorta was proved by tracheoscopy alone, there being no other physical signs. Over and above all remains the fact that in case a foreign body is demonstrated in the air passages or symptoms suggest its presence, immediate action is necessary, first the *x*-ray plate and the direct inspection and removal. Delay is doubly dangerous in case of organic bodies which may enlarge by imbibition of moisture.

MEDICAL EXPERT TESTIMONY.

Much has been said and written on the subject of the medical expert in court, especially from the standpoint of the physician, but the lay and judicial opinions have not as a rule been based on facts and first-hand knowledge. It is, therefore, with great gratification that one reads in the June *North American Review* a concise statement of the matter from the pen of Supreme Court Justice Clearwater, Chairman of the Committee of the New York State Bar Association appointed to consider the regulation and introduction of medical expert testimony. Judge Clearwater's high standing as a jurist gives to his words the full weight of authority, while his responsible position as chairman of the committee above mentioned certainly puts him in immediate command of the facts. All efforts to remedy the present unsatisfactory status of the medical expert have failed, up to the time of the appointment of the commission, because many, both lawyers and physicians, have fought against any change.

One of the existing evils, and the first one named in Judge Clearwater's paper, is the lack of standard as to expertness. This was well exemplified in a recent notorious trial in which one of the medical witnesses proved his incompetence by foolish and ignorant answers to the simplest questions. Still he went on the stand as an expert. Other evils of the present system as named in the Judge's essay are the giving of partisan evidence; contradictory testimony from physicians in equally good standing; unprincipled self-styled experts; trial Judges who are incompetent to pass on the ability of experts or the validity of their opinions; payment of witnesses by the litigant, and consequently the employment of the best experts by the litigant with the longest purse; the contemptuous treatment some experts have received at the hands of rude and unscrupulous lawyers; and most of all trial judges who have sought to draw attention to themselves by their manner of admitting evidence of bad quality. In order that the ends of justice and truth may prevail, "the expert witness should be free from embarrassment, should have no clients to save and no partisan opinions or interests." He should speak judicially as an exponent of the science of medicine, with full knowledge of the highest authorities and of the most recent investigations dealing with his subject. Cross-examination plays havoc with the expert because of his personal embarrassment when he is called as one high in authority, and because of unfair attempts of the opposing lawyer to "rattle" him. Says Judge Clearwater: "Scientific opinion to be of controlling value can be given only under conditions of mental repose," which is seldom possible, we may add, in the witness box.

Some newspaper writers have promulgated false views of the expert's position because of their unacquaintance with judicial proceedings, and first of these is the erroneous statement that the calling of expert witnesses is of recent origin. As far back as 1532 Charles V of England in his published Code gave power to appoint expert physicians and surgeons for the examination of injured patients before the court. And this is probably not the first instance. Then too the ordinary witness and his function is mistaken for that of the expert. "The ordinary witness testifies to facts; the expert witness to opinions." The expert should not form his judgment from the evidence of witnesses, and should not draw inferences from their statements. "The only legal method is to frame a question upon assumption that certain facts are true, and then to ask the witness, assuming they are true, his opinions concerning them. While the hypothetical question seems involved, the method pursued is scientific and calculated to eliminate the element of error so far as it is possible to do so."

Direct examination of the accused and the passing up by the expert of an opinion in writing is not either desirable or tenable. The sixth amendment to the Federal Constitution granting to the accused the right to be confronted by the witnesses against him makes any such provision unconstitutional and would lead to a mistrial. Every party has a right to call witnesses desired and to cross-examine them as seems necessary. In civil actions the deposition of a witness whose attendance in court is impossible may be taken by commission, and on application of the accused may be so taken in criminal actions, but the right to cross-examine remains. The hope is expressed in conclusion that the present efforts of the committee appointed by the Bar Association may prove fruitful. "Medical expert testimony long has been a necessary and always will be an important factor in the administration of justice. It will require time and effort to restore its sullied luster, but the aim justifies the struggle." We commend the reading of Judge Clearwater's paper by all physicians who are interested in the problems of medical jurisprudence.

The Cammidge Test in Gallstone Disease.

A subject about which opinions differ perhaps as widely as any on the border line of medicine and surgery is that of the indications for operation in the milder cases of gallstone disease. Some physicians urge universal operation as soon as the diagnosis of cholelithiasis is made, in order to forestall

serious complications; others prefer to wait until there are definite signs of pus in the liver or gall-bladder before using the knife; while probably the majority of surgeons tread a path between these two extremes and are often in doubt as to the advisability of turning to surgery or continuing with medicinal treatment. In an article in the *Münchener Medizinische Wochenschrift* for May 25, 1909, Kehr discusses at some length the intermediate cases of gallstone disease in which an occasional acute attack is succeeded by weeks or months of mild discomfort. In such cases Kehr lays considerable weight on the condition of the pancreas as shown by the Cammidge test. When this organ is normal he is inclined to trust to nature, rest, baths, and medicine, whereas if the Cammidge test is positive, he advises operation. As to the accuracy of the Cammidge test, Kehr reports thirty-two gallstone cases in which it was used. Of these twenty-five were positive and seven negative. Of the positive cases eighteen came to operation and it was found that seventeen had chronic pancreatitis and one carcinoma of the gall-bladder. In the negative cases four operations were performed and all showed the pancreas to be normal. Only once did the test go radically wrong. In this case, after a negative reaction, an acute suppurative pancreatitis was found. It is quite possible that the Cammidge test, while an accurate indication of chronic pancreatitis, does not apply to an acute inflammation of the organ. Kehr is a man of wide experience in gall-bladder surgery and his opinion carries much weight. The making of the Cammidge test is unfortunately a long, delicate procedure, and is therefore hardly practical outside of a hospital or in the hands of any but a skilled medical chemist.

Simplicity in Treatment.

The ideal of the therapist has always been to select such remedies as would cure safely, quickly, and pleasantly, though it must be confessed that some of our medical forefathers, if we may judge from the concoctions they employed, did not regard so much the third of these requisites as they did the first two. Neither did they appreciate the fact that these three virtues in a remedy often depended upon a fourth, namely, simplicity, and many of their successors seem to be as little mindful of this great truth. This thought is suggested by a brief paper by George Thomas Jackson, in the June issue of the *American Journal of the Medical Sciences*, on the treatment of boils. Many more or less elaborate methods of treating boils are employed, but the most common one is probably the application of heat by a poultice or one of its more cleanly substitutes, followed by an incision and the forcible evacuation of the pus. When a crop of boils follows, as it often does if poultices are used, resort is had to calcium sulphide or some other form of constitutional treatment, or to the latest refinement of an autogenous vaccine preceded by the estimation of the opsonic index. Jackson's treatment is to puncture the boil, when it points, by a sharpened stick wound round with a little absorbent cotton dipped in 95 per cent. carbolic acid; he then washes the surrounding skin with peroxide of hydrogen or a sublimate solution, and applies a salicylic acid ointment. The result is a cure obtained safely, quickly, and pleasantly, because simply. There is no objection, of course, to making a culture from the pus or to taking the patient's opsonic index, and the information so obtained may be useful as a basis for further treatment if the first essay fails; but the simple treatment should not be made to wait upon the results of the laboratory investigation. It does not require much effort to think of other local diseases which may be promptly overcome by equally simple local remedies without recourse to an elaborate and roundabout constitutional attack.

News of the Week.

Examination for Physician (Male) in the Panama Canal Service.—The United States Civil Service Commission announces an examination on July 21, 1909, at the usual places for such examinations, to secure eligibles from which to make certification to fill vacancies as they may occur in the position of physician, at $150 per month, in the Panama Canal Service. Applicants must be citizens of the United States, graduates of recognized medical schools, and have had at least one year's experience as interne in a general hospital. Persons lacking the above qualifications will not be admitted to the examination. Men only will be admitted to this examination. Age limit, twenty to forty-five years on the date of the examination. Applicants should apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any of the usual places for Civil Service examinations, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington prior to the hour of closing business on July 10, 1909.

Pathologist, Freedmen's Hospital.—The United States Civil Service Commission announces an examination to be held on July 14, for the purpose of securing eligibles to fill a vacancy in the position of pathologist (male) at the Freedmen's Hospital, Washington, D. C., at a salary of $2,000 per annum. Applicants must have had at least one year's experience in a pathological laboratory after graduating from a reputable medical college, and must be qualified to make all kinds of pathological examinations. Application should be made at once to the United States Civil Service Commission, Washington, D. C., for Form 1312.

Commencement Exercises.—Eight students were graduated from the Willamette Medical College, Salem, Oregon, on June 2, the degrees being conferred by President Fletcher Homan of Willamette University. The College of Physicians and Surgeons of Boston graduated a class of thirteen students who had completed a four-year course, the degrees being conferred by Dr. C. C. Farnham in the absence of the president of the college. Dr. Charles H. Hughes, dean of the Medical Department of Barnes University, St. Louis, delivered the address to the class.

Tufts Medical College.—Announcement was made at the annual dinner of the Alumni of Tufts College, Boston, on June 8, of the appropriation of $100,000 by the trustees of the college for the purpose of enlarging and remodeling the school buildings.

Cornell University Medical College.—The board of trustees of Cornell University has announced the following appointments in the medical department in New York: Dr. Frank Sherman Meara, Professor of Therapeutics and Clinical

Medicine; Dr. Charles N. B. Camac, Professor of Clinical Medicine; Dr. William J. Elser, Professor of Bacteriology; Dr. John A. Hartwell, Professor of Clinical Surgery; Dr. William B. Coley, Professor of Clinical Surgery; Dr. Silas P. Beebe, Assistant Professor of Experimental Therapeutics, and Dr. John R. Murlin, Assistant Professor of Physiology.

Brown University Confers Degrees.—Dr. William Crawford Gorgas, a member of the Isthmian Willis G. Macdonald of Albany, members of the Canal Zone, and President of the American Medical Association, and Dr. Charles Value Chapin, Health Officer of Providence, R. I., received the honorary degree of Doctor of Science at the commencement exercises of Brown University on June 16. Dr. Chapin was professor of physiology at Brown from 1886 to 1896.

State Board of Medical Examiners.—The New York State Board of Regents on June 17 appointed Dr. William H. Park of New York City and Dr. Willis G. Macdonald of Albany, members of the State Board of Medical Examiners. Dr. William S. Ely, whose term expires on July 31, 1909, was appointed to succeed himself.

Strange Disease Among Sailors.—A number of sailors on vessels at the port of Philadelphia have been found suffering from an inflammatory affection of the skin attended with the formation of wheals and vesicles. Investigation disclosed the fact that they all slept on mattresses made of straw from several sources, and that the disease could be developed by exposure of the skin to such straw. To determine whether the disease is infectious and transmissible or not, Dr. J. F. Schamberg, assistant diagnostician to the Bureau of Health, has permitted himself to be inoculated with the contents of vesicles developed in Dr. Joseph Goldberger, assistant surgeon of the U. S. Public Health and Marine Hospital Service, and specimens of the straw have been sent to the Hygienic Laboratory of the service for study.

Plague in China.—During the fortnight ending June 14, 131 deaths from bubonic plague were reported from Amoy, China, and much larger figures are reported from some of the interior towns.

Pure Milk.—The New York Milk Committee of the Association for Improving the Condition of the Poor is forming a company for the operation of a "model dairy" and to demonstrate that clean milk can be supplied to the consumer at the present market rates. It is believed that the use of the latest designs of apparatus will effect a saving which will more than offset the increased cost of production under perfectly safe conditions.

Measures to Reduce Infant Mortality.—The Chicago Health Department has inaugurated a campaign to safeguard the lives of infants in Chicago during the summer. One of the first things to receive attention is the milk supply, and food contamination is to be considered. Nurses are to be provided for children who are seriously ill; medical attention is to be urged for the ailing; mothers will be instructed with regard to proper clothing, care, and food of children; day nurseries are to be established, and tent hospitals for babies will be provided in the Eighth, Sixteenth, Seventeenth, Nineteenth, and Twenty-ninth Wards.

Change in Names of State Hospitals.—The State Hospital for the Insane at Bartonville (Illinois), which was first known as the Illinois Hospital for the Incurable Insane, and later as the Illinois General Hospital for the Insane, will now be known as the Peoria State Hospital. Other State hospitals for the insane will hereafter be known as the Jacksonville State Hospital, Watertown State Hospital, Kankakee State Hospital, and Elgin State Hospital.

Beth Israel Hospital.—Dr. Sidney A. Stein, Dr. H. Fred Lange Ziegel, and Dr. David Sheitlis have been appointed adjunct visiting physicians to Beth Israel Hospital. Dr. Eli Moschcowitz has been appointed pathologist to the same institution.

The Chicago Eye, Ear, Nose, and Throat College has completed an annex on Washington street, doubling the capacity of the institution.

Dr. Owen Copp, Secretary of the Massachusetts State Board of Insanity, has been appointed superintendent of the Boston State Hospital, formerly the Boston Insane Hospital.

Dr. F. Kreissl has been appointed attending surgeon to the genitourinary department of the Columbus Hospital.

The Harvey Society Lectures.—The Council of the Harvey Society calls the attention of the medical profession to the permanent value of the lectures collected in the volumes published by the society. Founded to promote the diffusion of such knowledge, it is the aim of the Harvey Society to make its publications accessible to as wide a circle of readers as possible. To further this object the council has decided to invite those in sympathy with it in this endeavor to subscribe to the collected lectures in book form, at a price merely sufficient to defray the costs of publication. Two volumes have already appeared, a third will soon be issued, and a fourth is about to go to press. Subscriptions to the volumes already published or in press may be sent to the secretary of the Harvey Society, Dr. Francis Carter Wood, 437 West Fifty-ninth street, New York.

Rush Medical Alumni Association.—At its tenth annual meeting and dinner, recently held, the class of 1909 elected the following officers: *President,* Dr. Harry C. King, Fort Smith, Ark.; *Vice-President,* Dr. Stephen E. Gavin, Fond du Lac, Wis.; *Secretary-Treasurer,* Dr. John B. Ellis, Chicago; *Historian,* Dr. B. H. Breakstone, Chicago.

American Academy of Medicine.—At the annual meeting of this society, held at Atlantic City June 5 and 7, 1909, the following officers were elected: *President,* Dr. James H. MacBride, Pasadena, Cal.; *Vice-presidents,* Drs. Philip Zenner, Cincinnati; W. Blair Stewart, Atlantic City; Ruth Webster Lathrop, Philadelphia, and H. W. Loeb, St. Louis; *Secretary and Treasurer,* Dr. Charles McIntire, Easton, Pa.; *Assistant Secretary,* Dr. Alexander R. Craig, Philadelphia.

Chicago Surgical Society.—At the annual meeting, held June 18, the following officers were elected for the ensuing year: *President,* Dr. Arthur Dean Bevan; *Vice-president,* Dr. Jacob Frank; *Secretary,* Dr. Frederic A. Besley; *Treasurer,* Dr. Wm. M. Harsha; *Councilor of Chicago Medical Society,* Dr. Carl Beck.

Chicago Medical Society.—The annual meeting of this society was held June 10, when the following officers were elected: *President,* Dr. John A. Robison; *Secretary,* Dr. George F. Suker.

The Maine Homeopathic Medical Society held its forty-third annual meeting at Augusta on June

8, when the following officers were elected: *President,* Dr. John T. Palmer, Portland; *Vice-presidents,* Drs. William H. Kennison, Madison; George H. Rand, Livermore Falls; *Recording Secretary,* Dr. Luther A. Brown, Portland; *Corresponding Secretary,* Dr. Carrie E. Newton, Brewer; *Treasurer,* Dr. William S. Thompson, Augusta.

The Orange County (Cal.) Medical Society at its annual meeting on June 2 elected the following officers for the ensuing year: *President,* Dr. J. L. Beebe, Anaheim; *Vice-president,* Dr. C. C. Violett; *Secretary,* Dr. Ida Parker, Orange; *Treasurer,* Dr. H. S. Gordon, Santa Ana; *Librarian,* Dr. C. D. Ball, Santa Ana.

The Minnesota State Medical Association will hold its annual meeting at Winona in October, 1909.

Obituary Notes.—Dr. Edmond Montgomery Moffett of West New York, New Jersey, died at his home on June 12, aged sixty-one years. Dr. Moffett was graduated from the medical department of the University of New York in 1882, and had practised in this city until about six months ago.

Dr. C. Eugene Gunther of New York died at his home after a short illness on June 12, aged forty-eight years. Dr. Gunther was a graduate of the Long Island College Hospital, class of 1880, and was for some years a professor in that institution.

Dr. Richard E. Haughton of Richmond, Indiana, died at his home from chronic bronchitis on June 4, aged eighty-one years. Dr. Haughton was graduated from the Jefferson Medical College of Philadelphia in 1861. In 1874 he was made professor of physiology in the College of Physicians and Surgeons of Indianapolis, and in 1879 became one of the founders and a professor in the Central College of Physicians and Surgeons. He had been a member of the American Medical Association since 1857, and was also a member of the State and County Medical Societies, and of the Mississippi Valley Medical Association.

Dr. Pliny Rand Watts of Sacramento, Cal., died on June 1, following an operation for appendicitis, aged forty-five years. Dr. Watts was graduated from the New York Homeopathic Medical College in 1887, was at one time president of the California State Homeopathic Medical Society, and was attending surgeon to the Sutter Heights Hospital of Sacramento.

Dr. Valery O. Schayot of New Orleans, La., died on May 29, of pneumonia, aged thirty-nine years. He was a graduate of the medical department of Tulane University, New Orleans, and a member of the Louisiana State Medical Society.

Dr. Joseph L. de Varona of Brooklyn, N. Y., died on May 29, aged twenty-eight years. Dr. de Varona was graduated from Cornell University Medical College in 1905. He was visiting physician to the genitourinary department of the Williamsburg Hospital, assistant cystoscopist to St. Catherine's Hospital, and a member of the staff of St. Vincent's Hospital, Brooklyn.

Dr. Hugh Ferguson of Boston, Mass., died at his home on June 13, aged seventy-three years. Dr. Ferguson was graduated from the medical department of the University of New York in 1858, and immediately returned to Boston where he had since practised. He became a member of the Massachusetts Medical Society in 1858, and was made an attending physician to the Carney Hospital in 1868, a position which he held until he retired from active work in 1905. He was also a member of the American Medical Association and of the South Boston Medical Society.

Dr. I. S. Curtis of Brunswick, Maine, died at his home on June 9, aged seventy years. Dr. Curtis was graduated from Bowdoin College in 1867, and from the Maine Medical School in 1872.

Dr. Joseph Spiegelhalter of St. Louis, Mo., died at his home on June 7, aged seventy-four years. Dr. Spiegelhalter, who was born in Germany, came to this country in 1854, and after a short service in the Union Army was graduated from the Humboldt Medical Institute of St. Louis in 1862, after which he again entered the army. At the close of the war he began his practice in St. Louis, where he served as health officer in 1865, and as coroner from 1866 to 1870. He was a member of the American Medical Association, the St. Louis Medical Society, the American Association for the Advancement of Science, the American Public Health Association, and the St. Louis Microscopical Society.

Dr. Andrew M. McCabe of Pittsburg, Pa., died after a short illness, on June 13, aged thirty-eight years. He was graduated from the medical department of the Western University of Pennsylvania in 1867.

Correspondence.

THE SUPPRESSION OF YELLOW FEVER IN CUBA.

To the Editor of the Medical Record:

Sir: I feel very sure that no one more than yourself would be anxious to correct any injustice committed by your publication as a result of erroneous information. Your correspondents in Cuba have not reported correctly the yellow fever situation in that country. The crowds of tourists that you speak of in your editorial of June 5 came this spring, and remained much longer than usual because the United States did not quarantine against them. They are proof that there was no yellow fever in Cuba.

The seeds of the fever, as you call them, are not lurking there. The last case of yellow fever occurred in December of last year. I am myself, perhaps, one of those most responsible for giving the mild, unrecognized cases of acute infectious diseases the capital place that belongs to them among the factors in the propagation of epidemics. But there is a limit to the bearings of this doctrine. You can't keep mild cases of yellow fever continuously running in a series, in the midst of a very nonimmune population, without having an explosion. No one has had a better opportunity than ourselves to study this matter. With Colonel Kean, U. S. A., and Drs. Finlay, Agramonte, Lebredo, and others we have been, during the last three years, studying with special care the manner of dying out of outbreaks of yellow fever—an interesting study. Three months in Cuba (a tropical country), and with the conditions of watchful and well-organized vigilance that there prevail, is sufficient time to make sure that we have seen the last case, and that we have destroyed the last infected stegomyia, provided that at least two of the months of the said period of three, fall within the semester from April to August. Three months, I say, should be enough, and we are now about completing our sixth month without a case. Fortunately, during this last visitation of the fever in Cuba, the disease worked itself only exceptionally into the Cuban families of children. It followed very generally groups of men, mostly laborers and rather recent arrivals, who live generally apart from the Cuban families. The recent visitation of three years duration in Cuba has been kept all along well under control, both before and during the American intervention. Comparing with the old annual epidemic that characterized the amarillic infection during the Spanish regime, the recent outbreaks were but insignificant manifestations. Now, under such circumstances, it is not easy for the disease to affect extensively the non-immune native children. The child in the Cuban home is protected by a screen of immune persons, so that, even when an infected insect comes into such a house, the chances of its picking out the nonimmune child are small.

There is no reason why you should feel apprehensive of importation from Mexico. In the first place, the chances

of outwanderings and importations of the disease are growing every day less and less; because there are no more great centers of yellow fever infection existing—the disease is dying out; and, secondly, because the maritime quarantine in Cuba has been very successfully managed We have had but one importation in Cuba since the disease disappeared in 1901, to two importations in the United States during the same period.

I have myself, with my colleagues Drs. Finlay, Agramonte, Lebredo, Albertini, Martinez, and Lainé examined personally, or studied carefully, all cases that might be considered as at all suspicious of yellow fever, during the last five months, and none of them has left in our minds the least apprehension.

We are starting with the budget of four million dollars for Public Health and Charities, under the direction of a Secretary in the President's Cabinet, Dr. M. Duque, a very able and enthusiastic physician; we are consolidating and broadening at the same time the operations in Preventive Medicine that were started during the American intervention, and the MEDICAL RECORD, an American paper, would I am sure be the last to withdraw from us, upon information that has not been substantiated, that encouragement that the Cuban people have learned to expect always from American institutions.

JUAN GUITERAS, M.D.,
HAVANA. Director of Public Health.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

BERIBERI—RUPTURE OF UTERUS—OFFICIAL RESEARCHES—CONGRESS OF CHEMISTRY; NEXT MEETING IN AMERICA—INDIAN MEDICAL SERVICE—TUBERCULOSIS EXHIBITION—TROPICAL MEDICAL ENDOWMENT—OBITUARY.

LONDON, June 4, 1909.

THE Tropical Society's discussion on beriberi was concluded on May 21. A report of the first part of this important debate appeared in my London letter in the MEDICAL RECORD for May 22. Dr. C. W. Daniels opened the adjourned discussion. He said the "cured rice" spoken of by Dr. Braddon was not prepared as in India, being steamed for eight minutes, not boiled until it split, and could not be correctly called sterilized. It was soaked well in water and the grain often sprouted; it was dirty and mouldy. He had himself cultivated innumerable bacteria from it. The Chinese said they could not eat it, as it gave them dysentery, but they ate "uncured" rice, which looked, smelt, and tasted very well. Touching statistics, he said, the variations in prevalence were as great before as after the "cured rice" days. In one gaol rice was used for many years, when no beriberi occurred, then suddenly 35 cases, mostly fatal, occurred in a single month. Did that rice take years to affect the prisoners? But in other gaols cases occurred almost immediately on admission and it could not be due to chronic poisoning by the uncured rice, which, in fact, was used in England and all over the world.

Sir W. Treacher, K.C.M.G., said as a layman he might say he had had great experience of outbreaks. He saw instances of one class only being affected in a community in which all fed alike, e.g. in Labuan a company of Malays were stationed as a guard and beriberi broke out and nearly all died, though none of the other inhabitants had it, yet all ate the same rice brought in a sailing ship from Singapore.

Dr. Beddoes said malignant beriberi prevailed on the Amazon, where rice was not eaten, the chief food being cassava, which was prepared from the same root as tapioca.

Dr. Hartigan said in Hongkong some of the schools suffered much, others not, but the diet was just the same.

Dr. Macfarlane added to this that at St. Paul's College, Hongkong, outbreaks occurred every year and all sorts of rice have been tried, with no effect. Change of place, not of diet, was the means of arresting the disease.

Professor Ronald Ross urged that further experiments in feeding should be made on more exact lines. There was certainly a case for careful research

Sir Patrick Manson remarked that most of the speakers had opposed the rice theory, although it had been upheld by competent observers who had previously regarded it as untenable. His own position was that of suspended judgment.

After the discussion Dr. Sandwith called attention to the paper of Bontius of Batavia in 1624, in which the disease was fully described. The Royal College of Physicians lent the volume of Bontius, "De Medicina Indorum," for exhibition at the meeting, which interested many of the members.

Rupture of the uterus was pretty fully discussed by the Section of Obstetrics and Gynecology of the Royal Society of Medicine on May 13. Dr. T. W. Eden opened with a paper on the operative treatment, in which he related three cases, two of recovery and one fatal. Abdominal hysterectomy was performed in all three. In 1900 there was a discussion at the Obstetrical Society, now absorbed in this section, when Dr. Spencer related four cases treated by gauze packing, and advocated that method. In 1901 Varnia condemned all conservative plans and urged removal of the uterus by abdominal section in all serious cases. Dr. Eden considered the three risks of rupture as shock, hemorrhage, and sepsis, and said deep bleeding occurred more frequently than had been supposed whether the rupture were complete or incomplete. The hemorrhage, which immediately followed the accident, usually ceased spontaneously, but was apt to recur, for the uterine contraction could not control it, and it might be partially extrauterine. About 50 per cent. of the mortality (which totals some 70 per cent.) was due to sepsis. The mortality of expectant treatment had been estimated by different observers variously as 60 to 90 per cent. In severe cases Dr. Eden held that operation offered the best chance, as it was the only certain way of controlling bleeding, as the uterus had often been infected and if the organ had not been removed the risk of subsequent pregnancy and fresh rupture was high. He thought laparotomy and suture of the rent had a higher mortality and vaginal hysterectomy did not permit full exposure of the injury and bleeding vessels might escape notice in that operation.

Dr. Lionel Smith gave an account of ten cases and discussed the cause and symptoms.

Dr. Herbert Spencer said though rupture sometimes happened in careful hands it was oftener due to bad and dirty midwifery. He could not accept supravaginal hysterectomy as routine treatment in complete rupture, still less when the peritoneum was not involved.

Dr. Hubert Roberts related four cases. One died before anything could be done. In one the rent was plugged and recovery ensued. In two the abdomen was opened and the rent sutured, and one of them recovered and three years later was delivered of a full-term child. He thought sutures and drainage often would give as good results as removal.

Dr. Drumond Robinson had had five cases. One died soon after rupture. In two gauze packing was used and both recovered. In two others the fetus was *in utero* when the rupture was discovered and abdominal hysterectomy was performed, but both died. In such cases there was no option, he thought, and removal by abdominal section was necessary.

Dr. J. S. Fairburn had treated six cases by three several methods—plugging, suture, and hysterectomy. Selection of the plan should be aimed at. He had had three cases in which nothing was done and two recovered. Another case in which child and placenta had been delivered before admission suffered from so profound shock and bleeding that the abdomen was opened and the rent so sagged hysterectomy was done, but she died in a few hours. These and other cases showed that no treatment was suited for all cases.

The Local Government Board has authorized nine researches out of the annual Parliamentary grant. Five are continuations of investigations into protracted and recurrent infection in typhoid; the same in diphtheria; into flies as carriers of infection; into sewage bacteria and defensive mechanism of the body against infections; milk pollution and Gaertner's bacilli in prepared foods. The other four are (a) changes undergone by milk on infection by bacteria and relation of pancreas to epidemic diarrhea (Drs. Sholberg and Wallis); (b) records of lying-in hospitals as to nutrition of mother and other factors influencing vitality of infants in the first fourteen days (Dr. Darwell Smith); (c) mixed infections in phthisis (Dr. Inman); (d) importance of certain types of cells in defense against the tubercle bacillus and effect of tuberculin on their activities (Dr. J. Miller)

The International Congress of Applied Chemistry has concluded its rather elaborate programme. Its eleven sections have discussed innumerable questions and given us the last word on many. Of course, hygiene and sanitation were first in medical interest Food

and adulteration, fuel and the enormous waste of heat in unconsumed smoke (one expert calculated this waste would pay off the national debts of most countries), ventilation, disinfection, and many other topics have occupied attention. Among the social functions the banquet in the central transept of the Crystal Palace, at which over 2,000 guests assembled under the presidency of Sir William Ramsay, presented a remarkable spectacle and was pronounced most successful. It is true that the speeches could only be heard by those near the speakers, but all were taken as a happy demonstration of the unity of science. The trip to Windsor Castle, at the invitation of the King, although somewhat marred by unfavorable weather, was also greatly appreciated, four special trains being required to convey those who went. At the closing meeting the American Ambassador brought an official invitation that the next year's meeting should be held in the United States. In one of his happy speeches he told us the President had approved the joint resolution of the House of Representatives and Senate as to this invitation and he described some of the attractions for scientists. Dr. Wiley added words of welcome and the invitation was accepted. It was remarked that this is the first time the Congress has received a direct message from the ruler of a great nation to hold a meeting in his country.

An exhibition has been opened at the East End by the Association for the Prevention of Tuberculosis and will remain open until the 19th. Admission is free, the object being to interest and instruct the populace. The most striking exhibit is a room—dirty, dark, stifling—and beside it a duplicate as it ought to be—light, airy, clean.

The General Medical Council continued its sittings through the week. The chief business was the trying of cases of alleged "infamous conduct in a protessional respect." The sordid details will scarcely interest you, but I may say that some names were removed from the register, after a full inquiry. From the point of view of an observer, the Council is not a body well adapted to undertake judicial proceedings, but members seem anxious to do their best.

Some anxiety is felt in the Indian Medical Service at the renewal of a proposal to establish a civil profession, independent of the officers who have hitherto filled many positions, which such a plan might take away and which almost certainly would be detrimental to the service and to the natives. Lord Morley seems in a hurry, though the unrest among the natives since he took office might have warned him that it is easy to pull down if the question of consequences be ignored. The Indian Government is not in such a hurry and wishes to proceed slowly.

Lord and Lady Stanley of Alderley have endowed the London School of Tropical Medicine with a sum producing £50 a year in memory of their son, who died at Sokoto last November. He was only thirty years old and during six years had attained an exceptionally high position in the Colonial service. He was greatly esteemed by his superior officers and specially trusted by the natives.

Dr. Simeon Holgate Owen, whose sudden death was reported on the 21st ult., at the age of 64, was consulting physician to the Manchester Northern Hospital for Women and Children and had served on the staff of the Royal Infirmary. He was M.D., R.U.I. 1872, M.R.C.P. 1888 and had been president of the Clinical Society. He wrote a work on "Fevers," another on "Work and Recreation," and contributed to the societies and journals.

Another sudden death is that of Dr. Thos. Fred. Hopgood, aged 62, surgeon to the Sunderland Infirmary and to the Durham County Eye Infirmary and the Orphan Asylum. He had a stroke last July, but had apparently recovered and resumed his work. He was in the infirmary on the day preceding the fatal seizure.

The Urine in the Diseases of Infancy.—In an analysis of the urine in 667 children, Morse and Crothers of Boston have found that, putting aside diseases of the gastrointestinal tracts, albuminura and casts are more often found in pneumonia and meningitis than in other acute diseases of infancy. They disagree with other writers on the frequency of nephritis following otitis media and eczema. They also show that in infancy nephritis rarely produces edema, while, conversely, edema in infancy is usually due to some cause other than disease of the kidneys.

OUR LETTER FROM PARIS.

(From Our Regular Correspondent.)

CEREBROSPINAL MENINGITIS—PRACTICAL METHOD FOR THE RAPID EXAMINATION OF THE BILIARY AND INTESTINAL FUNCTIONS IN THE CHILD BY THE ACETIC SUBLIMATE REACTION UPON THE STOOLS—THE ULTRA-MICROSCOPE AND ITS ESSENTIAL RÔLE IN THE DIAGNOSIS OF SYPHILIS—UTILITY OF MICROSCOPIC EXAMINATIONS IN THE DIAGNOSIS OF SYPHILITIC ACCIDENTS AND ESPECIALLY CHANCRE—ATTEMPT TO TREAT SOME CASES OF EPITHELIOMA OF THE ESOPHAGUS BY THE DIRECT LOCAL APPLICATION OF RADIUM.

PARIS, May 15, 1909.

At the recent meeting of the Hospitals Medical Society Netter and Debré made an interesting communication on the development of the epidemic of cerebrospinal meningitis at Paris. The epidemic of cerebrospinal meningitis occurred principally in the months of March, April, and May. The cases observed presented apparent relations which caused the contagion to be recognized, and the disease tended to take on an epidemic character. The authors reported seven cases personally observed. Aside from the decisive diagnostic points furnished by lumbar puncture, meningitis shows its presence by two valuable signs, stiffness of the neck and flexion contraction (Kernig's sign), but the changes in the neck do not begin until the second day and their occurrence is sometimes even later. The treatment should consist of intraspinal injections of antimeningococcic serum repeated at high dosage. The serum must be introduced into the spinal canal within the membranes, and we should inject each time 30 to 40 cubic centimeters. It is best to repeat these injections daily, sometimes twice a day. Before making the injection as much liquid as possible should be withdrawn, up to 100 or 110 c.c. We are no longer helpless in the treatment of cerebrospinal meningitis, and by the methodical employment of the antimeningococcic serum we possess a means of defense of undoubted efficacy.

Triboulet describes a method of practical value in the examination of the biliary and intestinal functions in the infant, by the acetic sublimate reaction upon the stools. From the examination of a large number of specimens he concludes that when one finds the existence of a stercobiline in the stools of a patient, whether sick or no, this patient is normal in his biliary functions. To recognize stercobiline in the feces a piece of a fresh stool the size of a small nut is placed in a test tube filled two-thirds full of distilled water; this is well shaken up, and then with a dropper there is added eight or ten drops of an acetic solution of sublimate of the following formula: Distilled water, 100 cubic centimeters; sublimate, 3½ grams; acetic acid, 1 cubic centimeter. Under this reaction a true precipitation occurs and there is formed a deposit, for the formation of which we must wait about a quarter of an hour to get the maximum reaction. The colors obtained are four—a red reaction indicates the presence of stercobiline and a normal condition of the intestinal content; a yellow color indicates abnormal biliary functions connected with an infectious condition; a green color is normally met with in infants at the breast; a gray color occurs in very grave abnormal conditions in dystrophic nurslings. From this method of examination we may draw very important conclusions with reference to a large number of questions of alimentary hygiene in the nursling. This very simple and practical test, brought forward by Triboulet, allows of examination of the biliointestinal function, and these are considerations that should not escape either the physician, the surgeon, or the accoucheur.

Gastou and Comandon read an interesting paper on the ultramicroscope and its essential rôle in diagnosis of syphilis. The diagnosis of syphilis, often difficult and uncertain, may be made absolutely by the use of the ultramicroscope. With this apparatus the examination for the spirochete is rapid, immediate, almost always certain, easy, and may be made in his office by the physician. The ultramicroscope is based on the principle of lateral illumination of the preparation. The light reflected by mirrors traverses obliquely the layers of the liquid situated between the slide and the cover glass. It does not penetrate directly into the microscope, but the particles in suspension in the preparation themselves become luminous. The examination is made with an immersion lens and the ultramicroscope, upon which, by means of a lens, are concentrated the rays from a powerful

source of light. The parasite of syphilis examined in this way has a special motility, which allows it to be not only recognized but differentiated. The spirochete shows a helicoidal movement and a sinusoidal movement, like a needle. Further, there is a sort of wave of contraction passing from one end of the organism to the other. The preparation of exudates for examination is simple: If we have an erosive lesion it is first washed with sterilized cotton soaked in serum, and is then lightly curetted with a spatula, especially upon the edges. If it is a skin lesion, it is first washed with alcohol, wiped with cotton, then lightly scarified, and a small vacuum bulb of Bier is applied. With this technique the spirochete is generally very easily found in primary or secondary lesions. The search for the spirochete is easiest in hypertrophic mucous patches. In the blood and urine it is found only in heredosyphilities. Lastly, the discovery of the spirochete in the saliva is of the utmost importance for the prevention of syphilitic contagion. Following this communication Milian insisted upon the value of the ultramicroscope in the diagnosis of syphilitic lesions and especially chancre. This is of value to the physician whenever he finds himself in presence of a suspected ulceration. The use of this instrument should become generalized.

Guisez and Barcat reported several attempts in the treatment of several cases of epithelioma of the esophagus by direct local applications of radium. When by esophagoscopy the authors had ascertained the presence of cancer of the esophagus, they applied in contact with the growth a No. 15 or 16 sound, the end of which carried a tube of radium protected by two screens of silver four-tenths of a millimeter in thickness. The application continued for from two to three hours. As a result of these applications the esophagus, which was absolutely impermeable, became permeable to soft bougies after three or four applications of radium. The dysphagia was not diminished, and the spasm even increased after the application. The results of the first attempts at the treatment by radium of these neoplastic tumors of the esophagus seems encouraging; the rays produce an amelioration of symptoms and should be further tested, especially in comparison with the ordinary treatment of cancer, and its discouraging results.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

INDIGENOUS TYPHOID FEVER—CHOLERA ENDEMIC—PERSONAL NOTES.

MANILA, P. I., May 8, 1909.

HERETOFORE many medical men have seriously doubted whether cases of typhoid fever, especially those among natives, ever occurred here which could not be traced to infection introduced into the islands from the outside, that is to say, from a foreign country. Cases among the American soldiers were attributed to infection brought from the United States either in food, clothing, or the intestines of individuals. Cases among the Japanese, which, by the way, are exceedingly common among the members of that race who reside in the Philippines, were ascribed to the same causes, and those which occurred among the Filipinos themselves were thought to be due to contact direct or indirect with the Americans, Japanese, or other races that introduced the disease here. Lately, however, two cases were encountered at Taytay by the Hookworm Commission, of which mention was made previously in these columns. These cases presented the pathognomonic symptoms of the disease and the diagnosis was further confirmed by positive Widal reactions. Both were in Filipinos who had not been outside of their town for many weeks prior to being stricken and who ate and drank only the food and water which was common to the remainder of the inhabitants. They denied partaking of any food introduced from the outside, with the exception of the rice and fish, which, however, are used by all of the residents. There were no Americans, Japanese, or other foreign residents in the town, with the exception of the members of the Commission. On account of the daily sanitary inspection which had been made since the advent of the Commission in the town, more than five weeks before these cases came under observation, it was not likely that any cases of a recognizable form at least existed in the town during these five weeks. Some of the drinking water was obtained from a spring, but most of it probably came from shallow surface wells, but the water used by the typhoid patients was used commonly by many other persons. There were practically no flies nor mosquitos in the place. This experience, at least, would indicate that the disease exists among the Filipino people themselves.

The reason that typhoid fever does not spread more in the Philippines is probably due to the fact that there are no reservoirs or other common sources of water supply, hence infection on a large scale is not possible and the use of milk, which may have been infected with typhoid organisms by water or other means, is practically unknown among the bulk of the Filipino people. From the foregoing, then, it may be observed that the cases afford ample room for speculation as to their origin.

As the American administration in the Philippines comes into closer and closer touch with the actual conditions in these islands, it is more and more apparent that cholera must have been prevalent in the islands for many years. With the sources of information that were available only a few years ago it would probably be stated now that no cholera prevailed at the present time. But with the improved communication, the increasing confidence, and the result of the educational campaign which has been so persistently carried out, it is now known that cholera in sporadic form is present in a number of provinces. The number of cases reported does not reach more than 20 or 30 per week among 7,000,000 people, and is generally encountered among the most poorly nourished members of the community.

In the past it has been customary to diagnose such cases as enteritis, diarrhea, cholera nostras, dysentery, etc., but it now seems probable that it is in this benign form that the disease is carried along from year to year, and when conditions, as yet not understood, are favorable the disease increases in virulence and assumes epidemic proportions. When it is remembered that these cases occur over an area that comprises a territory equal to that of the States of New York, Pennsylvania, New Jersey, and Maryland, and that less than 25 experienced medical men are available to combat this condition, and that the transportation over much of the territory is as difficult as it would be to walk and carry supplies from New York to Pittsburg, it will be readily understood that the complete eradication of cholera can scarcely be hoped for in the near future.

When other unfavorable factors are taken into consideration, as, for instance, the fact that the climate is favorable to the development of the cholera organism throughout the four seasons of the year; in other words, that there is no winter season which would at least stop the disease for a time, that a large proportion of the people are extremely superstitious and inherently indifferent to sanitary measures, and believe that by observing them they thwart the will of the Almighty, that the cost of food is comparatively high, thus making the use of boiled water and cooked food difficult for the masses, that eating with the fingers from a common family receptacle is practically universal, that the Filipinos as a race are physically weak and unresistant, it will be still more apparent why cholera cannot be more successfully combated, and cannot help causing admiration for the brave medical men who hopefully battle on against such heavy odds.

Dr. Paul C. Freer, Director of the Bureau of Science, and also the Dean of the Philippine Medical School, has left for the United States, via Europe, for a six months' vacation. During his absence Dr. Richard P. Strong, the Chief of the Biological Laboratory, will be the acting Director of the Bureau of Science, as well as the acting Dean of the Philippine Medical School.

Captain and Assistant Surgeon Harry Nichols, who was relieved as a member of the Army Medical Board for the study of tropical diseases, has been ordered to remain with it for another period of three months. The vacancy caused by the expiration of his tour of duty in the islands will be filled by Captain and Assistant Surgeon Kilbourne.

Tobacco Amblyopia in a Woman.—A case is reported from California of a refined and educated woman, fifty-two years of age, who suffered from severe tobacco amblyopia. For two years the patient had smoked six to eight cigars a day.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 10, 1909.

Comparison of the Guaiac and Benzidin Tests for Invisible Hemorrhage in Diseases of the Digestive Organs.—F. W. White describes these tests and the mode of their application. He emphasizes the following points. Tests for invisible hemorrhage in diseases of the digestive organs are very valuable and will come into use more and more. A preliminary step with both the tests described, is to exclude sources of error from food ferments. This is more important for gastric contents than for feces. Acetic ether extraction is best for the guaiac test and boiling in the benzidin test. Metallic salts, iodide of potash, and charcoal must not be given when the stomach contents are to be tested by the benzidin method. Before using these tests, meat, fish, and their juices must be excluded from the diet, and no hemoglobin derivatives used as a drug for two days before the guaiac test, and three or four days for the benzidin test. Gastric contents should be examined when available, but feces are the best material for examination, as they alone are available for the repeated examination which is usually necessary for diagnosis, and they are free from the source of error introduced by the use of a stomach tube. The Weber method (described) is the best guaiac test for routine clinical work, using several amounts of guaiac as recommended by Schroeder. The original Adler (described) benzidin test is too delicate for clinical work. This objection has been overcome in the Schlesinger and Holst's modification of the test, which is about five to seven times as delicate for blood in gastric contents as the guaiac test and only about twice as delicate for blood in the feces. This last test is consequently the best for clinical work. It has all the clinical value of the guaiac test with somewhat greater delicacy, greater clearness and more simple technique, and, as carried out, acts as a control on the cleanliness of the reagents and glassware. Good results with the benzidin test depend on careful technique, exclusion of oxidizing ferments in raw food, fresh material, clean glassware, and quality, strength, and proportion of the reagents used. A negative benzidin test has a greater value than negative guaiac test in ruling out hemorrhage, and if both tests be used as a control much time will be saved by using the benzidin test first, which takes only two minutes, and, if negative, renders any further tests for blood unnecessary. It is wise to control the benzidin test with the guaiac test when positive results are found until the technique is learned and tested individually.

The Relation of the Spleen to Resistance against Infection.—J. C. Hubbard introduces his subject by reference to a boy with splenic anemia from whom the spleen had been removed. Some three weeks later appendicitis developed and in spite of prompt operation the boy died in about twenty-four hours, the appendix having been found perforated and gangrenous. The question is asked, was the ability to withstand infection decreased in any way by the splenectomy? A series of experiments was undertaken on guinea pigs to determine if possible this inquiry. The results are thus summarized: Two splenectomized pigs died of general infection (after operation and artificial inoculation pus cocci), the controls surviving. One operated pig died of general infection, there being no control. One operated pig died of a local infection not at the point of inoculation, and some time later its control died of a general infection. A control died of a general infection, while the operated pig lived until killed. Both the operated pig and the control lived until killed. It would appear, therefore, from these experiments, that there is no marked difference in the ability of splenectomized pigs and normal guinea pigs to withstand infection artificially produced by *Staphylococcus pyogenes aureus*. A review is given of recent literature on the subject, and the history of one man referred to by the author, who removed the patient's spleen because of rupture, some three years and nine months ago, would seem to indicate that removal of the spleen does not lessen a man's ability to withstand infection. The protective function of this organ in this particular respect seems to be taken up by other organs after its removal.

New York Medical Journal, June 12, 1909.

Diet as a Prophylactic and Therapeutic.—H. W. Wiley says that the debasement of the diet, the addition of injurious substances thereto, or the abstraction of valuable substances therefrom diminishes the power of that diet to maintain the body in a state of hygienic equilibrium. The proper quantity to maintain that equilibrium is a condition of efficiency. The daily ration may vary temporarily without any apparent change in efficiency, but a continued variation will certainly show itself. In the United States the amount of protein ingested is usually in excess of bodily needs, although some silly ideas have been advanced along this line. Another fault is improper mastication. This is a mechanical necessity preliminary to deglutition and hydrolysis in the process of digestion. But this mattetr may be carried to an extreme. In regard to the therapeutic value of diet we must remember that in sickness the use of food is regulated by entirely different conditions from use of it in health. The introduction of drugs of any kind into foods intended for invalids is criminal. Some persons can drink pasteurized milk in health but not when diseased. The author does not believe in the Metchnikoff theory that sour milk is the elixir of life. A theory of this kind would have to be demonstrated before it could meet with universal acceptance, and it would take one hundred years to demonstrate it. The treatment of tuberculosis is largely conditioned on diet. While diet is only one of the factors in prophylaxis and treatment, it is one of the most important.

The Treatment of Pneumonia with Special Reference to the Use of Quinine.—J. A. Keown gives abbreviated histories of fifteen cases. He says that if the consolidated area could be prevented or limited, the number of germs would be lessened, there would be less absorption of toxins, the patient would have greater lung space for oxidation, the temperature would be lowered, and the patient's general condition would be much improved. He believes that quinine will accomplish all these results. Of the series of cases here presented, fourteen recovered and one died. The dose of the remedy was, in some instances, so small that recovery could not (in the abstractor's judgment) be attributed to the remedy. In no instance were more than 12 or 15 grains given in twenty-four hours. The author says, however, that his experience with quinine leads him to the belief that if sufficient quinine is given the consolidation can either be prevented from coming at all, or arrested where one commences to give the quinine in sufficient doses. At first this seemed an unwise interference with the natural pathological process of the disease, but continued experience with the use of quinine has led him to believe that this can bring only good results. In addition to this effect of the drug, quinine in the blood is considered to be an antiseptic. It is supposed to limit metabolism which is a good thing in pneumonia and it is a good reducer of the temperature. It also acts as a tonic, and stomachic. Quinine does not seem to shorten the course of a case of pneumonia, but certainly does limit the amount of consolidation, and converts the disease from a dangerous and painful one into one of mild severity and practically no danger. Large doses of quinine are not necessary, but sufficient quinine should be given to control the process of consolidation, which can be ascertained by careful examination of the chest by auscultation and percussion, and it is also indicated by the temperature, quinine reducing the temperature, acting as an antipyritic. When sufficient quinine has been given the temperature is normal or nearly so.

The Treatment of Tuberculosis by the Administration of Mercury.—B. L. Wright again refers to his twelve patients on whose condition he reported in this journal, August 29, 1908. From a comparison of the conditions of the respective patients with that previously reported it will be seen that of the two patients not on mercury in the previous report, but who have since taken it irregularly and indifferently, one is improving and one is failing, the latter having had a rather severe typhoid fever in August, 1908. Of the ten patients reported as being on mercury, six have been cured, two markedly improved, one improved, and one failed, this latter man having had typhoid in August, 1908. All of these men were in the United States Navy and were carefully observed. The bulk of the paper is occupied with detailed notes of the cases, and must be consulted in the original by those interested.

Ureteral Calculi.—J. F. Erdman describes cases in which he has operated, and considers the operation as a whole. Symptoms consist of pain, of lumbar and abdominal varieties, testicular, penile, and vesicular, tenesmus, and frequent desire to urinate. When these are present we should make a careful uranalysis, have an *x*-ray picture taken, and occasionally search by the cystoscope. The microscopical evidences in urine analyses that weigh in the diagnosis of possible stone are the presence of blood, crystals of oxalates and urates in excess, and epithelial elements from the hilum and ureters. Blood may be present in the urine in cases of appendicitis due either to a toxemic nephritis (acute) or to some associated condition, such as acute nontoxic and chronic nephritis or floating kidney, embolic infarcts, etc. Blood without other renal

elements, and in the absence of other pathological lesions of the bladder, urethra, etc., is the best diagnostic sign of stone we have, barring the evidences of a definite shadow in a radiograph, or the scratch marks, made by contact with the stone, found upon a waxed ureteral catheter or probe that has been introduced into the ureter. Blood in the urine obtained by catheterism or after ureteral catheterism should be given the weight of evidence of trauma rather than that of calculus, although no trauma may have occurred by either of these methods. In operation the peritoneum is incised sufficiently to admit one or two fingers to palpate the ureter. The ureter is located, and then rapidly followed in its course until the object of the search is found. The outer flap of the peritoneum is then rapidly dissected away from its contiguous structures, and in a small enough well to expose the stone, which is held or raised by the intraperitoneal finger, the ureter is incised longitudinally over the stone just long enough to allow of the expulsion of the calculus. Ordinarily, unless one finds a very large calculus, no sutures are required in the closure of the ureteral incision. A wick drain is placed down to the ureteral trauma, the peritoneum closed, and a final closure of the remainder of the abdominal wound to the emergence of the drain is made. Several patients in whom this no suture of the ureter method has been followed by me had practically no urine leakage, the wound drain being removed in four to six days.

Symptoms and Diagnosis of So-called Chronic Rheumatism.—C. Ogilvy discusses infectious arthritis, typhoid infection, gonorrheal arthritis, the effects of influenza bacillus, rheumatoid arthritis, arthritis deformans, hypertrophic arthritis, Still's disease, villous arthritis, and gout, in all of which there are symptoms which have led to a diagnosis of chronic rheumatism. The various diagnostic points which lead to a proper diagnosis in the various conditions named are systematically presented. Nothing new is said, but that paper is a protest against the all too prevalent habit of labeling any case of obscure joint pain one of chronic rheumatism.

Journal of the American Medical Association, June 12, 1909.

The Physician and Public Health.—Walter Wyman discusses the duties of the physician engaged in private practice in his relations to public health, and emphasizes the fact that no physician can separate himself from his fellows and their general interests. A most natural sequence of a doctor's practice is an interest in general sanitation and hygiene, and he illustrates his ideas by the modern movements against epidemic diseases which are now so prominently to the fore. He gives particulars as to what the government is doing by regulations for its own employees, for emigrants, seamen, etc., and dwells on the need for instruction of the tuberculous in hygienic rules to be observed by them for the welfare of their fellow citizens. The responsibility of the general practitioner in this matter is not a small one. Wyman goes at some length into the history and functions of the Public Health and Marine Hospital Service, its importance to the country's welfare, its relations to local State governments, etc. In conclusion, in addressing those who are just starting into professional life, he urges them not to be delinquent in observing and attending to the general physical welfare of the communities in which their lot may be cast.

Gallstones and Heart Disease.—R. H. Babcock calls attention to the gastric and digestive tract symptoms of gallstone disease and their association with cardiac derangements, which often overshadow those pointing directly to the hepatic disorder. This last was the case in eleven of the thirteen cases he reports. The symptoms referable to the heart predominated, the gall-bladder becoming an object of suspicion either on account of digestive troubles or something in the history of the case. In each of the cases, however, careful palpation detected a swelling over the gall-bladder which in most cases was shown by operation to be a Riedel's lobe. He divides the cases into four groups: 1. Five cases of pronounced cardiac incompetence showing considerable dilatation with arrhythmia and feebleness of heart's action with murmurs. 2. In two cases there had been attacks of pain, of anginoid character followed by evidences of cardiac muscular inadequacy, and one case in which there was dull infracardiac pain together with irregular pulse and a moderate degree of dyspnea on exertion, both dependent on recognizable, though not great, cardiac dilatation. 3. In this group were three cases of intermittent pulse of long standing and very intractable, but without dyspnea or other marked subjective symptoms of myocardial inadequacy. Patients in this group were greatly benefited by operation, more so than by any other line of treatment. 4. This group includes two cases of valvular disease in which cardiac competence was destroyed, either by evident attacks of hepatic colic, or by distressing symptoms attributed to the stomach, at first, but later referred to the gall bladder, because of the recognition of a Riedel's lobe. The cases are reported in detail, and the question arises how to explain the effects of gall-bladder disease on the heart and why all persons with chronic gall-bladder disease do not develop cardiac symptoms. Babcock admits his inability to answer the first of these questions, but suggests a preexisting myocardial condition as accounting for the occurrence of the symptoms in some and not in other cases. Several theories may be advanced for the bad effects of gall-bladder disease on an already predisposed cardiac muscle; such as (1) the circulation in the blood of bacteria or their toxins; (2) the depressing influence of bile constituents on the heart muscles; (3) disturbance of the splanchnic circulation, and secondarily of the systemic circulation, of the heart; (4) reflex inhibition through the vagus. Each of these are taken up separately and their probability or possibility shown. Babcock closes with a discussion of the literature of the subject.

Pain and Pott's Disease.—C. C. Wholey reports a case of Pott's disease showing how the symptom of backache may mislead a physician, and how the symptom of pain may divert one from important signs that would aid in making an earlier correct diagnosis. The case was specially characterized by backache, this giving rise to three mistaken diagnoses: calculus, rheumatism, and neurasthenia. Backache is a symptom of so many conditions that it has comparatively little value in itself, taken alone. It is probably of overestimated significance in nephritis, except in the acute processes, and when symmetrical is of far less diagnostic importance than when unilateral. Ulceration of the stomach or large intestine is a not uncommon cause and chronic prostatitis is an often overlooked factor. The observations of Head are of value in estimating the significance of pain of obscure types and origin. Wholey believes that Pott's disease would be much more frequently and earlier diagnosed if its initial manifestations, of which pain in the form of backache is often conspicuous, were looked for and recognized. Other symptoms of diagnostic importance and the special location of the backache should be carefully observed when utilizing this symptom in clinical diagnosis.

Chloroform in Hemoptysis.—Joseph B. Fish after referring to a previous paper on the successful use of chloroform in pulmonary hemorrhage (*Journal A. M. A.*, March 13, 1909, page 883), says that he has continued his experiments and now practises this treatment alone in such cases. The effect of chloroform on the circulation is chiefly to decompress the vasomotor system, causing an extraordinary fall of blood pressure. Complete vascular relaxation follows and the patient, so to speak, is bled into his own vessels. There is also some cardiac enfeeblement and dilatation, which also contribute to lowering the blood pressure. Chloroform has also a depressant effect on the respiration, and, as it produces the coagulation of the blood *in vitro*, it is possible that some direct contact with the bleeding point by the vapor may also have some effect. He describes his mode of administration of from 2 to 4 c.c. of chloroform on an ordinary inhaler or wad of cotton held near the nostrils of the patient. The hemorrhage will cease within five or ten minutes, and during the following twenty-four or forty-eight hours the patient will be bringing up blood clots. The inhalation of from 15 to 20 drops every hour is continued for a few days and ammonium chlorid, with small doses of codein, is given internally every four hours to expel the retained secretions and prevent excessive coughing. It is a good plan, he says, also to give a teaspoonful of magnesium sulphate to keep the bowels free. In the limited number of cases in which he has used this treatment the results have been all that could be desired, and he recommends it to further trial by others.

Partial Constant Epilepsy.—W. G. Spiller and E. Martin report a case of a type of epilepsy that has been but scantily noticed, even by the most recent writers, except in Russia, where it has been called "epilepsia continua." Oppenheim (Lehrb. der Nervenkr., ed. 5, p. 1389) mentions it in a few lines, by stating that cases occur in which during the interparoxysmal period muscular twitchings of short duration and without loss of consciousness are observed in one or another part of the body. In the case here reported, the patient, a young colored man with a positive syphilitic history, had convulsions of the Jacksonian type followed by persistent paresis confined to the right side of the face and the right upper limb. Independently

of the typical attacks he had twitchings, confined to the right side of the face, almost constantly present and resembling a tic movement of fibrillary twitching. After persisting some weeks in the face, they changed to the right arm, where they were continuous. There was no impairment of consciousness. The name "epilepsia partialis continua" seems to have been first used by Koshewnikow, who reported four cases in 1894. The condition has since been called by some writers Koshewnikow's epilepsy. Because of the failure of specific medication in this case, and the apparent progressive character of the disease, operation was deemed advisable. It revealed separate gummatous masses in the portion of the brain corresponding to the centers for the face and upper limb, the syphilitic nature of which was confirmed by microscopic examination. The operation was attended by only trifling shock, but very little benefit was obtained.

The Phthisical Chest.—W. L. Niles notices the old teaching that the consumptive chest is flat, and says that it remained for Woods Hutchinson to show that, instead of being flat it is abnormaly round. Since his first publication on the subject others have confirmed, to a more or less degree, his findings. Niles takes up the subject of the cause of this peculiarity, and shows how an examination of the human chest from fetal to adult life gives us, in the earlier stages of development, a chest considerably deeper than it is broad, *i.e.* a tendency to the type of the quadrupedal animal. With only two exceptions (whales and bats) all animals below the anthropomorpha have chests that are deeper than they are broad. At birth the chest is practically round in man, and after birth it gradually flattens out until the normal index of seventy is reached at about the eighteenth year. It seems a fair conclusion that the typical tuberculous chest is one that has been arrested in its development at puberty, and Hutchinson seems to think that this has some influence on the prognosis of pulmonary tuberculosis. Niles states his conclusions as follows: "1. The typical tuberculous chest is more nearly round than the normal chest. 2. The increased index precedes development of tubercle infection in the lungs. It is due to an arrest of development at or about puberty and predisposes to pulmonary tuberculosis. 3. Abnormally high-indexed chests in children should be corrected by proper exercises."

The Lancet, June 5, 1909.

A Tropical Form of Adenitis Apparently Due to an as yet Unrecognized Organism.—R. L. Ley reports three cases of this disease, the characteristics of which appear to be (1) that it may lie latent for a long time, so that cases acquired in the tropics may develop anywhere; (2) that the glands attacked are those of the groin and popliteal space indicating the probable route and mode of infection, viz., from sores on the feet and from an organism living in the soil, and (3) that animals contract the disease and probably inoculate human beings. The chronicity and the locality of the glands attacked are the two main features. The condition is to be distinguished from syphilis, tuberculous tumor, septic processes, and Hodgkin's disease. The author suggests that the disease may bear the same relation to the bubonic plague that cowpox does to smallpox, and that it may, in the same way as cowpox, be transmitted to man.

British Medical Journal, June 5, 1909.

Facial Paralysis Following Emotional Shock.—The patient of P. C. Fenwick, a woman of thirty-eight years, read in the paper an account of a shipwreck with great loss of life, and immediately felt a sense of "clawing" in her left cheek. Two hours later the left side of her face was completely paralyzed. When seen by the reporter next day, the whole side of the face was motionless. All nerve branches were involved, taste and hearing remaining normal. Galvanism and faradism evoked no response and there was no R. D. The treatment was high frequent currents, continuous current (anode behind ear) and massage, potassium iodide being given internally. In about two weeks the patient was able to wrinkle the forehead slightly; in a few days more the forehead could be moved a little, and at the end of a month facial movements were normal. Trauma and drafts of air could be ruled out as possible causes of the paralysis.

Treatment of Facial Paralysis Due to Division of the Facial Nerve in the Mastoid Operation.—F. Marsh gives the histories of two cases. They show (1) that if division of the facial nerve is recognized at the time of operation, careful adjustment in the manner indicated (the use of strands of chromicized catgut) will probably result in the restoration of function; (2) that if division has not been recognized the wound should be reopened and the nerve ends adjusted at the earliest opportunity; (3) that if a careful adjustment has been made, a second operation should not be undertaken within three or four months; (4) that this method of adjustment should be tried before anastomosis with the hypoglossal or spinal accessory nerves is attempted, the results of which are not always gratifying.

Resection of the Trachea for Cicatricial Stenosis.—In the case of the patient of G. G. Turner, a man of twenty-five years, the trachea had become infiltrated with a considerable mass of cicatricial tissue, and it seemed to the author to be in accord with surgical principles to excise the involved segment when dealing with a non-collapsible tube of large caliber like the trachea. In a fit of depression following alcoholic excess the patient had cut his throat. The usual course was followed in attempting to restore the severed parts to a normal shape, but the later course of the disease showed that the left recurrent nerve had been permanently injured and that the trachea was beginning to contract just above the tracheotomy wound which had been required on account of dyspnea. It was decided to resect the section involved. The cricoid and the upper part of the windpipe were accordingly thoroughly exposed through a vertical incision, and a complete segment of the trachea excised. The resulting gap was very wide, but the trachea was freed without fear until it could be easily approximated to the cricoid, to which it was fixed by several No. 1 chromic catgut stitches passed around the upper ring of the trachea and through the cricoid, care being taken to tie the knots on the outside. The posterior and lateral surfaces were brought into perfect opposition, but there was a little irregularity of the union in front. A vertical opening was made into the trachea about 1-2 inch below the line of suture for the introduction of a small silver tracheotomy tube. The skin incision was then carefully closed by silkworm stitches. The part removed consisted of a complete transverse section of the trachea with two rings, the lumen being completely obliterated by a mass of scar tissue. For five days the patient went on very well, but there was then a little suppuration with rise of temperature, and the skin wound gave way. On the eighth day, without any warning, he had a sudden profuse hemorrhage. The bleeding clearly came from the left side of the wound from a recess by the side of the trachea, and, after resisting all the efforts of the house surgeon, it stopped spontaneously. As the source of the hemorrhage was doubtful, and its spontaneous arrest probably only temporary, it was thought wiser to give an anesthetic, and, if possible, deal directly with the bleeding point. As a matter of fact, it was possible only to curette a small cavity, which was packed with gauze soaked in turpentine. As one or two of the sutures in the front part of the tracheal wound had given away, two silkworm stitches were introduced and subsequently removed. After this the patient made a straightforward recovery and was soon able to leave the hospital, the wound healing completely in the sixth week following the resection operation.

Case of General Paralysis of the Insane with Extraordinary Lymphocytosis in the Cerebrospinal Fluid.—W. Boyd observes that in tabes and general paralysis of the insane the cerebrospinal fluid usually, and perhaps always, contains an excess of lymphocytes, and that this lymphocytosis may be of considerable value in the diagnosis of the parasyphilitic diseases of the nervous system. Under normal conditions the number of lymphocytes in a field of 450 diameters in a film made after centrifuging 5 c.c. of the cerebrospinal fluid for ten minutes, is two or three. In the two diseases named the number is greatly increased. In the case here presented the number of lymphocytes under the conditions was 3,450, counted in a single field of the size named. In the non-centrifuged fluid the number was no less than 285 per c.mm. The full history of the case is given.

Berliner klinische Wochenschrift, May 24, 1909.

The Treatment of Glycosuria.—Rosenfeld discusses both alimentary glycosuria and true diabetes. He says that the best way to find the tolerance of the body to sugar is to give a free carbohydrate diet, and then gradually reduce this until the urine is sugar free. This is much safer than the complete cutting off of carbohydrates usually employed. In many cases an entirely sugar-free urine cannot be obtained. In such case the starchy food should be reduced to the point at which the maximum is oxidized for the minimum excreted. The amount of bread in such cases should not be reduced below 60 grams *per diem*. In the severe cases of diabetes in which more dextrose is eliminated than there is carbohydrate ingested the extra energy is supplied by fat. As to the role of

carbohydrates and fat, experiments show that a complete withdrawal of carbohydrates causes acetonuria. The carbohydrates are needed for the oxidation of fat. The fat burns in a fire of carbohydrates. Complete loss of power on the part of the organism to oxidize carbohydrates completely inhibits fat combustion and fatty degeneration occurs. A partial destruction of carbohydrates oxidation causes a partial combustion of fat, the result of which is acetone, diacetic, acid and β-oxybutyric acid. It is therefore important to find a carbohydrate which will be oxidized by diabetics. Levulose is not excreted immediately, being converted into glycogen. It does, however, appear in the urine the next day as dextrose. Lactose is also excreted as dextrose, as are alcohol, mannose, and mannite. The administration of the carbohydrate acids as glycuronic, glyconic, oxalic, and mucic acids increase neither the dextrose elimination nor the acetone formation. Sugar given per rectum is absorbed and not excreted. It does, however, not decrease the acetone. Intravenous sugar injection possibly acts better. Probably the best treatment is that lately described by Von Noorden, the oatmeal cure. The use of oatmeal decreases both the glycosuria and the acetone.

Alimentary Lipemia.—J. Leva describes a new method of estimating the fat in the blood and so judging of the absorbing power of the alimentary tract. It is very simple, merely consisting of making a thick blood smear and examining it with the dark field microscope. Between the corpuscles are seen the actively dancing Müller's hematoconian bodies. These bodies are present only after fat feeding. The greater the fat absorption the greater the number of these bodies and the earlier they appear. The author makes four classes of findings. In class 1 the hematoconian bodies are scattered; in class 2 they are so numerous that they cannot be counted; in class 3 the entire field is covered, and in class 4 the field is crowded. Twelve hours after a meal they are still numerous, and only in sixteen hours is class 1 reached. His routine is as follows: In the evening a small fat free meal is given. The next morning a drop of blood is examined, and if it is comparatively free of Müller's bodies the test meal is given. This consists of a slice of bread and 20 grams of butter. In one and a quarter hours the blood is examined, and again in two to two and a half hours. At the first examination class 2 should be found, and at the second class 3. Any variation means an abnormal absorption of fat. The author gives a table showing one hundred cases examined. They are too few to allow the drawing of definite conclusions.

Münchener medizinische Wochenschrift, May 18 and 25, 1909.

What Factors Regulate the Size of the Heart.—Oskar Bruns takes up the history of our knowledge of this subject. The two theories are that the size is directly proportional to the muscle work done, and the other that it varies with the size of the skeletal muscles. He refers to the finding of Grober that the heart of the gull is smaller in proportion to the body weight than that of the wild duck, though the former flies more rapidly and farther. This he explains by the better arrangement of wing feathers, making the method of flying easier. He discusses the various factors which affect the heart size as beer drinking, nourishment, blood-pressure, and metabolism. Then he describes a series of experiments in which he took young dogs, in each series the dogs being of one litter. Some he allowed to rest and others to "climb mountains" in a tread mill three hours a day. On the dogs being killed and the skeletal muscles dissected carefully it was found that the heart weight in the trained animals bore exactly the same ratio to the weight of the skeletal muscles as it did in the untrained ones. The size of the heart is not proportional to body weight but to body musculature. This, of course, applies only to healthy individuals. He considers that the large heart of athletes, as bicycle riders, is due to right-sided hypertrophy due to the difficulty of forcing the pulmonary circulation resulting from the fixation of the chest walls during violent exercise.

The Danger to Typhoid Carriers from Their Own Typhoid Bacilli.—Wilhelm Kamm under this title discusses typhoid carriers. He refers to Kayser and Park, who found in a routine examination of patients who had had the disease a year previous, that from five to six per cent. still carried the organism. Kamm examined 136 individuals and obtained a positive Widal reaction in eight of them, four of whom had had the disease from four to eight years previously. In these he was unable to find typhoid bacilli in the stools or urine and so concluded that the Widal reaction is no test for bacilli carriers. Schneider and Forster state that in the cases in which the source of typhoid can be definitely proven that from five to twenty-seven per cent. can be traced directly to contact with typhoid carriers. The author then states that typhoid carriers may be a source of danger to themselves as well as their neighbors, and reports cases which he considers prove typhoid autoinfection. The patients were inmates of an insane asylum. Case I. This woman had typhoid fever in March, 1906, and remained a carrier. In October cholecystectomy was attempted on the patient, but given up, and a few days later she died of pneumonia. At autopsy the gall-bladder was normal, the spleen enlarged and soft, pneumonia. Typhoid bacilli were found in the liver, gall-bladder, and duodenum. Case II. The patient in 1901 had typhoid fever and continued to have the bacilli in the stools. She also had tuberculosis and died in 1908 of a cerebral hemorrhage. At autopsy gallstone and carcinoma of the gall-bladder and liver, as well as tuberculosis and cerebral hemorrhage, were found. Typhoid bacilli were isolated from most of the internal organs. The author fails to show in what way the presence of the typhoid bacilli in the organs in these two cases caused the final illness. His next two cases are the more common ones of post-typhoid rib abscesses.

The Treatment of Paralysis of the Upper Extremities.—Vulpius refers to the marked similarity in symptoms between the true birth palsies of the arm due to injury to the brachial plexus and the pseudoparalyses from separation of the epiphysis at the head of the humerus. In both cases there is marked internal rotation of the humerus—in one case from paralysis of the external rotators, in the other from dislocation of the bone. The loss of function is especially marked by an inability to raise the arm above the horizontal or to reach the face with the hand. Heusner devised an apparatus to rotate the arm mechanically, but this was not very successful. Cutting the pectoral muscles has also been attempted. Neuroplastic operations hold out some hope in the cases of true paralysis. Vulpius then describes a new operation to relieve the deformity. This consists of an osteotomy of the surgical neck of the humerus with external rotation of the lower fragment. Two cases are reported, one of true, the other of false paralysis. In both the results were perfect, the arms, after removal of the bandages and sufficient time to enable the strengthening of the muscles, showing as free motion as on the well side.

French and Italian Journals.

Primary Cancer of the Urethra in Women.—André Boursier gives two cases of primary cancer of the urethra, a somewhat rare disease. These cancers are usually of pavement epithelium, which may be tubular. It is accompanied by pain, difficult urination, pollakiuria, and final retention of urine. In some cases incontinence and pain in coitus have been observed. The treatment varies with the depth to which the disease has invaded the tissues along the urethra. When it has involved only the tissues below the symphysis, that is from ten to twelve millimeters in length, it may be removed by the bistoury, an incision being made wide of the growth, and the mucous membrane of the urethra sutured to the vaginal wall to reconstitute its orifice. When the whole urethra is involved the growth may be still removed, but the operation is much more difficult. When the growth has involved the neck of the bladder operation becomes impossible. In any case the results are that incontinence remains to a greater or less degree.—*Journal de Médecine de Bordeaux*, March 8, 1908.

Prolapsus Uteri in Nulliparæ.—Paul Reclus says that prolapsus uteri in young nulliparæ who are unmarried is generally of congenital origin. It is seen in girls of infantile aspect, with irregular menstruation, ill developed muscles, and ptoses of the abdominal organs. Here the peritoneum is not at fault and its repair or suture is of no value as a therapeutic measure. The origin of the trouble is due to a bad development and weakness of the uterine ligaments, especially the round ligament. This allows the uterus to descend and the Alexander operation is found to give no benefit because the ligament is found to be weak and to stretch easily. The only operation that is of benefit is that of ventrofixation, one that is not generally advisable in women who may marry and become pregnant.—*Gazette des Hôpitaux*, March 12, 1908.

Book Reviews.

Orthopedic Surgery for Practitioners. By Henry Ling Taylor, M.D., Professor of Orthopedic Surgery and Attending Orthopedic Surgeon, N. Y. Post-Graduate Medical School and Hospital; Assistant Surgeon, Hospital for the Ruptured and Crippled, New York; assisted by Charles Ogilvy, M.D., Adjunct Professor of Orthopedic Surgery, N. Y. Post-Graduate Medical School and Hospital; Attending Surgeon, New York City Children's Hospital; and by Fred H. Albee, M.D., Instructor in Orthopedic Surgery, N. Y. Post-Graduate Medical School and Hospital; Assistant and Skiagrapher, Hospital for the Ruptured and Crippled, New York. New York and London: D. Appleton & Co., 1909.

This book, as its title implies, has been written for the benefit of the general practitioner, and in many respects the author's purpose has been well carried out. Theoretical discussions and masses of statistics have been omitted; most of the illustrations are entirely new and unusually good; and the reader has laid before him, in a practical manner, the results of a long and ripe clinical experience. The arrangement of the book, with its division into three parts, viz., General, Special, and Technical, is excellent, and makes for clearness. The chapter on the foot, and the division on technique are especially good, as is also the section on examination and general diagnosis. It is to the writer's credit that he maintains an attitude of scientific scepticism towards fads in his specialty, as, for instance, mechanicotherapy and elaborate systems of exercise. But, on the other hand, there is perhaps a little too much repetition of good practical ideas on the subject of correct habits of life, too much of a "hopeful, happy, and tranquil mind." In differential diagnosis the book is rather weak, and in this respect will be a disappointment to the general practitioner who turns to it for help in looking up a case. The great fault of the book, however, is in the subject of pathology, especially of minute pathology. No amount of clinical experience or familiarity with the writings of others can altogether atone for this fault, which is a common one in orthopedic textbooks. It is apparent throughout the book and is especialy noticeable in the description of Potts' disease and of hip-joint disease. A ganglion of the wrist is called "a collection of gelatinous fluid in a dilated bit of tendon sheath," and the pathology of "angina cruris" is inexact. In discussing sarcoma of the long bones, the author avoids the subject entirely, and advises removal of a piece of the tumor and its examination by a pathologist. In a number of the illustrations, the name of the assistant who holds the patient is given. "Posed by Smith," or by Jones, is hardly dignified in a medical work. Hysterical scoliosis is mentioned, but not carefully described, and the pathogenesis of scoliosis in general does not seem to agree with the most modern views. On the other hand, the general remarks on postural deformities of the spine and on atrophy, ankylosis, and massage are excellent; and the exposition of the principles governing the application of braces is unusually complete and satisfactory. The eminently practical qualities of the book, and the sincerity and earnestness of its author make it a real addition to orthopedic surgery.

Marriage and Disease, Being an Abridged Edition of "Health and Disease in Relation to Marriage and the Married State." Edited by Professor H. Senator and Dr. S. Kaminer (Berlin). Translated from the German by J. Dulberg, M.D., Manchester, England. New York: Paul B. Hoeber, 1909.

The translator does not intercede for divine or professional mercy upon his rendition, and it is beyond the reviewer's province to do it for him. Yet the temptation becomes almost irresistible when he makes Posner mention, on page 307, "a discharge from the urethral orifice of a thin, *rubber*-like, viscid fluid." The translator probably knows that we Americans speak of rubbers as our English cousins mention their "gums." We have heard of a hardy Briton "cleaning his gums on the front door mat," but have naturally never seen the heroic, albeit unesthetic, performance. Our translator evidently intended to make his work comprehensible to us when he converted Posner's "gummi-artig" (mucilaginous) fluid into one of a rubber-like consistency. Several other small slips could be cited, but they do not materialy obscure the text, and moreover do contribute in some measure to the gaiety of nations. In the preface we learn that the translator was commissioned by the publishers to prepare an abbreviated edition of the work mentioned in the sub-title, which would be intelligible to the ordinary reader. It seems questionable whether in abridging the original he did well to instruct the lay-reader in sexual perversions, as he does in his translation of Moll's chapter. In it are mentioned (p. 375) "the cases of ladies of the highest rank who fall in love suddenly with their coachmen, or where ladies persecute with passionate proposals negroes or other uncommon people." On the same page are presented "married women who, after having for years loved their husbands, and faithfully performed their conjugal duties, are suddenly seized with a passion for some entirely unworthy individual into whose arms they throw themselves unreservedly." That husbands of such females need not remain unconsoled appears in the next sentence: "Sometimes this infatuation disappears after a few months or even weeks, making room again for the normal married life." It seems more than debatable whether the knowledge of certain appliances should be brought to young wives who seek information from the present work, by reproducing, in Fürbringer's contribution (p. 159), the latter's condemnation of "the so-called exciting cundoms," which "serve no other purpose than to increase the sexual sensation." Certainly no prudishness evokes the wish that the translator and editor had eliminated those parts without which the usefulness of the work to the layman, for whom it is intended, would not have suffered. However, the imgressions beyond the border-line of pornography will doubtless increase the sale of the book. If the readers would take advantage of its really valuable contents, written by most eminent German specialists for the original work from which the present volume has been condensed, it would still accomplish a good purpose. It may be hoped that the editor, in preparing a new edition, will eliminate such information as can be of no benefit, and may be pernicious to the lay reader. In a work for physicians, as is the original, the indecent verbal illustrations are unfortunately inseparable from clinical descriptions.

Intestinal Autointoxication. By A. Combe, M.D., Professor of Clinical Pediatry at the University of Lausanne (Switzerland); Chief of Clinic for Children's Diseases; President of the Swiss Pediatric Society. Together with an Appendix on the Lactic Ferments, with Particular Reference to Their Application in Intestinal Therapeutics. By Albert Fournier, formerly Demonstrator at La Sorbonne, Paris. Only Authorized English Adaptation by William Gaynor States, M.D., Clinical Assistant, Rectal and Intestinal Diseases, New York Polyclinic; Member of American Medical Association; Member of State and County Society of New York, West Side Clinical Society, etc. With 18 figures in the text, 4 of which are colored. New York: Rebman Company.

Autointoxication is a subject of growing importance to the physician, and the literature bearing on it is none too great, especially in quality. The present work, while it is the latest pronouncement, can hardly be said to add much to our knowledge of the subject. It begins with an introduction, which deals with toxemias, intoxications, and autointoxications, these last being subdivided into "dycrasic" and gastrointestinal. Why the translator uses the term "dycrasic" and "dycrasia" (presumably for dyscrasic and dyscrasia) we do not know; but he is consistent and persistent in his preference for the former terms. Then come sections on toxic substances, the antitoxic functions of the organism, and experimental pathology. So far, the book is a fair *résumé* of present knowledge on the subject. The next portion treats of the causes of intestinal autointoxication, its pathological physiology, pathogeny, symptomatology, and diagnosis—and is disappointing. The author does not sufficiently distinguish between scientific fact and mere hypothesis, and old opinions are restated and put forward without any investigation as to their value. The last and largest part of the book is on treatment; and this is the most valuable portion of the whole work; perhaps this is not to be wondered at, as the author's opening sentence is, "The object of this book is to make my methods of treatment known." The term autointoxication has a very satisfying sound, and has long served as a cloak for ignorance; and the present work, while containing some things of value, particularly in the section on treatment, contains also so much that is of little use, that it can hardly appeal to readers who appreciate the writings of Albu, Bouchard, Herter, and others on this subject. The volume would benefit much by a thorough and critical revision. Besides "dycrasia" (noted above), "ileus" is used for ileum, "salycilic" and "salycilate" for salicylic and salicylate, and "specie" for species; these all appear over and over again. On page 36 part of a sentence is omitted; "evolution" occurs for ovulation; "bacillus anthracosis" does duty for bacillus anthracis; "cephalgia" is used instead of cephalalgia; expressions like "its almost totality," "a same ferment," etc., indicate lack of care in translating or in revision.

Society Reports.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held May 24, 1909.

The President, Dr. H. Seymour Houghton, in the Chair.

Home for Dr. Carroll's Widow.—It was reported from the Comitia Minora that the sum of $150 had been voted from the general funds of the society for the fund for the purchase of a house for the widow of the late Major Carroll, Surgeon, U. S. A.

Further Studies on the Presence of the Tubercle Bacillus in the Circulating Blood.—Dr. Randle C. Rosenberger of Philadelphia read this paper. He said that following the preliminary report of fifty cases of pulmonary tuberculosis in which the tubercle bacillus was demonstrable in every instance, he continued the study of the phenomenon until at the present time the number of cases was over 300. That tubercle bacilli were suspected as being present in the circulating blood was a well-known fact. In the present study he included (together with pulmonary types) tuberculosis of other structures, to determine, if possible, whether the bacillus could be demonstrated in the blood. Glandular, osseous, and peritoneal tuberculosis, together with three tumors of the nervous system (cerebellar) and one case diagnosed as transverse myelitis came under observation. In several cases of meningitis tubercle bacilli were demonstrated in the blood; one of these cases came to autopsy, and a pig inoculated with the cerebrospinal fluid developed tuberculosis. In a case where a tumor was present just above the clavicle and the diagnosis rested between sarcoma and tuberculosis the bacillus was present in the blood, and when the tumor was removed it proved to be a mass of tuberculous glands. In Pott's disease of the spine a long search was necessary, but tubercle bacilli were eventually detected in the blood, as well as in the feces and urine. Epididymitis, cystitis, and orchitis also showed tubercle bacilli in the blood. Acute pleurisy, especially pleurisy with effusion, was diagnosed as tuberculous time and again by resorting to an examination of the blood. In three cases where the tubercle bacillus was found in the blood of a tuberculous mother the organism was found in the blood of the child. Fifty-seven cases diagnosed as incipient tuberculosis and nine cases of acute miliary tuberculosis were proven by finding tubercle bacilli in the blood. The technique for the demonstration of the bacillus in the blood was by the citrated blood method; sometimes the specimen was centrifugalized, but usually it was allowed to deposit a sediment by standing in the refrigerator over night. After spreading and drying upon a clean, new slide it was thoroughly laked, then dried, fixed and stained by the ordinary routine technique, as for sputum. As in his work on the feces, he used Pappenheim's solution as a decolorizer and counter-stain. He advised this for the blood work also, insisting upon an immersion of at least twenty minutes to an hour. In some of his preparations he found acid fast bacilli after two hours' exposure to 25 per cent. sulphuric acid in absolute alcohol. In applying carbol fuchsin to the preparation he simply allowed it to act in the cold for ten or fifteen minutes to twenty-four hours, and very rarely, if ever, heated it except when in haste. In these investigations he made use of citrate of soda solutions made at five different laboratories. Some of the spreads were made in one laboratory and laked and stained in another. In the preparation of the blood he never made a diagnosis of a tubercle bacillus unless it was absolutely acid fast. The organisms were of the morphology noted in cultures or in sputum, but none of them would be mistaken by a bacteriologist for granules of debris. In some preparations the organisms were very easily detected, requiring only a very short time; but on the other hand, a search lasted a couple of hours a day for two days, and in one or two cases three days, before the bacilli were detected. As a rule, two spreads were made from each specimen. If the case came to autopsy and they failed to find the organism before death, additional smears were made from the original tube. In two cases a month intervened between the time that the blood was obtained and a second preparation made, and the bacilli were plainly demonstrable. In his own series of 312 cases of tuberculosis an acid fast bacillus was demonstrable in every case which was indistinguishable from the tubercle bacillus. No attempt to grow the organism from the blood had as yet been made. In the majority of the frank, tuberculous cases the diagnosis was always corroborated by finding the tubercle bacillus in the feces, sputum, and sometimes in the urine. Two series of cases might be cited as being of very great interest. In the first series 80 cases were studied, in which the tubercle bacillus was found in the blood. Forty-eight specimens of feces were obtained and 45 were positive; 56 specimens of sputum were studied and tubercle bacilli were found in 33 and none at all in 23; of six specimens of urine studied, tubercle bacilli were found in five; of miscellaneous materials, such as pleural fluid, pus from joints or sinuses or from empyemata, 23 were studied, with positive results in 22. In the second series, comprising 42 cases of tuberculosis, the bacillus was found in the blood in all, and of 19 specimens of feces submitted for examination all showed tubercle bacilli. As a final corroborative test, autopsies were held upon 27 cases, and all of these showed some tuberculous lesion or lesions. From 50 of these cases, after pouring off the citrate solution, the sediment of the blood (about 2 to 3 c.c.) was inoculated into the peritoneal cavity of guinea pigs. One of the animals died in a month with miliary tuberculosis of both lungs. Three other pigs died in two months, one with miliary tuberculosis of both lungs and spleen, and another dying of a frank pneumonia developing into a tuberculous condition of the upper lobe of the right lung. Four pigs showed a few scattered tubercles in the lung as well as in the liver. The remainder of the animals did not present any gross lesions, but the blood of each pig contained acid fast bacilli resembling those found in human blood. As a result of these studies, Dr. Rosenberg said he was more than ever convinced that tuberculosis was a bacteremia, and that the tubercle bacillus could be demonstrated in the blood in every case where there was an active tuberculous process. He also believed that the bacillus was present in the blood in a certain percentage of apparently healthy individuals at some period, and perhaps might be there for years in an attenuated form, and when the general resistance was lowered, or the resistance in some viscus or anatomical structure was lessened, the bacillus became pathogenic, at once lodged at this point, and brought about the disease, tuberculosis. If the bacillus was not present in the blood how could instances of the disease be explained as resulting from injuries of various kinds, or even after surgical operations? Surely the greatest care was exercised by the surgeon as regards antisepsis, and yet tuberculosis was said to follow operations, as for appendicitis, where absolute cleanliness was exercised. He also believed that the bacillus was transmitted from mother to child through the placenta, as the examination of a large number of specimens of blood from umbilical cords showed these same acid fast organisms.

Some Problems Connected with Tuberculosis.—Dr. Henry G. Piffard said that in 1864 Bazen and Hardy taught substantially the same doctrine, namely, that the cutaneous affection commonly known as "lupus" was the offspring of the so-called strumous or scrofulous diathesis, which at that time was regarded as the parent of consumption. Twelve years of observation and reflection led him to accept the French rather than the opposing German views. Further observation led him a year later to write, "Another peculiarity is its gradual extension and involvement of new regions by an apparently infective process, similar to, but less in degree than, that manifested by cancer." (Medical Record, July 21, 1877.) Two weeks later an article from the pen of Mr. Jonathan Hutchinson appeared, in which was stated: "The mode in which lupus extends itself, and more especially in which multiple patches are developed, is well worthy of investigation. My impression is that the processes are by cell infection and very similar to what we observe in cancer." These dates here given were four years prior to the discovery by Koch of the actual infecting agent, and it was worthy of note that the same fundamental idea should have occurred simultaneously to two men living three thousand miles apart. Koch's discovery and isolation of the organism cleared up this mystery. Many others, however, awaited an equally satisfactory solution, to wit: What is the tubercle bacillus of Koch? What are its allies among similar organisms met with in other mammalian species? What are its allies in the avian kingdom? What relationship did it bear to similar organisms met with in the reptilian and piscine orders? The features common to the organisms met with in the animal kingdom were few but positive. As usually seen, they were little rods, which, when stained with fuchsin, resist the decolorizing action of acids and alcohol, and hence were termed "acid-fasts." This fact alone distinguished them from a great majority of other microorganisms met with in the animal body, but not from all. No one had explained either the light or dark particles seen in the bacillus. By some the light ones were supposed to be spores, but Dr. Piffard looked upon them rather as degenerate or degradation forms or perhaps a stage leading merely to fragmentation either with or without loss of vitality. The darkly stained granules, if not true spores, were thought by some to be daughter forms. These were mere superstitions and constituted another of the mysteries connected with tuberculosis. The importance of bovine tuberculosis was second only to that of human tuberculosis. The possibility of its etiological relation to human disease maintained by v. Behring and denied by Koch was at present *sub judice*. Personally, he believed that while possible it was very infrequent, as the number of cases in which human tuberculosis could with any probability be traced to bovine infection was extremely limited. On the other hand, the vast number of consumers of milk from tuberculous cows who did not develop the disease would point strongly to its innocuousness. There was no doubt, however, as to the inroads that tuberculosis was making in the dairy herds, and if unchecked it would lead to great financial loss to the dairyman and to personal inconvenience by lessening the milk supply. It was, therefore, an economic question to which legislators and administrative officials should give their most earnest attention. Swine also rarely became victims of the disease, while sheep and goats suffered to a much less degree. Wild animals in a state of nature were wholly or comparatively free from tuberculosis, but suffered greatly from it in confinement. Tuberculosis was not confined to warm-blooded animals, but had been met with in reptiles and fishes. In the vegetable kingdom acid-fast bacilloids were to be found, possessing the characteristic reactions of the animal germs, and most of them were capable of producing tuberculous nodules, or miliary lesions in laboratory animals. The bacillus of leprosy was acid-fast, difficult of direct cultivation on laboratory media, latent in the system for long periods of time, and finally made its presence known by unmistakable signs and was vastly less amenable to remedial agencies than the tubercle germ. Yet there were many points of similarity between the clinical behavior of the two diseases. Perhaps the most striking and possibly essential difference between the two was the difficulty experienced in the artificial cultivation of the lepra bacillus and the, thus far, unsuccessful efforts to transfer the disease to the lower animals. Tuberculin injected into lepers was followed by the customary reaction thought to be peculiar to ordinary tuberculosis. The etiological factors in human tuberculosis certainly presented problems that demanded most careful examination. Broadly speaking, three main causes had been prominently advocated and considered to be the *focus et origo* of the trouble. (1) Milk fed to infants was the chief cause of consumption. (2) Droplet infection. (3) Dust particles in the air carrying the virulent germs. He did not think that with the present knowledge they were justified in giving preeminence to any of the foregoing. Each undoubtedly had a greater or less influence in the spread of the infection. Tuberculin as a diagnostic aid indicated the presence or absence of tuberculous foci, but it did so, he believed, at the risk to the future welfare of the patient and greatly impaired the patient's resistance to infection. Yamanouchi brought forward an ingenious test. He inoculated a rabbit with the serum of a suspected subject, and after a suitable time followed this with an injection of tuberculin. If the rabbit reacted he considered it as positive evidence of tuberculosis in the patient. Rosenberger claimed that in tuberculosis the bacilli might be found in the blood, but how far this method of diagnosis could be made practical remained to be seen. Attempts to secure an artificial immunity in animals offered a promising field for investigation by the agricultural experiment stations and veterinary laboratories throughout the country. One of the most important objects of laboratory research that should receive early attention was the determination of the relation that existed between the various acid-fast and acid-semi-fasts, if, indeed, such relations did exist. Next, to determine the relative pathogenicity of each, and whether the same was increased or otherwise by passage through animals; this to be followed by efforts to determine positively the question of the transformation of species or types into each other; and finally to determine if they had a common ancestor that could be reached, and whose activities could be curtailed.

The Clinical Diagnosis of Tuberculosis of the Tonsil.—Dr. Lee Maidment Hurd read this paper (see page 1089).

Dr. George B. Wood of Philadelphia said he would confine his remarks to tuberculosis of the tonsil and the possibility of systemic infection from disease of this organ. Dr. Hurd had called to their attention the dangerous tonsil, the submerged tonsil, and tuberculosis of this offered a greater danger than did tuberculosis of ordinary tissues that were regarded as dangerous. He did not think that clinically it was possible to recognize tuberculosis of the tonsil, except in very rare cases in which there was ulceration. In the examination of 38 cases *post mortem*, patients who were supposed to have died of pulmonary tuberculosis

of advanced form, in 32 positive evidences of tuberculosis of the tonsils were found; and yet in none of the cases had the pathologist at the time of the *post mortem* reported any tuberculous disease of this organ. He said he had seen a few cases of tuberculosis of the tonsil secondary to pulmonary disease easily recognized clinically by the ulcerative process. In speaking of tonsils one should remember that they were simply glands with a very intimate relationship to the epithelium. They were so constructed that they retained bacteria very readily and 5 per cent. was about the ordinary average in which tuberculosis was found in the faucial tonsil if removed. At least that was the percentage given after investigating 1,300 cases which were reported by twenty different authors. He thought that the pathological diagnosis of tuberculosis of the tonsil rested largely upon its histology. Was it possible for the disease to start in the throat, and invade the apices of the lungs, or bronchial lymph glands directly through the lymph current? He described the anatomy of the lymph current and showed that this was possible; a retrograde current could affect the parietal apical pleura.

Dr. Bond Stow said that for three months he had been devoting all his spare time to studying the presence or absence of tubercle bacilli in the blood, the kind of bacilli spoken of by Dr. Rosenberger, the bacilli absolutely acid-alcohol-fast, conforming to the morphology and stain of the classical type of Koch's bacillus. The cases were studied clinically and *post mortem*. After describing the technique in which he endeavored to obtain a non-contaminated blood, he reported 18 cases of chronic tuberculosis which were diagnosed clinically as tuberculosis. In seven of these positive tubercle bacilli were found in the blood; in 10 cases of incipient tuberculosis all diagnosed clinically, the bacilli being found in the sputum, in not a single instance was he able to find the bacilli in the blood. A full report of this work he said he would give later.

Dr. Benjamin White reported his results after following the technique of Dr. Rosenberger exactly, and in none of the cases was he able to find the tubercle bacilli in the blood. A guinea pig was inoculated with the human bacilli. Six weeks after the liver was found to be riddled with tubercles; the liver was necrotic, the spleen was studded with tubercles, as was the diaphragm, pleura, peritoneum, etc. From the right heart were withdrawn 5 c.c. of blood, and, following Dr. Rosenberger's method, only one tubercle bacillus was found. It seemed strange that an animal with such a severe infection should have so few bacilli in the blood. The bile was also examined, but no bacilli were found. He thought that the results of their experiments were very suggestive.

Dr. William H. Park said that in their laboratory one of the men, a very careful worker, had examined half a dozen cases, and his results were the same as Dr. White's. He thought it would be a very good thing to have Dr. Rosenberger come to New York and demonstrate his technique so that they could get together in this matter. It was very hard to understand how animals got this bacteremia and yet did not develop tuberculosis; he could not see how the tubercle bacilli could exist in the blood and not produce tuberculosis. However, one not familiar with the technique should hesitate in giving judgment.

Dr. Bernstein had followed the technique of Dr Rosenberger very carefully, but with negative results.

Etiology and Treatment of Diarrhea.—Dr Joseph E. Winters said that of 22,476 cases of fatal diarrhea 88.8 per cent. occurred under the age of one year; of 10,886 fatal cases occurring in one year, nearly 70 per cent. were under six months, and 90 per cent. under one year of age. Fatal diarrhea occurred almost solely in the nursing period. It was never seen in a child fed exclusively at the breast of a healthy mother. Artificial feeding was the cause of the fatal diarrheas. It was a disease of the heated term. At the Yale University Agricultural Station it was shown that fresh milk cooled at once to 40° F. and kept at that temperature prevented the growth of bacteria. Of the fatal diarrheas but 1.2 per cent. occurred among the higher classes; this was because they were able to care for the milk properly. With the fresh milk kept at 40° F. there would be no more diarrhea in summer than in winter. The injurious bacilli required a certain temperature in which to develop; they would not develop in milk if it was kept at 40° F. Pasteurization destroyed these germs; but the spores and toxins were still present and were not affected by the heat. The high temperature, marked prostration, delirium, coma, convulsions, etc., were caused by these toxins; the nervous collapse seen for days after the diarrheas had ceased, together with the lesions in the various organs, were the effects of these toxins; the vomiting and purging were caused by these toxins acting on the splanchnic nerves. The spores would develop into germs unless the milk was kept at a low temperature. After their ingestion the spores developed into germs and produced toxins. Even after pasteurization the toxins possessed the same toxicity as the organisms. It was stated that the mortality in infants under one year of age at the Berlin Charity Hospital was from 89 to 92 per cent, and that no amount of pasteurization or sterilization had the slightest effect in preventing or controlling the diarrheas. Of 634 fatal cases over 58 per cent. died in less than seven days. Of those that died after the second week one-half had bronchopneumonia, bronchitis, pleural exudations, etc. After the second week certain lesions supervened which were caused by the toxins. The millions of villi in the small intestine offered an enormous absorbing surface for the toxins, and food laden with bacilli certainly should be avoided; food in such cases was as sand to an inflamed eye. Rest to the intestine must be assured until the fermentation ceased. A dose of castor oil was advised, to be followed by water of ammonia. If high temperature was present, cold water could be given with benefit. When there was a dry tongue, fever, fast pulse, etc., rhubarb and bicarbonate of soda were advised Dr. Winters then took up a consideration of the feeding for infants under one year, and under two years, when diarrhea was present. Beef juice should never be given. The giving of cereals to infants under six months of age was pernicious. If irrigations were required to aid the action of castor oil in clearing out the intestines, glycerin and warm water should be used But it should be remembered that repeated irrigations were exhausting and dangerous.

AMERICAN MEDICAL ASSOCIATION

Sixtieth Annual Meeting, Held at Atlantic City June 8, 9, 10 and 11, 1909.

(Special Report to the Medical Record.)

SECTION ON DISEASES OF CHILDREN

(*Continued from page 1083.*)

Thursday, June 10—Third Day

Election of Officers.—The following officers were elected for this section for the year 1910: *Chairman* Dr. William J. Butler of Chicago; *Secretary* Dr. Godfrey R. Pisek of New York; *Delegate*, Dr. Charles Douglas of Detroit.

The Child's Breakfast.—Dr W. C. Hoffheimer of

Philadelphia read this paper. He said that about 30 per cent. of the children of New York and Chicago were sent to school without breakfast. He claimed that poverty was not the sole cause of this condition, but that investigation showed that bad hygiene and overcrowding in the homes were the factors most responsible. In his opinion many of the children did not have an appetite for breakfast, due to the conditions just enumerated. He believed that the lack of proper food for the day's work seriously handicapped the child physically as well as mentally. It was frequently good food improperly taken, as well as essentially bad food irregularly consumed, that showed evil results in the child's development. To remedy the matter he advised education of the mothers as to the importance of personal and general hygiene of the home, ventilation of the sleeping rooms, and the necessity of good food properly taken at regular intervals.

Conditions of the Public School Child.—Dr. J. W. Van Derslice of Chicago presented this paper, based upon a study of school conditions existing in the Middle West. The data presented covered an investigation of 904 schools in 31 cities, ranging in population from 50,000 to 2,000,000, and the conclusions were as follows: 1. Twelve per cent. of the pupils in the first grade and 31 per cent. of the pupils in the fourth grade were average. 2. One child out of every 200 pupils was compelled to leave school on account of ill health. 3. Nineteen per cent. of the schools had no playgrounds. 4. Eight per cent. of the first grade pupils had no outdoor recess. 5. Twenty per cent. of the school toilets were in an unsanitary condition. 6. Twenty-two per cent. of the schools were improperly ventilated. 7. Fifty-three per cent. of the schools used free text books and had no means of sterilizing the same. 8. In the first and seventh grades the number of pupils in each room ranged from 31 to 40. 9. In the first grade 7 per cent. of the teachers required home work of the pupils. 10. Seventy-six per cent. of the cases of nervousness in children of the first grade were caused by too much school work. 11. The curriculum of nearly every school investigated was overcrowded. 12. The medical inspection of the schools was inadequate. 13. As a remedy for these evils the establishment of a supervising board of competent physicians in every city and town was advised.

Dr. L. T. Royster of Norfolk said that no school board was competent unless one of its members was a physician. He believed that the physical and moral welfare of the child was superior to the intellectual training, and advocated more physical culture and manual training among school systems. He stated that the education of the masses was best accomplished in the homes, and urged that physicians act as missionaries in this respect. A plea was made for broadminded principles in regard to public instruction.

Dr. Charles Douglas of Detroit thought that our most urgent duty consisted in the education of the public. We were now dealing with the results of ignorance on the part of mothers and others who had the welfare of the children in charge. The establishment of a department for the education of young women on the subject of nutrition was sadly needed in every college.

Dr. George F. Little of Brooklyn said that the discussion of this subject among physicians was useless. In his opinion best results were obtained by an education of the public at large.

Dr. Charles Gilmore Kerley of New York said that it was first necessary to educate the physicians as to the needs of the child. Physicians were urged to become more interested in the subject of the school child. It was his belief that a department of hygiene was necessary in every large town.

Dr. Helen Putnam of Rhode Island said that hygiene was not taught by text books, but by personal, practical instruction of parents and physicians. Medical inspection of schools was inefficient, and better trained medical inspectors were urgently needed. School fatigue was commonly noticed among children, and to overcome this condition the establishment by the school boards of the various cities of such departments as domestic science and nature study was advised.

Dr. Henry I. Bowditch of Boston said that the medical student in college was neglected, as he received practically no lectures on the subject of ethics, and that the average medical graduate knew little or nothing concerning the duties of the physician to his State and country.

Dr. J. W. Van Derslice of Chicago closed the discussion. He agreed that the education of physicians as to the particular requirements of the school child was important and necessary. He said that all questions which pertained to this subject deserved careful consideration before any drastic action was taken.

Help the Mother Nurse Her Child. A Plea to Physicians Not to Begin Artificial Feeding Without First Trying to Help the Mother Maintain Her Milk Supply.—Dr. Maurice Ostheimer of Philadelphia read this paper and drew the following conclusions: 1. The fact that all women were able to nurse their children appeared to be forgotten recently since artificial feeding had proved so successful. 2. Physicians were advised to prepare, encourage, and aid every pregnant woman to nurse her child. 3. During pregnancy it was necessary that attention be paid to breasts, exercise, fresh air, sleep, regular bowel movements, correct food, and plenty of water. 4. After confinement the mother was instructed to take two or three quarts of water daily, cornmeal and gruel between meals, and perhaps milk, cocoa, iron, and brown stout. 5. When this was correctly carried out the mother was enabled to nurse her child to nine or ten months, at the end of which time diluted cow's milk was given from a cup. 6. By this method no bottles or nipples were required. 7. The treatment was only contraindicated in advanced tuberculosis in the mother and in those nervous women who continued to grow stout on it without improvement of their breast milk supply.

Dr. H. M. McClanahan of Omaha said that careless physicians were partly responsible for the wholesale weaning that now existed. Many mothers weaned their children in the first two weeks of life because the child cried a great deal, and therefore believed that the breast milk was insufficient for the needs of the infant. He believed in mixed feeding, and supplemented the breast feedings by one or two bottles of modified milk mixtures daily in those cases where the supply of breast milk was found inadequate for the child's nourishment. He condemned the practice of weaning for trivial causes, and said that nothing but serious organic disease in the mother exempted her from nursing her offspring.

Dr. J. P. Sedgwick of Minneapolis said that there was no need for so much weaning, inasmuch as the majority of mothers had breast milk. He agreed that in some instances physicians were responsible for this evil, and believed that the subject of maternal nursing deserved more consideration.

Dr. L. A. Bulkley of New York advocated more maternal nursing, and dwelt upon the importance of caring for the mother before the birth of her child. In his opinion brown stout was not good for the nursing mother, as in many cases it disturbed digestion. He advised the employment of milk which was diluted one-third with boiling water. He administered one glassful of such milk three times daily, one hour before meals, and found that it improved the appetite and increased the supply of milk in the breasts.

Dr. A. F. Fur of Cleveland said that babies were fed at too frequent intervals. He believed in feeding infants four ounces of milk mixture every four hours.

Dr. J. W. Van Derslice of Chicago did not approve of

long distance feeding. The average baby's stomach had a capacity of two ounces, and four ounce mixtures were therefore contraindicated. He said that in many cases obstetricians were responsible for the early weaning of infants, as they usually had charge of the child during the first two or three weeks of life.

Dr. Charles Douglas of Detroit said that a careful consideration of the child's age and digestive powers was necessary before any milk mixture was advised.

Dr. John Lovett Morse of Boston said that the proper place for a discussion of this subject was before the Obstetric Society, since the obstetrician usually had charge of the child during the first few weeks of life.

Dr. F. P. Gengenbach of Denver said that he was a firm believer in breast feeding because it increased the child's resistance powers. In place of bottle feeding he advocated wet-nursing, and deplored the fact that the number of wet-nurses was so small.

Dr. Thomas S. Southworth of New York said that milk as a milkmaker stood first in the nursing mother's dietary. He believed that supplementary feedings improved the supply of breast milk.

Dr. Maurice Ostheimer of Philadelphia closed the discussion, and said that in his experience large quantities of milk in the dietary of the nursing mother had not proved satisfactory.

Opacities of the Cornea: Their Frequency in Children from Preventable Causes and Their Effect on Vision.—Dr. C. W. Cutler of New York presented this communication. His conclusions were as follows: 1. A knowledge of the structure of the cornea and familiarity with the methods of examination was important. 2. Early recognition of lesions of the cornea was important, so as to prevent blindness. 3. Externally, the causes of opacity of the cornea were traumatism, gonorrhea, and trachoma, and, internally, tuberculosis and syphilis. 4. Phlyctenules were sure signs of latent tuberculosis in the patient. 5. In the treatment of ophthalmia neonatorum Crede's method was preferred. 6. Mothers were permitted to nurse infants afflicted with ophthalmia neonatorum, provided great care was exercised.

Suppurative Conditions in Joint Regions in Infants.—Dr. Linnæus E. La Fétra of New York read this paper. He said that young infants were susceptible to joint infections, and that in children over five years suppurative conditions were more commonly found. Infection in these cases was due to the streptococcus, staphylococcus, gonococcus, pneumococcus, typhoid bacillus, osteomyelitis, epiphysitis, deep cellulitis, and perinephritic abscesses. He believed that rheumatism occurred rarely in very young infants, and that gonorrheal arthritis was more frequently seen in male children. Cases of scurvy in children sometimes stimulated joint affections, and were differentiated by a careful examination of the gums and a history of the course of the disease. The diagnosis between tuberculous and rheumatic affections was made by exclusion. The treatment depended largely on the cause of the infection, but in general it consisted of immobilization of the joint with the application of compresses of equal parts of alcohol and alum acetate. If these procedures were not effective, surgical measures were advised.

Dr. Charles N. Dowd of New York said the subject of suppurative conditions of the joints in infants deserved more attention on the part of the profession. He stated that in some instances a correct diagnosis of the particular type of infection was made with great difficulty.

Exhibition of a Patient with Achondroplasia, with Notes on the Disease.—Drs. M. H. Fussell, R. S. McCombs, and G. L. De Schweinitz of Philadelphia presented this patient, and the notes on the disease were read by Dr. Fussell. He said that achondroplasia affected only the bones that were laid in cartilage. These cases were all dwarfs, and the patient exhibited, although 16 years of age, was but 35 inches in height. Pathologically, this disease was at first confounded with rickets; however, the *x*-ray now made it possible to differentiate between the two conditions. Achondroplasia was characterized by a recession of the bones of the nose, a large vault as compared to the base of the skull, marked bowing of the legs, dwarfism, enlargement of the ends of the bones, and fingers all of the same length. The case exhibited was a boy who, in addition to his achondroplastic condition, was also suffering from congenital syphilis, and this was the only case on record where a combination of these two diseases existed in the same individual.

Syphilitic Pseudoparalysis.—Dr. L. T. Royster of Norfolk read this paper and defined syphilitic pseudoparalysis as a manifestation of inherited syphilis exhibited by failure on the part of the infant to move one or more of its extremities. The ends of the long bones were enlarged and the bones usually affected were the ulna, radius, humerus, and tibia, and in areas affected, in some cases, pus was formed. The diagnosis of this condition was plain in the presence of a syphilitic history, but at times it was found necessary to distinguish between pseudoparalysis, scurvy, birth palsies, fractures, and dislocations. The treatment was antisyphilitic, and in cases where pus had formed surgical measures were employed.

Vaccine and Serum Therapy in Diseases of Children.—Dr. Charles Gilmore Kerley of New York read this paper and drew the following conclusions: 1. The object of this treatment was to produce immunity. 2. The treatment was most satisfactory in staphylococcic infections. 3. Streptococcic cases did not show favorable results under this treatment. 4. The dose for a child under three years was from seven to twenty millions of dead cocci, and it was repeated every sixth day. 5. Cases of furunculosis showed marked improvement under treatment of staphylococcic vaccine. 6. Cases of gonorrheal vaginitis showed no favorable results when injected with dead gonococci. 7. Cases of pneumonia had not shown any improvement when treated with pneumococcic serum. 8. Local tuberculous lesions were treated with injections of tuberculin with doubtful results. The dose employed was 1/5000 milligram, and it was given every second day.

The Antibodies in Tuberculosis: Their Relation to Tuberculin Inoculation and Vaccination.—Dr. William J. Butler of Chicago read this paper. He said that the object of these experiments was to produce antibodies in the blood stream, and that all the cases employed in these experiments were suffering from tuberculosis. The subject was still in the process of evolution, but thus far no antitoxin effect had been observed from the injection of tuberculin.

Persistent Thoracic Sinus Following Empyema.—Dr. Charles N. Dowd of New York presented this paper, which was based upon a study of fifteen cases. He concluded as follows: 1. Persistent thoracic sinuses were cured by decortication of the lung and partial resection of the chest wall in 80 to 90 per cent. of the cases. 2. After the operation patients showed no lateral curvature of the spine. 3. The lung capacity remained much diminished. 4. The patients had good health and were not materially inconvenienced. 5. The mortality was probably more than 5 per cent. and less than 10 per cent. 6. The after treatment consisted of pulmonary gymnastics.

Dr. F. G. Beck of Chicago said that he operated only as a last resort. He thought 80 per cent. of the cases were cured by the injection of bismuth-vaselin paste.

Dr. Charles Gilmore Kerley of New York inquired as to the efficiency of Bier's hyperemic method in the treatment of these cases. He believed in employing pulmonary gymnastics, and asked if vaccine therapy had been productive of good results in this class of cases.

Dr. A. Jacobi of New York said that he had had good results from the use of bismuth-vaselin paste in the treatment of fistulæ. He had used a solution of iodine in many cases, but the results were not favorable.

Dr. Charles N. Dowd of New York closed the discussion. He said that bismuth-vaselin paste gave satisfactory results in some cases. He believed that all cases of empyema demanded early operation. Bier's method was not satisfactory in his hands. The treatment here was a mechanical problem, not a question of bacteria, and he therefore thought that vaccine therapy was out of place as a remedy for these conditions. The average duration of the cases reported was fifteen months.

The Treatment of Diabetes Mellitus.—Dr. Julius Rudisch of New York read this paper, and summarized as follows: 1. Contrary to accepted theories, a strict protein diet maintained over a long period was not only beneficial as to sugar excretion, but there was an improvement of the general nutrition, with an increase in body weight. 2. The presence of acetone, diacetic, and β-oxybutyric acids in the urine was no contraindication to a strict protein diet with the exclusion of fats. 3. In some cases of emaciation vegetable fats were substituted for animal fats with great advantage. 4. In nonemaciated subjects the administration of fats was unessential and occasionally detrimental. 5. Medicinally, atropin sulphate, of which large doses had been borne, not only had an undoubted influence on the excretion of sugar, but also had increased the tolerance for carbohydrates. Bicarbonate of soda was also used with beneficial results.

Dr. A. Jacobi of New York said that sixty years ago diabetes was a rare disease. He had seen but fifteen cases of diabetes in children, and the result was fatal in every case. He believed heredity played an important part in the etiology of diabetes in children. He thought that many cases of transitory glycosuria existed. In the treatment he had employed arsenic in slowly increasing doses, and he had also resorted to the use of atropine and codeine. In feeding these cases he believed that fat was digested only in certain quantities, and that in some instances it produced irritation of the kidneys. He very frequently employed olive oil in the treatment of diabetes, and he claimed that it always produced excellent results.

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

Wednesday, June 9—Second Day.

The Remote Results of Conservative Surgery of the Ovaries.—Dr. J. O. Polak of Brooklyn gave a study of the results of three hundred operations, with resection of one or both ovaries, and forty-one secondary operations for recurrent disease. The object of conservative surgery had been to preserve ovulation and possible pregnancy, the internal secretion of the ovary, and to avoid an operative menopause. Pregnancy had followed the conservative operation in 10 per cent. of the cases. In one case in which, at the age of eighteen, he had removed one ovary and resected a monocyst from the other ovary, there had followed five pregnancies with three living children. The postponing of the menopause was in itself sufficient ground to do conservative surgery if possible. The results of the resection of the ovary were at times shown in premenstrual pain and in some cases enlargement of the ovary. If the ovary was carefully sutured so as to cause coaptation but no pressure, and attached high in the pelvis, so as to remain free from peritoneal adhesions, it was frequently possible to avoid some of the early postoperative swelling and pain in the ovary. Ablation of the tubes and ovaries tended to displace the uterus. Retention cysts of the ovaries when punctured were usually cured without further trouble. Microcystic ovaries, when resected, usually caused further trouble and needed secondary operation; monocysts could usually be removed and no further trouble in the ovary need be anticipated. Of six dermoid cysts in which the ovary was resected, only one required further operation. Papilloma of the ovary recurred.

Dr. J. G. Clark of Philadelphia said that in the cases of artificial menopause the postoperative state was worse than the preoperative. In inflammatory cases, if it was necessary to operate in the acute stage, radical removal was necessary, but it was much more satisfactory to wait for the acute conditions to subside and leave a small residuum of disease, after the method of Senger, and then remove that small residuum and preserve the portions of the ovaries, menstruation, and leave at least a hope in the patient's mind that a pregnancy might follow.

Dr. Howard Kelly of Baltimore said that the conception of conservatism changed as time advanced. Formerly it was considered conservative to save one ovary; now he punctured ovarian cysts, leaving behind parts of both ovaries, and even such marked conservatism was not, as a rule, considered important enough to be mentioned in the case histories. There were several factors that had to be considered in the question of conservatism. One was the age of the patient. He did differently in girls from what he did in old women. Another factor was the occupation of the woman. In the working woman who wanted to take no chances of recurrence of her condition he did radical work, whereas in the woman who did not have to work for a living, and who was willing to take the responsibility of return of the disease and come back for another operation if necessary, he did conservative work, and made the woman report frequently for examination and observation. In the cases of Graffian follicle cyst and corpus luteum cyst he did resection of the ovary. If the hematoma left only a shell of ovarian tissue he took out the whole ovary. In malignancy he took out the diseased ovary, and if there was any suspicion of the other ovary he took that out also. In the dermoid cysts he saved what he could. In pelvic inflammation he saved the ovary, at times supporting it free from the pelvic floor.

Dr. Albert Goldspohn of Chicago said that he had been among the first to do conservative surgery in the West. Some men objected on purely empirical grounds; with them he had no patience. Other doctors objected to conservatism on clinical grounds, and them he respected. The resection of some ovaries not only did not cause any bad symptoms, but might save trouble to the patient. He thought the consistency of the ovary very important—more important than the size in determining its future value to the patient. The point most to be considered in leaving in the ovary was whether or not it would discharge more ova, and, if so, whether that would cause pain and inflammation. If the follicles were deeply situated beneath a fibrous covering, or if there were cicatrices in the ovary which made it probable that the nerve fibers were involved in the scars, then the ovary should be removed. He did not think that operations should be done in the presence of acute inflammation in the pelvis, and for that reason would have the gynecologist treat appendicitis in the female.

Dr. R. B. Hall of Cincinnati had resected monocysts, and in cases of multicysts removed the whole ovary, and possibly the second ovary also; yet he thought it desirable to preserve menstruation, if possible, in every woman under thirty.

Dr. C. E. Frederick of Buffalo had tried to save the ovary and preserve the tone of the nerves. But he was becoming more radical in the cases where the disease was primarily of the ovary. If the pelvic disease was primarily of the tube and the ovary implicated secondarily, he might leave the ovary even though it looked pretty ragged. He considered that if the disease had started in the ovary, and the ovary was resected that the same causes that started the

disease in that ovary in the first place might reproduce it again in the part that was left. He cited one case in which there had been a monocyst in one ovary and a multicyst in the other. He had removed the multicyst ovary in toto and had resected the monocystic ovary. Ten years later the patient came back with an inoperable cancer of the part of the ovary that he had left in.

Dr. H. O. Panzer of Indianapolis reported the case of a woman of twenty-seven years, in whom he had done an ablation of all the pelvic organs. This was followed by senile atrophy of all the organs of the body. He admitted that this was an extreme case, but still taught the value of conservatism.

Dr. Philander Harris of Paterson, N. J., called attention to the entirely different anatomy of the tube and ovary and therefore the improbability that the ovary was more than accidentally involved in the tubal disease. Therefore he saved the ovaries whenever possible, and not more than 3 per cent. of his operative cases had an artificial menopause. Not more than 1 per cent. of his cases had trouble from the fragments of ovary that he left in, and most of those troubles were abscess, that could be easily drained.

An Ovarian Abscess Containing a Lumbricoid Worm.—Dr. Henry D. Fry of Washington, D. C., described this case, which occurred in a colored woman, who gave no history of nausea, vomiting, or lack of appetite before admission to the hospital. On admission she had a temperature of 103° and a pulse of 132. There was a mass in her left side. After admission she vomited a lumbricoid worm, and examination of the stool showed that she passed eggs of the same worm. After the acute symptoms had subsided she was operated on, and the mass in the left side was found to be an abscess of the ovary. There were no adhesions to the intestines. The walls were thick everywhere except at one point, and there they were smooth and nonadherent. It is well known that the lumbricoid worms enter through the drinking water, travel over all mucous membrane surfaces communicating with the alimentary canal, and penetrate lumbar, psoas, and abscesses. The female genital tract is also frequently involved, and the worms passed with the urine. Entrance may be gained by fistulous tracts to the intestine, or by passing over the perineum. A case of a lumbricoid worm in an ovarian abscess had been reported in which the worms were alive, but there were adhesions to the intestines. In this case the worm was dead, flattened, six or seven centimeters long. It was identified by the pathologist. The author thought that in this case the worm had passed externally over the perineum into the vagina and then through the uterus and tube to the Graafian follicle.

The Present Status of Irrigation and Drainage in Obstetrical and Gynecological Operations.—Dr. Horace G. Wetherill of Denver said that the older methods of irrigation and drainage were being simplified. The powerful antiseptic drugs had been shown to be inefficient and possibly harmful, either by their own toxicity or by the mechanical diffusion of the infection. Irrigation was still considered good for certain mechanical effects, but should be used with the minimum efficient force, and never used if it was possible to avoid it. When irrigation was used it should be to wash out débris. Drainage had also been simplified. The old glass tubes were rarely used. And gauze was used only to wall off infection or to control hemorrhage or to prevent leakage from hollow viscera. Drainage was still considered useful after rupture of a localized abscess or after the pouring out of food, pus, or urine into the abdominal cavity. Irrigation might do good in the abdomen in extrauterine hemorrhage by washing out the blood clots and its remnants being absorbed to add to the body fluid. An old tubal abscess might be turned out into the abdomen without bad effect if it were merely mopped out. Similarly, an appendiceal abscess locally ruptured and mopped clean produced no bad effects. The peritoneum was able to take care of moderate quantity of pus, but the tissues of the abdominal wall might need drainage, as they were not so well prepared to cope with infectious material. Abdominal drainage whenever needed was to be down hill through the vaginal vault. Intrauterine irrigation was still abused. Its routine use after uncomplicated labor was bad. Physicians and obstetricians in particular were very reluctant to accept the proofs from the experience of others. Intrauterine drainage at times was needed. A gauze wick was inefficient for all except thin discharges. The drainage should be free and capable of carrying off thick fluids. The author demonstrated a drain made from ordinary rubber tubing that he had found most useful. The intrauterine douches were liable to cause a reinfection of the uterus if they were frequently repeated, just as was seen after the frequent catheterization of the bladder. For irrigation of the uterus he inserted his double tube drain made from plain rubber tubing, and irrigated with 33 per cent. alcohol, permanganate, boric acid, tincture of iodine, salt solution, or sterile water. With his tube inserted at the time of starting treatment the intrauterine irrigation could be carried on with the patient asleep.

Dr. W. W. Golden of Elkins, W. Va., said that he had used irrigations of dilute solutions of iodine with great benefit in some uterine cases, where proper aseptic precautions had not been possible.

Dr. H. D. Fry of Washington, D. C., protested against the use of intrauterine douches in normal labor cases. They increased both morbidity and mortality. In the sapremic cases they might be allowable, and in the cases of infection with *Bacillus coli*. In the streptococcic infections irrigations only did harm. He said that in one set of cases he knew of no efficient drain. These were the cases of vaginal operation for extrauterine pregnancy. The cases where this operation was indicated were limited, but almost always after drainage the patient developed fever, which she should not do if the drainage was efficient.

Dr. Ill of Newark said that he did not think any rubber tube would keep the inner surfaces of the uterus sufficiently apart so that drainage would be efficient. Hence he packed the sides of the uterus with gauze and then put Dr. Wetherill's rubber tube drain into the center of the cavity and irrigated with 25 per cent. alcohol. If this was instituted within two days of the onset of uterine sepsis he saved most of the cases. The gauze and tubes could be removed after five or six days and would be found as clean as on insertion.

Dr. Jack of Genesee, N. Y., believed in the treatment described by Dr. Wetherill. In some cases the apparently moribund patients got well. He thought that the alcohol injections gave constitutional stimulation as well as local disinfection.

Dr. Wetherill, in closing, said that in the vaginal operations for ruptured ectopic pregnancy gauze was more effective than a rubber tube, but here it acted as a tampon rather than as a drain. In the case where the gauze drain or tampon was not satisfactory he did an abdominal operation. In place of Dr. Ill's gauze packing of the uterus in addition to the tube, Dr. Wetherill used half-inch thick walled rubber tubing, which was most efficient.

Fibromata of the Uterus.—Dr. Eliot McDonald of New York had studied 700 cases statistically and pathologically in relation to cancer, degeneration, and complications. Five per cent. of the cases showed malignant changes. Of these adenocarcinoma was present in 2.9 per cent.; squamous celled epithelioma of the cervix in 0.8 per cent.; sarcoma in 1 per cent., and chorioepithelioma. Special stress was laid on the ratio of adenocarcinoma being three times that of cervix cancer, which is just the reverse of the condition in the nonfibroid uterus, showing the unusually great tendency of adenocarcinoma formation in the fibroid

cases. There was an increasing risk to life as the age of the woman increased from the increasing prevalence of malignancy. In view of the sarcomatous changes, carcinomatous associations, and complications of the tumors, early removal was indicated when they were of sufficient size to produce symptoms. The menopause, as shown by the relation of the age of the patient to the complications and degenerations, instead of bringing a cure to the fibroid, was but a precursor of more dangerous complications. Thorough pathologic examination should be made of all excised fibroids for evidence of malignancy.

Enucleation of Uterine Myomata; Why and When Performed.—Dr. E. E. Montgomery of Philadelphia uttered a plea for myomectomy in place of hysterectomy under appropriate conditions. If the uterus were removed the effect of the premature establishment of the menopause could not be predicted. If enucleation was done and was not effectual in relieving abnormal symptoms, or preventing the recurrence of growths, it was always possible to remove the pelvic structures at a subsequent operation. Enucleation should be done by the vaginal route if the tumors were accessible that way and there was no excessive bleeding. The author had operated on five cases during pregnancy without interference with the course of the pregnancy. In one case he had done a myomectomy the suture material in the fundus of the uterus had sloughed off with a part of the fundus. Later the woman had a child without trouble, but during a second pregnancy the uterus had ruptured and the woman died. Removal of myomatous growths by enucleation should be considered when the tumors were few and the uterine structure little involved, when the growths were readily accessible, when the woman was under forty and childless, or with only one or two children, and when the tubes and ovaries were free from complicating conditions. Enucleation should not be considered when the woman was over forty years of age, when the uterus was so spread out by the disease that reconstruction of a functionating uterus would not be feasible, or when the tumors were so distributed that in the necessary suturing the circulation of the uterus would be interfered with.

Dr. Herman J. Boldt of New York endorsed the limited indications for myomectomy. He considered the figures given by McDonald of tubal complication of fibroids as very low. In his own cases they had occurred in over 40 per cent. of the cases, against McDonald's 27 per cent. Malignant changes or suspicion thereof in women over forty were indications for panhysterectomy. Appendicitis had been found in the vast majority of cases when they had been removed and examined.

Dr. G. Betton Massey of Philadelphia approved of Dr. McDonald's exhibitions, but not of his conclusions. He did not think that calcareous degeneration of a fibroid added to its danger, but rather was a sign of physiological absorption, and not an indication for operation. He considered that the differential diagnosis between degenerations and neoplasm was very much needed.

Dr. Howard Kelly of Baltimore said that he had studied some 1,600 cases of fibroids with Dr. Cullen, and in about 2 per cent. there were changes of a sarcomatous nature. He therefore thought that all such cases should be studied carefully microscopically after operation, and the operation revised later if necessary. He thought that myomectomy was the operation par excellence, if feasible, in the cases of fibroids. But it had a greater danger than hysterectomy on account of infection, but more especially from hemorrhage. In the operation he preferred to bisect the uterus, enucleate the masses, clamping and tying the pedicle, and suturing with a tight lockstitch to prevent any hemorrhage. He closed the wound, leaving in a very small telltale cigarette drain, which would indicate the presence of hemorrhage. This drain was removed on the third day.

Dr. Chase of Brooklyn would have the general practitioner educate himself in the pathology of the changes that proceeded in the later stages of fibroids.

Dr. Tracy of Philadelphia said that the increasing dangers of degeneration as the woman got older was certainly an argument in favor of removal of all fibroids except the small ones in young women that gave no symptoms. He considered the diseased ovaries and tubes in a large proportion of the cases simply an associated process, not a factor, in the fibroma causation. He thought the fibromata often merely a part of the general arteriosclerotic process.

Dr. Ill of Newark did not believe in the indiscriminate removal of all fibroids. Statistics taken from general hospital autopsies showed the presence of fibroids in a large percentage of all women, so that hundreds of thousands of women in the vicinity of Philadelphia, for instance, must have fibroids, and if 5 per cent. of these were undergoing malignant degeneration there must be thousands of women dying of such conditions annually, which surely is not the true proportion, so that the statistics of Dr. McDonald needed careful interpretation.

Dr. C. C. Frederick of Buffalo said that the cases should be operated on when they gave symptoms. Of those that refused operation, many died of degeneration of the fibroid. He preferred myomectomy whenever it was applicable. To lessen the hemorrhage he usually tied off one ovarian and the uterine artery on the opposite side, in addition to the myomectomy.

Dr. Lawrence of Columbus thought that this section of the American Medical Association should not allow the teaching to go out that any form of neoplasm could be negligently left in the body without provision for the future. There were certain general symptoms, such as neurasthenia, toxemia, and so on, which were at times due to fibroids without any localizing symptoms. If fibroids were treated early, more myomectomies would be possible, in place of hysterectomy. He thought that every fibroid when found should be removed.

Dr. Montgomery appreciated the pathological histories of Dr. McDonald, but in spite of that would not have every fibroid removed, though he would have those cases that were not operated on watched very carefully. The mortality from operation was, of course, not from the easy case of early fibroid, but from the old complicated cases, and therefore the early operation should be preferred and the watching not prolonged until too late.

Dr. McDonald did not wish to convey the idea that adenocarcinoma was a direct degeneration of the fibroid, but that it was of much more frequent occurrence in cases with fibroids than in those without. Calcareous degeneration, while in itself not serious, was almost characteristic of dead tissue, which was dangerous. When a fibroid took on new and rapid growth the probability of its being sarcomatous was very great and the need for operation very urgent. In women between forty and fifty with fibroids 8 per cent. had malignant degeneration; between fifty and sixty, 13 per cent., and between sixty and seventy, 25 per cent. were undergoing malignant changes. If the cases were diagnosed and then neglected, the physician was responsible for the final results. If this work in his hands had come to have any value the thanks were due to the inspiration and work of his former teacher, Dr. Charles P. Noble.

Ovariotomy and Myomectomy Early in Pregnancy, with Full Term Delivery.—Dr. H. Grad of New York City took up the question of sterility and fibroids. Fibroids might tend to produce sterility, but when pregnancy occured in a uterus containing fibroids the growth of the fibroid was liable to increase. He cited one case of fibroid occurring in a woman who had never menstruated, and another of a woman who had one child in a fibroid uterus, and

then, after a period of thirteen years, there came four months of amenorrhea, followed by a bloody discharge for six weeks and then a miscarriage. Instead of the fibroid subsequently undergoing involution with the uterus, it kept on bleeding and a panhysterectomy had to be done. In this case a dormant tumor had been started up by pregnancy. Fibroids might interfere with conception by mechanical hindrance of the entrance of the semen or by the chronic congestion of the uterine mucosa preventing the lodgment of the ovum. Operations for fibroids causing symptoms should be undertaken during the pregnancy if the fibroid was pedunculated, or if it was liable to obstruct the birth canal, but a certain number of fibroids that were implanted low in the uterus or cervix could be lifted out of the pelvis. In interstitial fibroids with marked symptoms operation might be indicated during pregnancy.

Dr. Howard Kelly of Baltimore said that there was a growing tendency to noninterference in fibroids during pregnancy unless they were producing symptoms if the fibroid was in the fundus of the uterus. In the lower portions of the uterus attempt should be made to push the fibroid up out of the pelvis; with a fibroid in the cervix it was usually best not to wait for a normal delivery, but to do a Cesarian section at term, yet even in these cases it is possible at times for the uterus to be emptied without operation. He had had one case come to him just after labor in which there was a cervical fibroid so large and hard that he would have said positively that a normal labor was unquestionably impossible.

Dr. Henry Fry of Washington, D. C., believed in waiting for labor if possible, but after labor the puerperium should be watched most carefully. In one of his cases after labor the fibroid had necrosed, and the woman suddenly developed symptoms of collapse, and never again could be gotten into condition good enough to allow of operation.

Dr. A. E. Benjamin of Minneapolis considered central necrosis of the fibroid during pregnancy or immediately thereafter so liable to happen, and the danger of absorption from operation so small when carefully done, that he considered operation during pregnancy preferable to waiting in the appropriate cases.

Dr Carstens of Detroit thought the mortality of operations during pregnancy not greater than in women not pregnant, so that he would operate during pregnancy

Dr Grad of New York, in closing, said that he did myomectomies during pregnancy in those cases also where there were painful contraction not due to the uterine contents.

Curettage for Uterine Hemorrhage.—Dr Howard Kelly of Baltimore considered the cases of metrorrhagia (occurring especially at the two ends of the woman's normal menstrual life) in which the bleeding was persistent and profuse, often cutting the hemoglobin contents of the blood down below 50 per cent., and in which there was no evident adnexal disease or physical evidence, clinically, of change in the uterus further than enlargement of the organ. He recognized that the bleeding might be due to changes in the endometrium, in the myometrium, in the blood vessels of the uterus, or in the condition of the blood, but thought the curettage applicable to those cases in which the changes were in the endometrium. The curettage had to be repeated frequently at first, just before the expected menstrual flow, but if the hemorrhages continued then he curetted every time the flow came on and began to be excessive on the second day of menstruation if the flow on the first day was excessive. He cited one case in a woman of forty-eight years, on whom he had done a curettage before menses three times, and then over and over again during the menstrual flow every time she bled for two years. The patient had now been free from hemorrhage for over a year, and hysterectomy had been avoided. He cited another case of a girl with hemorrhages, apparently from a hypertrophic endometrium, who was well after six or eight curettages in one year. He would continue the treatment as long as the woman did not show signs of getting worse.

Dr. G. Betton Massey of Philadelphia treated such cases by electrochemical curettage. He coated the copper anode with mercury and inserted it inside the uterine cavity and then turned on 100 to 200 milliamperes of current. This controlled the bleeding in ten seconds, coating the endometrium with a copper mercury amalgum. He did not think a sharp instrument safe. The electrochemical treatment had the same effect as Dr. Kelly's treatment, and saved the blood loss. This treatment needed repetition once a month between periods for about a year. Such conditions in the old woman aroused suspicions of cancer, and in the girl of fibroid.

Dr. Hermann J. Boldt of New York thought that the cases were so suspicious of grave trouble that he treated most of them by hysterectomy, but when sure that no cancer was present after a curettage he made intrauterine applications on gauze, or, better, injected pure phenol with a syringe into the uterine cavity. The gauze strip he inserted with the tip of the intrauterine syringe and left it in place for an hour. Then he removed it. He placed a cotton tampon in the vagina to catch any excess of phenol. This treatment must not be used if other complications were present. He had never seen necrosis, though he had seen one or two cases of subsequent amenorrhea from excessive effect. It was always a cure.

Dr. Carstens of Detroit was always suspicious of malignancy. He called attention to the very marked recuperative powers of the endometrium, and had seen the condition recurrent after applications of phenol on a cotton swab. In girls he now uses pure nitric acid and does not get recurrences.

Dr. Henry D. Fry of Washington said that such frequent repetitions of a curettage would not be allowed by many of his patients. He thought the best time for the curettage just after the flow. The general prejudice against operations during the menstrual flow was gradually being overcome, but curettage would probably be the last operation to get beyond this prejudice. The advantages of repeated curettage were not evident unless there was some distinct disease of the endometrium. In many of these cases arteriosclerosis in the uterus was probably the basis of the trouble. He believed in the introduction of phenol as excellent, but used it through an intrauterine speculum. He had found a boroglyceride tampon in the vagina for two weeks before the flow a great aid. He thought the frequent repetition of the curettage would bring it into disfavor not only in this condition, but in all others.

Dr Shoemaker of Philadelphia said that the cause of these hemorrhages was so likely to be malignant disease or fibroid that the greatest laboratory care must be exercised to exclude them. In one of his cases it was the twentieth slide examined that showed malignancy.

Dr W. S. Gardner of Baltimore called attention to the result of the studies of the endometrium as shown in the paper by Dr Novak and himself on this subject. Hypertrophic endometritis was present in many normal cases and simply represented a premenstrual endometrium found at an improper time. The cause of the bleeding in these cases was not in the endometrium, and perhaps not in the uterus, but in the conditions causing the congestion of the uterus, and that cause, not the endometrium, should be removed.

Dr Novak of Baltimore said that in metrorrhagia and in menorrhagia there was no marked variation in the endometrium from the normal, and the changes in the pathology were not primary in the endometrium, but elsewhere.

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